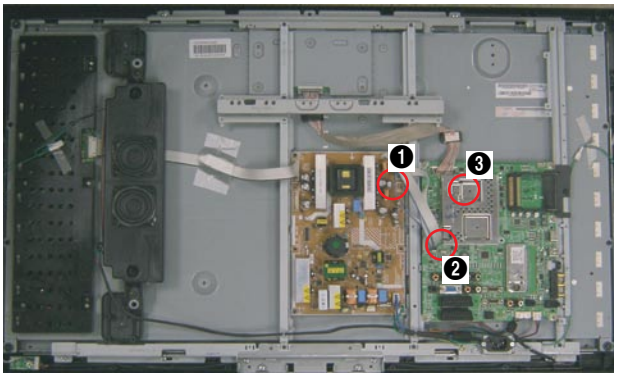
4. Troubleshooting

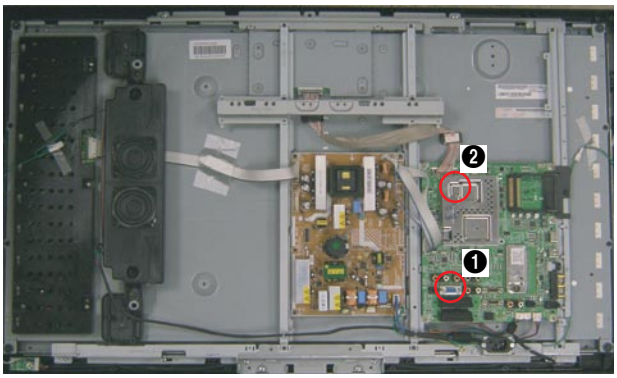
4-1. Troubleshooting

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 or loose cable connection.
   • 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 Power input to the FRC(Frame Rate Conversion) Board.
   Check internal pattern of FBE3 if there is some picture noise.
   FBE3: Factory mode(Info - Menu - Mute - Power on) → 4. Advanced Menu → Option Block → FBE3 → Patt-Sel → Press right button of Remocon.
   FBE3 NG: change the main board.

4-1-1. No Power

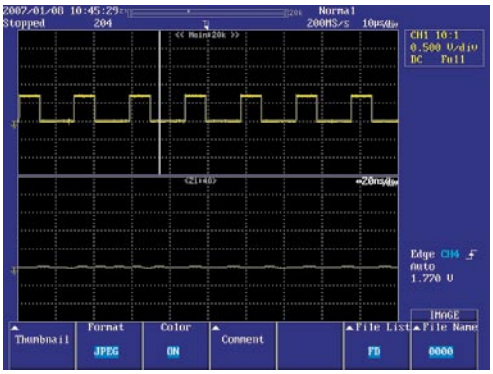
Symptom	– The LEDs on the front panel do not work when connecting the power cord. – The SMPS relay does not work when connecting the power cord. – The units appears to be dead.
Major checkpoints	The IP relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following: – Check the internal cable connection status inside the unit. – Check the fuses of each part. – Check the output voltage of SMPS. – Replace the Main Board.
Diagnostics	 LAMP off, power indicator LED red color? — No → Check a connection a power cable. Yes ❶ Does proper DC 13V appear at pin21,22 of CN801? — No → Change a Assy PCB Power. Yes ❷ Does proper DC A3.3V appear at C1131_NACH, C1132_NACH? — No → Check a IC1103_NACH. Change a main PCB ass'y Yes ❸ Does proper DC 5V, 3.3V, 1.25V(B1.2VD), 1.5V, 1.8V(MT_DDRV) appear at C1140, C1169, C1163, C1167, C1174? — No → Check a IC1108, IC1107, IC1109 Change a main PCB ass'y Yes A power is supplied to set? — No → Check a other function. (No picture part) Replace a lcd panel.
Caution	Make sure to disconnect the power before working on the IP board.

4-1-2. No Video (Analog PC signal)

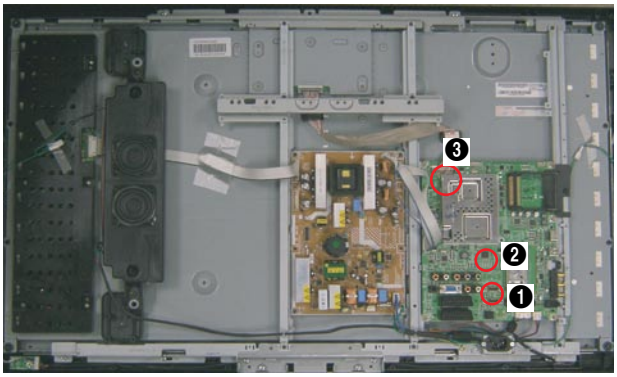
Symptom	– Audio is normal but no picture is displayed on the screen.
Major checkpoints	– Check the PC source – Check the SEMT01(MT8226) – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	 Power Indicator is off. Lamp on, no video. Yes Check a PC source and check the connection of DSUB cable? No → Input a analog PC signal and connected cable(DPMS). Yes ❶ Does the signal appear at C3131, C3133, C3136(R,G,B) No → PC cable. Change a PC cable. Change a main PCB ass'y. Yes ❷ Does the digital data appear at the output of LVDS (RA5104~RA5109)? No → Check a IC5105 Change a main PCB ass'y Yes Check a LVDS cable? Replace a lcd panel? No → Please, Contact Tech support.
Caution	Make sure to disconnect the power before working on the IP board.

WAVEFORMS

❶	R,G,B Output Signal

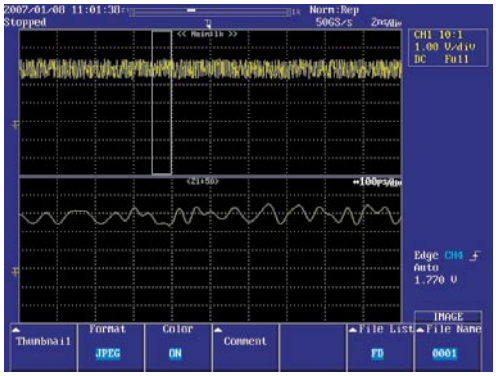


4-1-3. No Video (HDMI - Digital Signal)

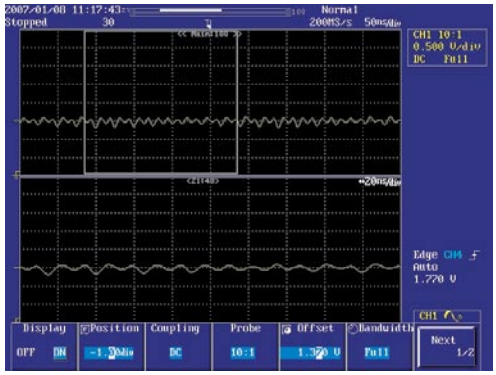
Symptom	– Audio is normal but no picture is displayed on the screen.
Major checkpoints	– Check the HDMI source – Check the SEMT01(MT8226) – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	 Power Indicator is off. Lamp on, no video. Yes ❶ Check the connection of HDMI cable? — No → Input a HDMI cable. Yes ❷ Does the digital data appear at Pin17,18,20,21,23,24 of IC3108? — No → Check a IC3108. Change a main PCB ass'y. Yes ❸ Does the digital data appear at output of LVDS (RA5104~RA5109)? — No → Check a IC5105. Change a main PCB ass'y. Yes Check the LVDS cable? Replace the LCD panel? — No → Please, Contact Tech support
Caution	Make sure to disconnect the power before working on the IP board.

WAVEFORMS

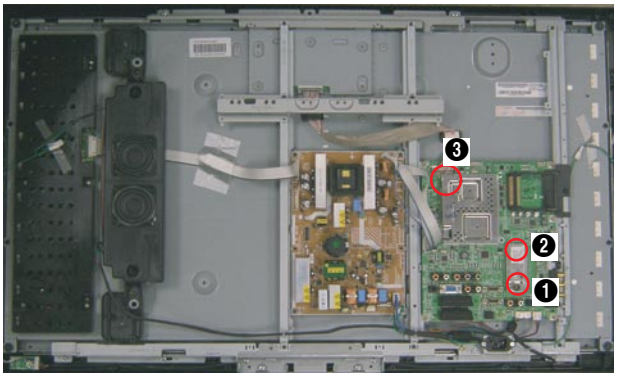
❷	**Digital Output Data**



❸	**Signal of HDMI(Data)**

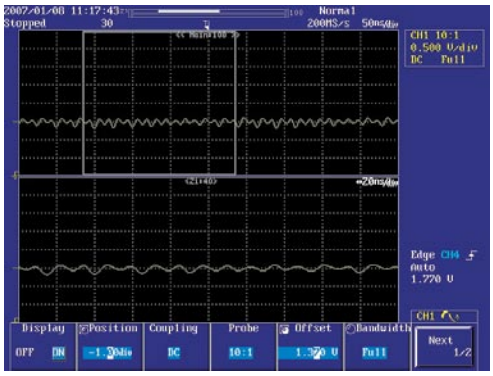


4-1-4. No Video (Tuner_CVBS)

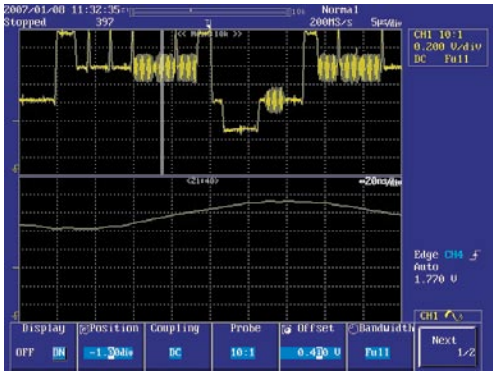
Symptom	– Audio is normal but no picture is displayed on the screen.
Major checkpoints	– Check the Tuner CVBS source – Check the SEMT01(MT8226) – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	 Power Indicator is off. Lamp on, no picure. → No → Connect the RF cable and check RF signal. Yes ❶ Does the signal appear at C1351? → No → Check a B+ voltage (#3 of Tuner) 5V, change a main PCB ass'y. Yes ❷ [4] Does the signal appear at pin 9 of TU3101? → No → Check a TU3101 Change a main PCB ass'y. Yes ❸ Does the digital data appear at the output of LVDS (RA5104~RA5109)? → No → Check a IC5105 Change a main PCB ass'y Yes Check the LVDS cable? Replace the LCD panel? → No → Please, Contact Tech support.
Caution	Make sure to disconnect the power before working on the IP board.

WAVEFORMS

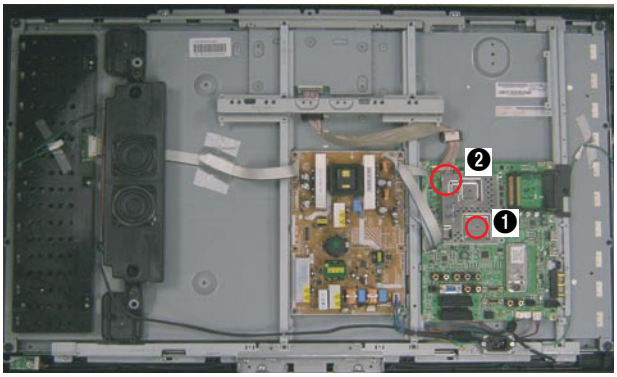
❸	CVBS Output Signal



❹	Tuner_CVBS Output Signal

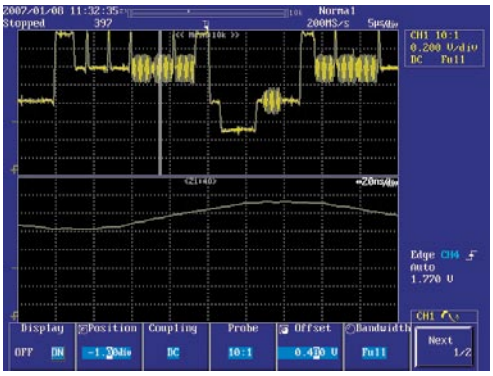


4-1-5. No Picture (Video_CVBS)

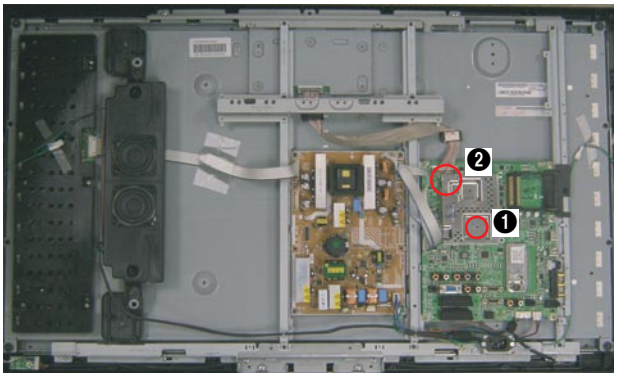
Symptom	– Audio is normal but no picture is displayed on the screen.
Major checkpoints	– Check the Video Source – Check the SEMT01(MT8226) – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	 Power Indicator is off. Lamp on, no picture. → No → Check a A/V cable and video signal. ↓ Yes ❶ Does the signal appear at C5106 of IC5105? → No → Check a connection harness. ↓ Yes ❷ Does the digital data appear at the output of LVDS (RA5104~RA5109)? → No → Check a IC5105 Change a main PCB ass'y ↓ Yes Check a LVDS cable? Replace lcd panel? → No → Please, Contact Tech support.
Caution	Make sure to disconnect the power before working on the IP board.

WAVEFORMS

❹	**CVBS Output Signal**

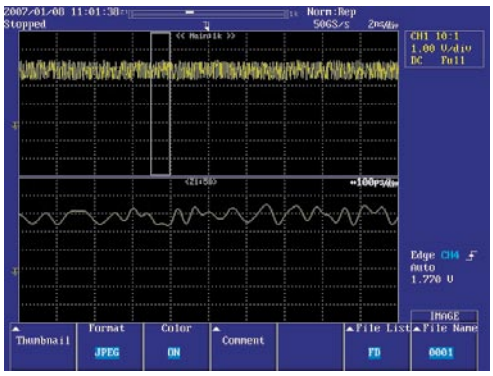


4-1-6. No Picture (S-VIDEO_Y,C)

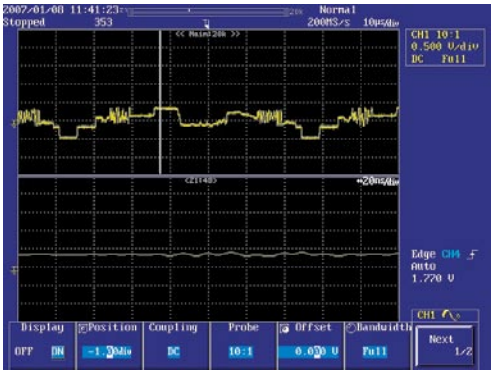
Symptom	– Audio is normal but no picture is displayed on the screen.
Major checkpoints	– Check the S-Video_Y,C source – Check the SEMT01(MT8226) – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	 Power Indicator is off. Lamp on, no picure. → No → Connect the s-video cable. Operating a video player. ↓ Yes ❶ Does the Y/C signal appear at C5104, C5105 of IC5105? → No → Check a connection harness. ↓ Yes ❷ Does the digital data appear at the output of LVDS (RA5104~RA5109)? → No → Check a IC5105 Change a main PCB ass'y ↓ Yes Check a LVDS cable? Replacea lcd panel? → No → Please, Contact Tech support.
Caution	Make sure to disconnect the power before working on the IP board.

WAVEFORMS

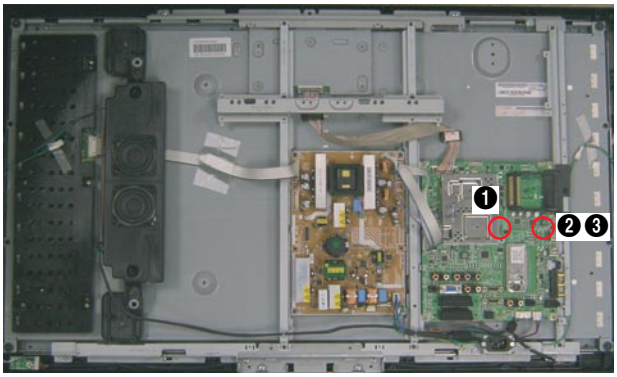
❷	**Digital Output Data**



❺	**Analog Signal(Y,C)**

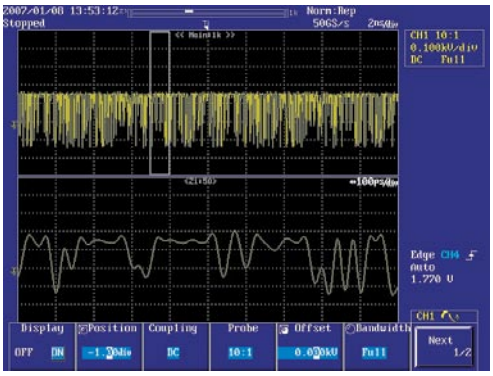


4-1-7. No Sound

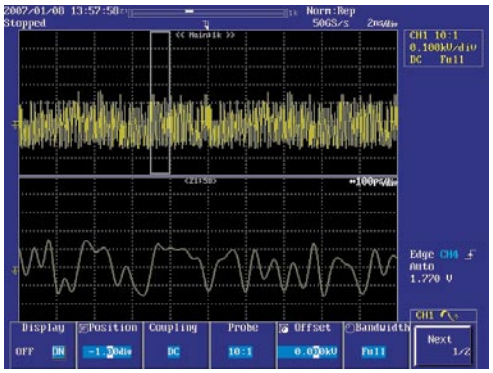
Symptom	– Audio is normal but no picture is displayed on the screen.
Major checkpoints	– Check the RF Source – Check the SEMT01(MT8226) – This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	
Caution	Make sure to disconnect the power before working on the IP board.

WAVEFORMS

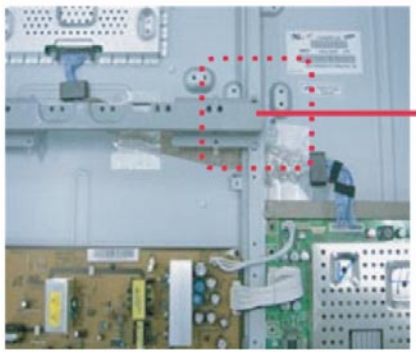
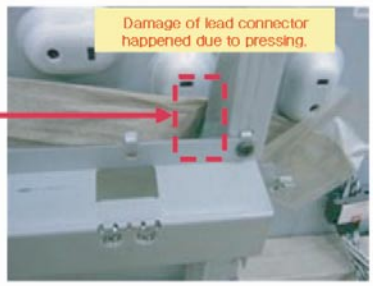
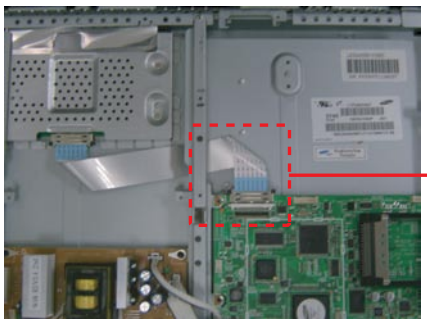
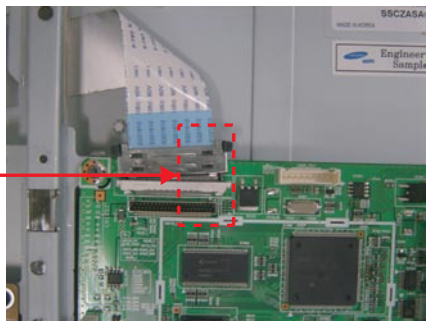
❻	The Signal are Inputed to IC2102



❼	The Signal are Inputed to IC2104



4-1-8. Defect Analysis ahead of models.

Defective image	Defective Symptoms
	No Picture and normal sound in case of defective a local dimming board or a defective connector
Another kind of defect	     LVDS Connector

4-2. Alignments and Adjustments

4-2-1. General Alignment Instuction

1. Usually, a color LCD-TV 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 transformer.

4-3. Factory Mode Adjustments

4-3-1 Entering Factory Mode

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

- If you do not have Factory remote - control

INFO → MENU → MUTE → Power on

- If you have Factory remote - control

PICTURE ON → DISPLAY → FACTORY

- 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)

4-3-2 Panel Check

You have to check Panel Maker Because of different adjustments as follows.
First of all, Check the label rating!

1) Label Rating File

- LCD PANEL MARK
  A:ACER(AUO),S : SEC,C : CMO

* If not printed you could consider S(sec) panel mark.

4-3-3 Factory Data

1. Option Table(Service)
2. WB Adjust
3. Information
   - CheckSum
   - T-PRLPEUMD-**** (Main Micom Ver.)
   - T-PERLDEUC-**** (DTV SW Ver.)
   - T-PRLPEUS-**** (Sub Micom Ver.)
   - Month/Day/Year
   - Hour/Min./Sec.
4. Advanced Menu

1. Option Table(Service)

Item	Range	L556 / L558 (iDTV) 32”/37”/40”/46”/52”
Factory Reset		
Country	Others-0, Others-1, Others-2, Others-3, Russia-4, Russia-5, Nordic-6, Nordic-7, Nordic-8, Nordic-9	Others-1
Ready	On/Off	Off
Panel Inch	19”, 22”, 23”, 26”, 32”, 37”, 40”, 46”, 52”, 57”, 27”, 42”, 50”	32”, 37”, 40”, 46”, 52”
Dimm Type	INT, INT_NEG, EXT_POS, EXT_NEG, EXT	32”, 37” : INT Other : EXT
Panel Type	32AM_AG50_72, 37AU_AG100_72, 40AM_AG50_72, 37AU_AG50_72, 40AU_AG50_72, 46AU_AG50_72, 46AM_AG50_72, 52AM_AG50_72, 40CM_AG50_72, 46CM_AG50_72, 32AM_SC50_72, 32AU_AG50_72, 40AM_SC100_72, 46AM_SC100_72, 46CM_SC100_72, 52AM_SC100_72	32AM_AG50_00 37AU_AG50_00 40CM_AG50_00 46AU_AG50_00 52AM_AG50_00
Model Option	Pearl, Amber	Pearl
Anynet +	On/Off	On
Light Effect	On/Off	Off
TTX	On/Off	On
TTX List	Flof/List	Flof
TTX Group	UserOSD, WestEurope,EastEurope, Russian, Greek, Turkey, Arab/Hbrw, Farsian, Arablic	UserOSD
Carrier Mute	On/Off	Off
High Devi	On/Off	Off
Volume Table	EU, Non EU	EU
Hot Plug	On/Off	On
Hot Plug Ctrl	On/Off	On
Hot Plug Delay	3~50	9
Auto Power	On/Off	On
LNA	On/Off	On
Hotel Option		
Hotel Mode	On/Off	Off
Power On Channel		1
Power On Band	STD	STD
Power On Volume	0~100	10
Max Volume	0~100	100
Local Key Lock	On/Off	Off
Power on Source	TV, Ext1, Ext2, AV, S-Video, Component, PC, HDMI1, HDMI2, HDMI3, HDMI4, IDTV	TV
Gamma	Off, 1.05, 0.98, 0.94, 0.92, 0.90, 0.85	Off
PC Ident	ON/OFF → Sony Note Book	On
Language	English, Germany, French, Italian, Spain, Netherlands, Portuguese, Greek, Czech, Serbian, Croatian, Romanian, Hungarian, Polish, Russian, Bulgarian, Turkish, Slovak, Swedish, Norwgian, Danish, Finnish	English
Ch Table	SUWON, SESK, SHE, TTSEC	SUWON
DDR	SAMSUNG, QIMONDA	SAMSUNG
Shop Mode	On/Off	Off
Nordic	On/Off	Off

Item	Range	L556 / L558 (iDTV)
		32”/37”/40”/46”/52”
NT Conversion	Name	
Control		
WM Calib		
EDID Protect		
EDID Type		
EDID Write		
WB Data Reset		
EEPROM Reset		
Logic Download		
Uart Select	MAIN, IDTV, PDP Lvds On	Off
Service Select	Normal, Debug/DL	Normal
PwrOn Update	On/Off	On
USB		
PDP Filter		-
PDP Group		-
Spread Spectrum		
Spread Spectrum	On/Off	Off
Step 480i/576i	0~255	30
Range 480i/576i	0~80	30
Step 480p/576p	0~255	30
Range 480p/576p	0~80	30
Step 720p	0~255	30
Range 720p	0~80	30
Step 1080i	0~255	30
Range 1080i	0~80	30
Step 640*480	0~255	30
Range 640*480	0~80	30
Step 800*600	0~255	40
Range 800*600	0~80	55
Step 1024*768	0~255	40
Range 1024*768	0~80	55
Step 1360*768	0~255	40
Range 1360*768	0~80	55
FBE_Spectrum	0~4	2
FBE Range	0~15	9

2. WB Adjust

1) Calibration

Item	Range	AV	Component	PC	HDMI
AV Calibration	Success, Failure	Success	Success	Success	Success
DTV Calibration	Success, Failure	Success	Success	Success	Success
PC Calibration	Success, Failure	Success	Success	Success	Success
HDMI Calibration	Success, Failure	Success	Success	Success	Success

2) White Balance

Item	Range	AV	Component	PC	HDMI
Sub Bright	0~255	128	128	128	128
Red Offset	0~255	128	128	128	128
Green Offset	0~255	128	128	128	128
Sub Contrast	0~255	128	128	128	128
Red Gain	0~255	128	128	128	128
Green Gain	0~255	128	128	128	128
Blue Gain	0~255	128	128	128	128

3) EPA Standard

Item	Range	AV	Component	PC	HDMI
S. Contrast	0~100	80	80	80	80
S. Brightness	0~100	50	50	50	50
S. Sharpness	0~100	50	50	50	50
S. Colour	0~100	50	50	50	50
S. Tint	0~100	50	50	50	50
S. Backlight	0~100	7	7	7	7

4) Movie WB

Item	Range	AV	Component	PC	HDMI
W/B MOVIE	ON/OFF	0	0	0	0
Mode	Dynamic, Movie	40	40	40	40
Color Tone	Cool1, Warm2	30	30	30	30
Msub Contrast	0~255	128	128	128	128
Msub Brightness	0~255	128	128	128	128
Cool2 R Gain	0~255	126	126	126	126
Cool2 B Gain	0~255	154	154	154	154
Cool2 R Offset	0~255	127	127	127	127
Cool2 B Offs	0~255	126	126	126	126
Normal R Gain	0~255	139	139	139	139
Normal B Gain	0~255	90	90	90	90
Normal R Offs	0~255	124	124	124	124
Normal B Offs	0~255	129	129	129	129
Warm1 R Gain	0~255	155	155	155	155
Warm1 B Gain	0~255	42	42	42	42
Warm1 R Offs	0~255	128	128	128	128
Warm1 B Offs	0~255	128	128	128	128
Warm2 R Gain	0~255	170	170	170	170
Warm2 B Gain	0~255	6	6	6	6
Warm2 R Offs	0~255	128	128	128	128
Warm2 B Offs	0~255	128	128	128	128
Mov. Contrast	0~255	80	80	80	80
Mov. Brightness	0~255	45	45	45	45
Mov. Color	0~255	53	53	53	53
Mov. Sharpness	0~255	30	30	30	30
Mov. Tint	0~255	0	0	0	0
Mov. Backlight	0~10	5	5	5	5
Mov. Gamma	ON/OFF	OFF	OFF	OFF	OFF

3. Information

CheckSum
T-PRLPEUMD-**** (Main Micom Ver.)
T-PERLDEUC-**** (DTV SW Ver.)
T-PRLPEUS-**** (Sub Micom Ver.)
Month/Day/Year
Hour/Min./Sec.

4. Advanced Menu

1) MTK8226

Cal. Adjustment

Item	Range	Data
R-Offset	0~255	128
G-Offset	0~255	128
B-Offset	0~255	128
R-Gain	0~255	128
G-Gain	0~255	128
B-Gain	0~255	128
Y_Offset	0~255	128
Cb_Offset	0~255	128
Cr_Offset	0~255	128
Y_Gain	0~255	128
Cb_Gain	0~255	128
Cr_Gain	0~255	128
CVBS Offset	0~255	128
CVBS Gain	0~255	128
Red Offset	0~255	128
Green Offset	0~255	128
Blue Offset	0~255	128
Red Gain	0~255	128
Green Gain	0~255	128
Blue Gain	0~255	128

Cal. Target

Item	Range	Data
AV_Offset	0~255	16
AV Delta	0~255	3
AV_Gain	0~255	220
Y_Offset	0~255	16
Y Delta	0~255	3
Y_Gain	0~255	235
PC_Offset	0~255	16
PC Delta	0~255	3
PC_Gain	0~255	254
2nd Offset	0~255	2
2nd Delta	0~255	1
2nd Gain	0~255	235

Scart RGB

Item	Range	Data
R-Offset	0~255	128
G-Offset	0~255	128
B-Offset	0~255	128
R-Gain	0~255	128
G-Gain	0~255	128
B-Gain	0~255	128

TVD/Comb

Item	Range	Data
Manual AGC	On/Off	Off
MIN_HWIDTH	0~15	7
MAX_HWIDTH	0~63	20
TH_HIGH	0~255	7
TH_SUPER	0~255	26
Colour system		1
Noise level		2

IPC/MJC

Item	Range	Data
IPC_Film		0
MJC_Film		0
MJC status		0
Rand X Gain L	0~7	1
Rand Y Gain L	0~7	1
Vsi X Gain L	0~7	2
Vsi Y Gain L	0~7	2
Fbck Vsi Th L	0~255	5
Fbck Vsi Th2 L	0~255	10
Mv DownScale L	0~5	0
Rand X Gain M	0~7	2
Rand Y Gain M	0~7	2
Vsi X Gain M	0~7	3
Vsi Y Gain M	0~7	3
Fbck Vsi Th M	0~255	8
Fbck Vsi Th2 M	0~255	15
Mv DownScale M	0~5	0
Rand X Gain H	0~7	3
Rand Y Gain H	0~7	3
Vsi X Gain H	0~7	4
Vsi Y Gain H	0~7	4
Fbck Vsi Th H	0~255	10
Fbck Vsi Th2 H	0~255	20
Mv DownScale H	0~5	0

Picture Enhance

Item	Range	RF PAL	RF SECAM	RF NTSC	AV	SVHS	COMP (480i/576i)	COMP (480p/576p)
Low gain	0~255	69	66	69	80	80	96	96
Middle gain	0~255	96	96	96	96	96	96	96
High gain	0~255	85	85	85	96	96	82	82
Local low	0~255	67	67	67	80	80	96	96
Local middle	0~255	96	88	96	112	112	96	96
Local high	0~255	85	80	85	96	96	96	96
Gain1	0~255	0	0	0	5	5	5	5
Gain2	0~255	0	0	0	5	5	5	5
Gain3	0~255	0	0	0	5	5	5	5
Gain4	0~255	8	8	8	5	5	5	5
Gain5	0~255	5	5	5	5	5	5	5
Gain6	0~255	0	0	0	4	4	5	5
Gain7	0~255	0	0	0	3	3	3	3
Gain8	0~255	16	10	16	13	13	3	3
Limit Pos All	0~255	64	64	64	64	64	64	64
Limit Neg All	0~255	64	64	64	64	64	64	64
LTI_Gain	0~255	2	2	2	2	2	2	2
ECTI_Gain	0~255	5	5	5	5	5	5	5
SCTI_Gain	0~255	4	4	4	4	4	4	4
SCTI_Fgain	0~255	20	20	20	20	20	20	20
Color_mid_value	0~255	141	141	141	150	150	155	155
Color_mid_value	0~255	40	40	40	40	40	40	40

Item	Range	COMP (720p/1080i)	COMP (1080p)	HDMI (480p/576p)	HDMI (720p/1080i)	HDMI (1080p)	SCART_ RGB	DTV
Low gain	0~255	80	80	80	80	80	69	74
Middle gain	0~255	96	96	85	96	96	96	96
High gain	0~255	80	80	80	96	96	80	96
Local low	0~255	112	112	80	85	85	74	74
Local middle	0~255	104	104	96	96	96	112	96
Local high	0~255	96	96	96	96	96	96	96
Gain1	0~255	10	10	5	5	5	0	5
Gain2	0~255	10	10	5	5	5	0	5
Gain3	0~255	10	10	5	5	5	0	5
Gain4	0~255	10	10	5	5	5	5	5
Gain5	0~255	5	5	5	5	5	10	5
Gain6	0~255	5	5	5	5	5	4	5
Gain7	0~255	4	4	3	4	4	3	3
Gain8	0~255	2	2	2	2	2	13	2
Limit Pos All	0~255	64	64	64	64	64	64	64
Limit Neg All	0~255	64	64	64	64	64	64	64
LTI_Gain	0~255	2	2	2	2	2	2	2
ECTI_Gain	0~255	5	5	5	5	5	5	5
SCTI_Gain	0~255	4	4	4	4	4	4	4
SCTI_Fgain	0~255	20	20	20	20	20	20	20
Color_mid_value	0~255	155	155	155	155	155	155	155
Color_mid_value	0~255	40	40	40	40	40	40	40

2) Option Block

FBE3

Item	Range	RF PAL	RF NTSC	RF SECAM	CVBS (EXT2,SVHS,AV)	SCART (RGB)	COMP SD (480/576)
Patt-Sel		0	0	0	0	0	0
B-Slope gain	0~255	60	60	60	60	60	70
B-Tilt min	0~255	30	30	30	30	30	30
B-Tilt max	0~255	110	110	110	110	110	110
Lfunc-Basis	0~255	60	60	60	70	70	70
Hfunc-Basis	0~255	65	65	65	80	80	80
Mean-Offset1	0~255	30	30	30	30	30	30
Mean-Offset2	0~255	125	125	125	125	125	235
Mean-Slope	0~255	112	112	112	112	112	112
ACR-Offset	0~127	10	10	10	10	10	10
ACR-Th1	0~255	10	10	10	10	10	10
ACR-Th2	0~255	110	110	110	110	110	110
Skin-Enable	On/Off	1	1	1	1	1	1
Skin-UV	0~255	150	150	150	145	128	140
Sub color	0~255	128	128	128	135	135	145
M-Skin-UV	0~255	128	128	128	128	128	128
M Sub Color	0~255	128	128	128	128	128	128

Item	Range	COMP HD (720 / 1080)	HDMI	DTV	WISELINK	PC (HDMI PC, Analog)
Patt-Sel		0	0	0	0	0
B-Slope gain	0~255	80	70	70	60	40
B-Tilt min	0~255	30	30	30	30	30
B-Tilt max	0~255	110	110	110	110	110
Lfunc-Basis	0~255	70	70	70	60	60
Hfunc-Basis	0~255	80	80	80	65	65
Mean-Offset1	0~255	30	30	30	30	30
Mean-Offset2	0~255	235	235	235	235	235
Mean-Slope	0~255	112	112	112	112	112
ACR-Offset	0~127	10	10	10	10	10
ACR-Th1	0~255	10	10	10	10	10
ACR-Th2	0~255	110	110	110	110	110
Skin-Enable	On/Off	1	1	1	1	1
Skin-UV	0~255	140	150	140	128	128
Sub color	0~255	145	140	135	140	128
M-Skin-UV	0~255	128	128	128	128	128
M Sub Color	0~255	128	128	128	128	128

FRCM

Item	Range	Data
FW Version		0128
EEPROM State		Failure
Spread Spectrum	On/Off	On
SS Width	0~30	20
SS Freq	0~70	60
TP Before DDR	0~9	0
TP After DDR	0~7	0
FMD DEMO	On/Off	On
Video L Jud	0~32	0
Video M Jud	0~32	0
Video H Jud	0~32	0
SD FilmL22Jud	0~32	13
SD FilmL32Jud	0~32	13
SD FilmM22Jud	0~32	8
SD FilmM32Jud	0~32	10
SD FilmH22Jud	0~32	3
SD FilmH32Jud	0~32	5
HD FilmL22Jud	0~32	13
HD FilmL32Jud	0~32	13
HD FilmM22Jud	0~32	8
HD FilmM32Jud	0~32	10
HD FilmH22Jud	0~32	3
HD FilmH32Jud	0~32	5

3) Sound

Item	Range	Data
AM Mute Th_High	0~20	9
AM Mute Th_Low	0~20	8
FM Mute Th_High	0~96	34
FM Mute Th_Low	0~96	32
Correct Threshold	1~7	6
Sync Loop	1~1000	201
Error Threshold	2~40	8
Parity Error Thrd	1~128	48
Every Num Frame		512
Num of Check	1~60	10
Num of Double Check	5~60	10
Mono Weight	1~20	1
Stereo Weight	1~20	1
Dual Weight	1~20	1
M2S Threshold	1~20	10
S2M Threshold	1~20	10
NICAM Fine Vol	1~40	20
FM Fine Vol	1~40	20
AM Fine Vol	1~40	21
Fine Tune Vol	1~40	20
SC1 Fine Vol	1~40	20
SC2 Fine Vol	1~40	20
Output Matrix	Bypass, L Mono, R Mono	Bypass
AMP Master Vol.	0~48	30
AMP PWM Mod.	0~255	254
DRC Thresh.	0~127	17
Speaker EQ	On/Off	On
AudioDelay	0~100	70

4) YC Delay

Item	Range	Data
RF PAL-B/G	0~10	6
RF PAL-D/K	0~10	5
RF PAL-I	0~10	5
RF PAL-L/L’	0~10	5
RF SECAM-B/G	0~10	7
RF SECAM-D/K	0~10	5
RF SECAM-I	0~10	5
RF SECAM-L/L’	0~10	5
RF NTSC 3.58	0~10	5
RF NTSC 4.43	0~10	6
AV PAL	0~10	6
AV SECAM	0~10	7
AV NTSC3.58	0~10	6
AV NTSC4.43	0~10	6
AV PAL60	0~10	5

5) Adjust

User Control Init

Item	Range	Data
TTX PWM	0~255	30
Dyn. Contrast	0~255	100
Dyn. Brightness	0~255	45
Dyn. Color	0~255	55
Dyn. Sharpness	0~255	75
Std. Contrast	0~255	80
Std. Brightness	0~255	50
Std. Color	0~255	55
Std. Sharpness	0~255	50
Melody Volume	0~55	0
Brightness Center	0~55	38
Contrast Gain	0~255	64
DSP Recovery	On/Off	On
Sound Delay	0~70	0

LNA PLUS

Item	Range	Data
NR1_Coring	0~255	0
NR2_Coring	0~255	1
NR3_Coring	0~255	2
NR4_Coring	0~255	3
RF_dB0_Th	0~255	5
RF_dB1_Th	0~255	15
RF_dB2_Th	0~255	30
RF_dB3_Th	0~255	50
AGC1	0~255	0
AGC2	0~255	0
AGC3	0~255	100
AGC4	0~255	150

?????	Success, Failure	Success
Pixel shift Test	Min, Sec	Min
Video Mute Time	0~10	10
Dynamic Dimming	On/Off	Off
Dynamic CE	On/Off	Off
Tuner Select	Auto, ALPS, ALPS SL, SEMCO, SEMCO SL	ALPS SL
Tuner Top Semco	0~31	23
Tuner Top Alps	0~31	16
Magazine LNA	On/Off	Off
Debug	On/Off	Off
ACR	On/Off	On
D-WatchDog	On/Off	On
FBE Select	FBE2X, FBE2	FBE2X
A-WatchDog	On/Off	Off
MJC/PDP FRC	All On, All Off, MJC only, FRC only	All On
Visual test	On/Off	Off
FBE Mute	On/Off	Off

6) Bus Stop

Item	Range	Data
Main Loop	On/Off	Off
Eeprom	On/Off	Off
Tuner	On/Off	Off
Normal	On/Off	Off
A-Watch Dog	On/Off	Off

7) Defect Log

4-4. White Balance - Calibration

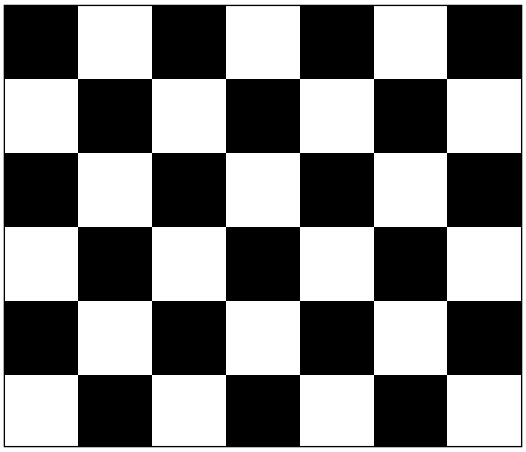
4-4-1 White Balance -Calibration

1. Calibration	→	AV Calibration Comp Calibration PC Calibration HDMI Calibration

4-4-2 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)



(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
CVBS IN (Model_#2)	Perform in PAL B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
PC Analog IN (Model_#21)	Perform in VESA XGA (1024x768) B&W Pattern #24	Lattice
HDMI IN (Model_#6)	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 1 port
2) Press the Source key to switch to “AV1” 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 1 port
2) Press the Source key to switch to “Component1” mode
3) Enter Service mode
4) Select the “Calibration” menu
5) Select the “DTV Calibration” menu.
6) In “DTV (Component) 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 HDMI1/DVI IN port
2) Press the Source key to switch to “HDMI1” 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.

4-4-3 White Balance - Adjustment

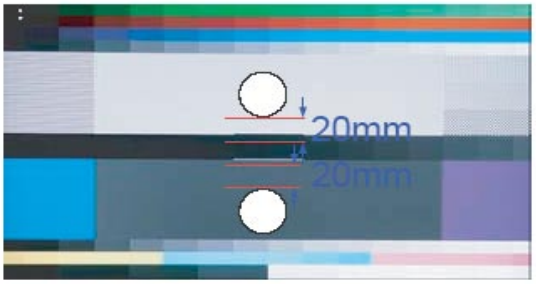
		(low light)	(hight light)
3. W/B	→	Sub Bright R offset G offset B offset	Sub Contrast R gain G gain B gain

(W/B adjustment Condition refer next page)

4-5. 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 CVBS, Component 1 and HDMI 1 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 : CS-210
- 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 : Time #6 720P, Pattern #24 Chessboard Calibration → Manual adjustment #92 pattern (720p)
COMP: Time #6 720P, Pattern #24 Chessboard Calibration → Manual adjustment at #92 pattern (720p)
CVBS: Time #2 PAL, Pattern #24 Chessboard Calibration → Manual adjustment at #92 pattern (NTSC)
PC: Time #21 1024*768, Pattern #24 Chessboard Calibration → Manual adjustment at #92 pattern (NTSC)

- If finishing in HDMI mode, adjustment coordinate is almost same in AV/COMP mode.
- White Balance Manual Adjustment

	CA-210				
		x	y	Y(L)	T(K) + MPCD
CVBS (NTSC)	H/L	272	278	- (Sub_CT:140)	12,000 (+/- 0)
	L/L	272	278	19.7cd/m² (5.8 Ft - Sub_BR:128)	12,000 (+/- 0)
COMP (720P)	H/L	272	278	- (Sub_CT:140)	12,000 (+/- 0)
	L/L	272	278	19.7cd/m² (3.5 Ft - Sub_BR:128)	12,000 (+/- 0)
HDMI (720P)	H/L	272	278	- (Sub_CT:140)	12,000 (+/- 0)
	L/L	272	278	19.7cd/m² (5.8 Ft - Sub_BR:128)	12,000 (+/- 0)

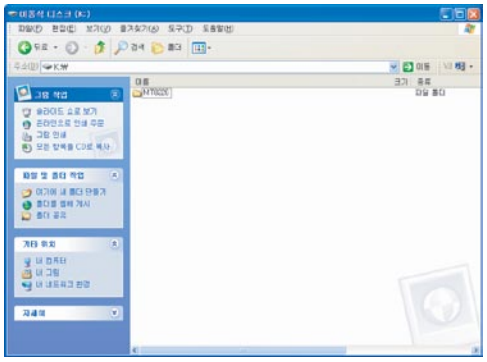
- Adjustment Specification
  White Balance : High light (±3), Low light (±5)
  Luminance : High light (±0.1Ft/L), Low light (±0.1Ft/L)

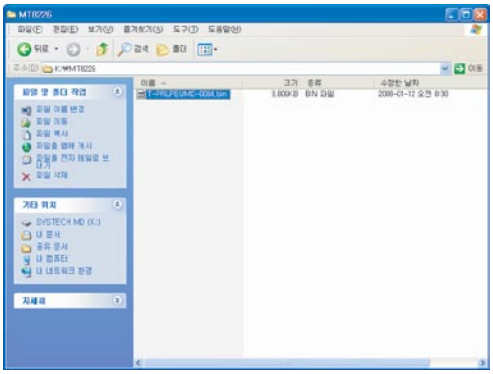
4-6. Servicing Information

4-6-1 USB Download Method

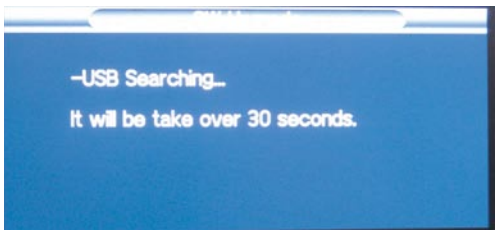
Samsung may offer upgrades for TV's firmware in the future. Please contact the Samsung call center at 1-800-SAMSUNG (7267864) to receive information about downloading upgrades and using a USB drive. Upgrades will be possible by connecting a USB drive to the USB port located on located on the back of your TV.

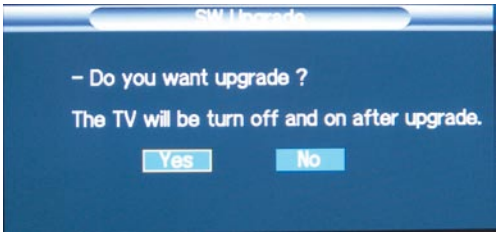
1. Insert a USB drive containing the firmware upgrade into the wiselink port on the side of the TV.
   (USB drive make folder "MT8226" and this folder download micom program.)



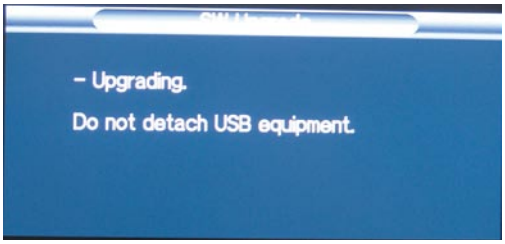


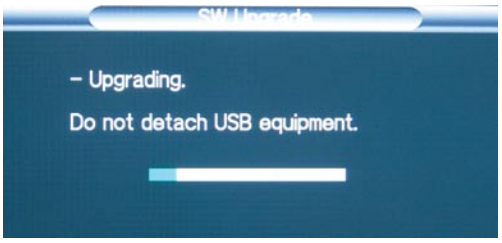
2. To enter factory mode.
   Option Table -> Control -> USB then press the ENTER button.
   The message USB Searching…
   It may take up to 30 seconds is displayed.
   Please be careful to not disconnect the power or remove the USB drive while upgrade is being applied.
   The message “Do you want upgrade?”
   Press the left, right button to select “Yes”.
   The TV will shut off after completing the firmware upgrade.
   Please check the firmware version after the upgrade is complete.}

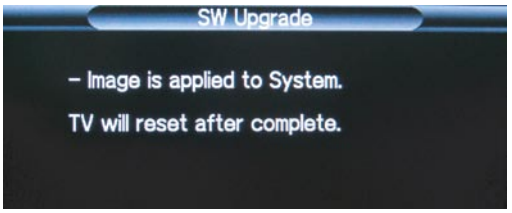




* How to check Program Version
1. To enter Factory mode
2. Check the main micom version of “3.Information”.
   T-PRLPEUMD-xxxx

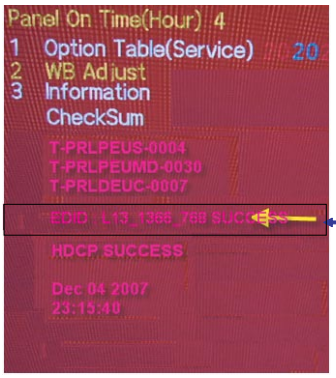






4-7. EDID Self-Write Method

1. OSD in case of entering Factory : It's displayed to check if Self write runs normally.



L13_1366_768 SUCCESS

- HDMI Version: 13 : HDMI 1.3 / 12 : HDMI 1.2
- PANEL highest resolution
- Success : Self write all port success / Failure : Even Self write one port failure
- Product: L : LCD-TV / P : PDP-TV

In case Failure occurs!
ex) L13_1366_768 FAILURE_A1_H1_H2_H3_H4

Write Failed one.
Above shows all from analog , HDMI1~HDMI4 are failed.

As L450 and lower groups support only HDMI 1.2 version, only 1.2 version can be displayed.

L550 and more groups support HDMI 1.3 version & 1.2 version. So, 1.3 version can be displayed in factory outgoing condition.

…In case HDMI_1 Port changes into HDMI 1.2 version due to service request, HDMI 1.2 version can be displayed.

However, be aware other Ports are HDMI 1.3 version.

Before change : L13_1366_768 SUCCESS ⟶
After change : L12_1366_768 SUCCESS

2. In case of entering Option Table(Service) : Check Panel Inch & Model Option list in ATV-Micom, and decide HDMI Port qty that needs self write.

Panel Inch : 40"

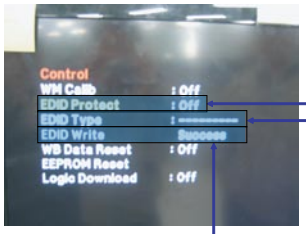
Model Option : Tanzanite

All project names that will be introduced in 2008 mentioned

All inches that will be introduced in 2008 mentioned

LCD-TV	Model Option	Panel Inch
LCD-TV	Coral Tanzanite Jade	22", 26", 32", 37", 40"
	Pearl M.Stone Amber	32", 37", 40", 46", 52"
	Not confirmed	
PDP-TV	Carnelian Pyrope Pyrope 3D	42", 50"
	Spinel	50"
	Not confirmed	

3. OSD in case of entering Control : Start detailed setting work to Self write.



EDID Protect : Off

Off-> Self write possible : In order for ddc data to be written, set each EEPROM Write Protection Pin as Low.
On -> Self write impossible : In order for ddc data not to be written, set each EEPROM Write Protection Pin as High.

EDID Type : ------

HDMI Version & Panel highest resolution is displayed at the same time with EDID combination version grouping condition showen.

Product	Project	HDMI Version & Resolut	
LCD-TV Europe	Pearl Amber M.Stone	L13_1920_1080 L12_1920_1080	Market svc use
	Coral Tanzanite Jade	L12_1680_1050 L12_1366_768	Panel Inch : If 26"~40" is set, L12_1366_768 will be selected automatically. Panel Inch : If 22" is set, L12_1680_1050 will be selected automatically.
	Amber small size	Not confirmed	
	Ruby	Not confirmed	
	Diamond	Not confirmed	
PDP-TV Europe	Carnelian Pyrope Pyrope 3D	P12_1360_768 P12_1024_768	Panel Inch : If 50" is set, P12_1360_768 will be selected automatically. Panel Inch : I 42" is set, P12_1024_768 will be selected automatically.
	Spinel	P13_1920_1080 P12_1920_1080	Market svc use
	Not confirmed		Market svc use

Not confirmed

When grouping EDID combination version in SW group, check list.

ex)
Pearl HDMI Port qty is three.
For factory outgoing condition, it selects HDMI Version 1.3, and self writes. Then, HDMI 1.3 Version will be displayed in all HDMI 3 Ports with outgoing.
For market service condition, it selects HDMI Version 1.2, and self writes. Then, 1.2 will be displayed in HDMI_1Port.
Be aware that HDMI2~4 Ports is 1.3.

EDID Write : Success

Under the condition that EDID Protect is Off & EDID Type is selected,
When doing EDID Write,
dddc data is written in each EEPROM.
If All Port does writing, Success will be displayed.
If even one port is failed, Failure will be displayed.

In case of SUCCESS!

ex) L13_1366_768 SUCCESS

In case of Failure!

It should be displayed that which one is failed among Analog , HDMI1 , HDMI2 , HDMI3 , HDMI4 Below shows all of Analog , HDMI1~HDMI4 are failed.

ex) L13_1366_768 FAILURE_A1_H1_H2_H3_H4

4. In case of Self write by receiving automation code

0X4D 0 : only receive EDID All Save order automation code.

EDID All Save order Data

EDID Self write automation code

Under the condition that Panel Inch & Model Option are set, automation code is received, and Self write is done!
ex) Pearl

Factory entering OSD picture --> L13_1920_1080 SUCCESS
Control entering OSD picture--> EDID Protect : On
EDID Type : L13_1920_1080
EDID Write : L13_1920_1080 SUCCESS

OSD should be displayed like above.

5. In case Self write is done with Manual due to service request (it changes HDMI 1.3 Version into HDMI 1.2 Version ; L550 , P550 and more)

Under the condition that Panel Inch & Model Option are set, in case of retouching manually !
ex) Pearl (model using HDMI 3)

Before Retuch)

Factory entering OSD picture --> L13_1920_1080 SUCCESS	← At a time of factory outgoing, HDMI 3 did self wirte with 1.3version.
Control entering OSD picture-->	EDID Protect : On
	EDID Type : L13_1920_1080 ← At a time of factory outgoing, HDMI 3 was selected with 1.3version to self write.
	EDID Write : L13_1920_1080 SUCCESS ← At a time of factory outgoing, HDMI 3 did self wirte with 1.3version.

After Retuch)

Factory entering OSD picture --> L12_1920_1080 SUCCESS	← Service engineer did self write with 1.3-> 1.2 version of HDMI_1Port among HDMI 3
Control entering OSD picture-->	EDID Protect : On
	EDID Type : L13_1920_1080 ← Service engineer is possible to select EDID Type to changeHDMI_1Port HDMI Version from L13_1920_1080 --> to L12_1920_1080. After selecting L12_1920_1080, EDID Write should be done. After EDID Write, EDID Type will keep L13_1920_1080 that's factory outgoing condition.
	EDID Write : L12_1920_1080 SUCCESS ← Service engineer did self write with 1.3-> 1.2 version of HDMI_1Port among HDMI 3. However, HDMI_2 , HDMI_3Port was self written with 1.3version.