

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 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) How to distinguish if the problem is caused by Main board or Logic Board.
 - No Video : If the problem is No Video but Logic Board is on and Indication LED is blinking repeatedly and faster than normal booting, replace the Logic board.
 - Distorted Picture : Check the inner patterns.

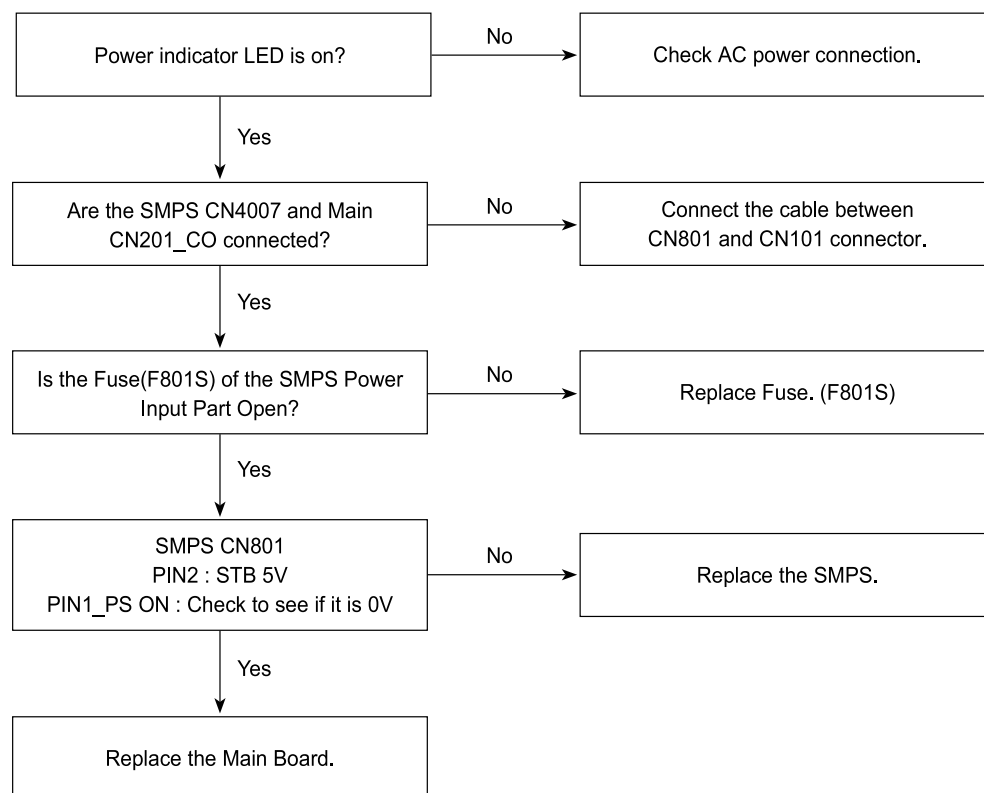
Inner pattern	Picture	Problem
OK	NG	Main Board
NG	NG	Main / Logic Board or Panel.

- How to check Logic test pattern?
 - a. Entering Factory mode
 - b. Move to SVC menu
 - c. Move to Test Pattern
 - d. Check test patterns.

4.2. Checkpoints by Error Mode

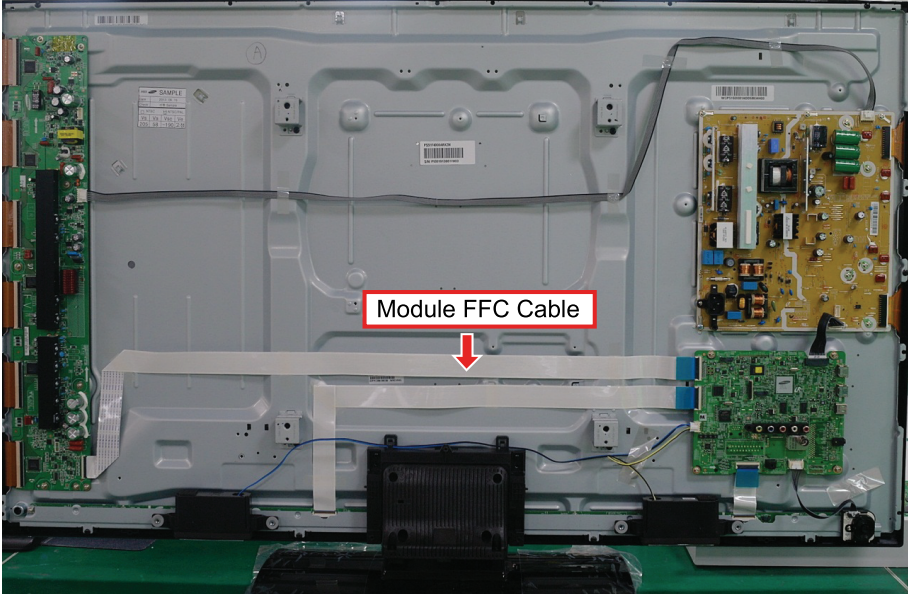
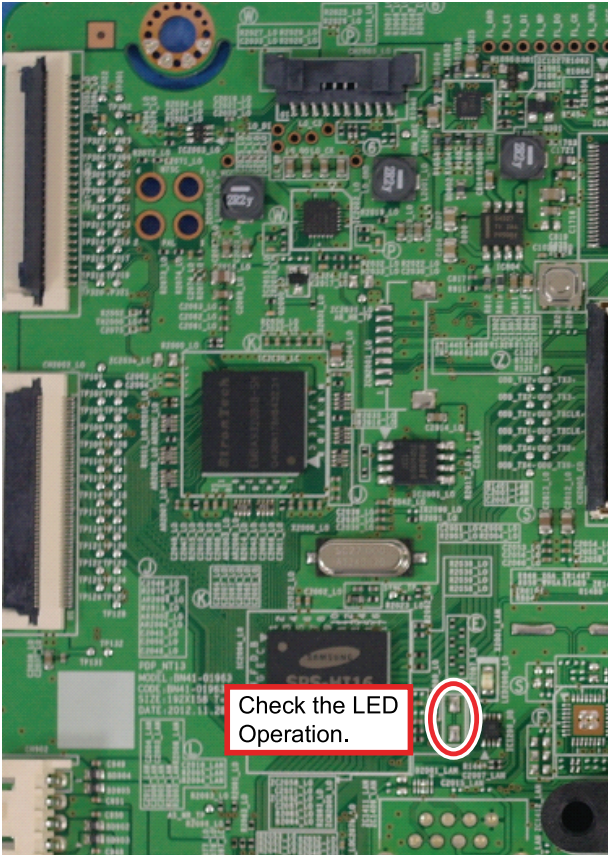
■ No Power

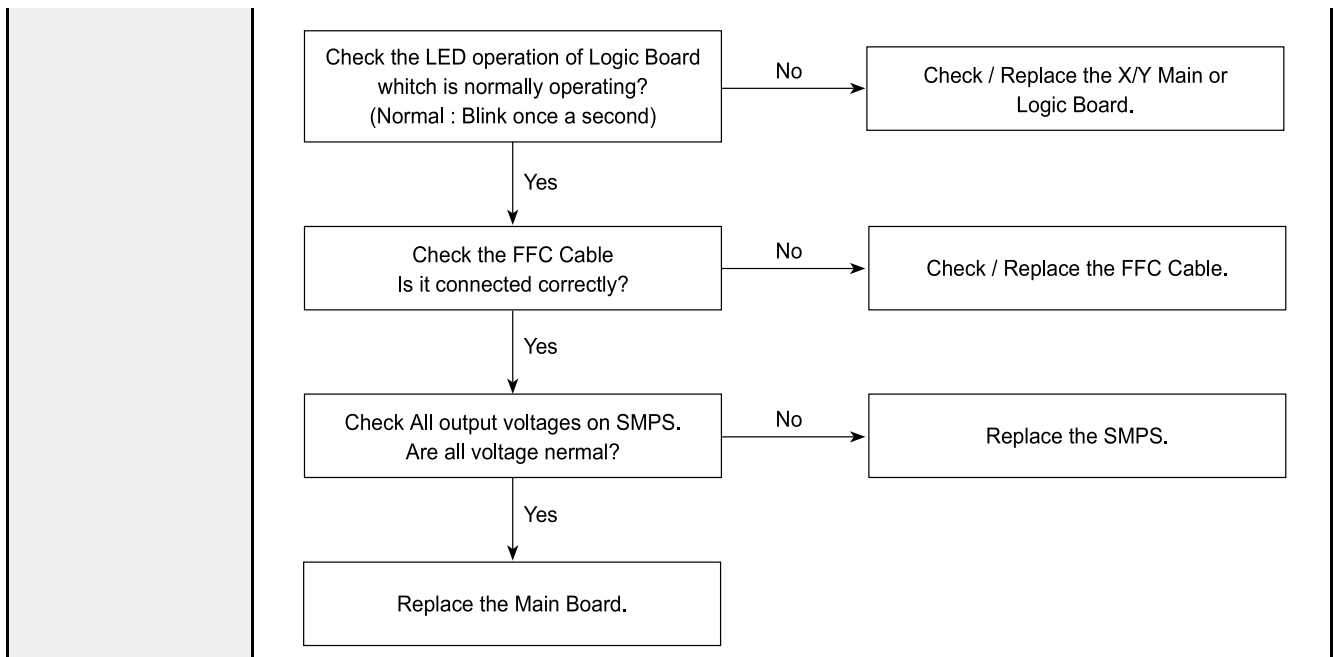
Symptom	• The LEDs on the front panel do not work when connecting the power cord. • The SMPS relay does not work when connecting the power cord. • The unit appears to be dead.
Major Checklist	The SMPS relay or the LEDs on the front panel does not work when connecting the power cord if the cables are 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 voltages of the SMPS. • Replace the Main Board.
Diagnostics	 The image shows the internal components of a Samsung TV chassis. The Main Board is on the left, and the SMPS (Switching Mode Power Supply) is on the right. Three components are highlighted with red circles and yellow labels: FUSE, CN4007, and CN201_CO.

**CAUTION**

Make sure to disconnect the power before working on the SMPS board.

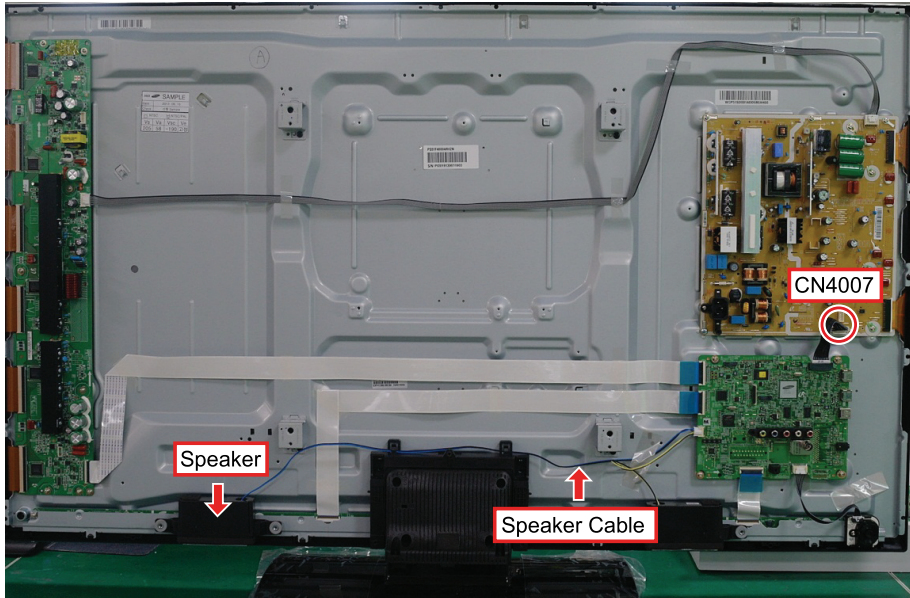
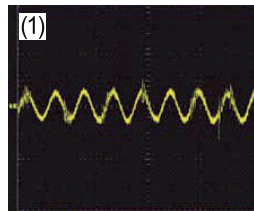
No Video

Symptom	Audio is normal but no picture is displayed on the screen.
Major Checklist	- The output voltage of the Main SMPS. - This may happen when the LVDS cable connecting the Main Board and the Panel is disconnected.
Diagnostics	Module FFC Cable  Check the LED Operation. 

**CAUTION**

Make sure to disconnect the power before working on the SMPS board.

■ No Sound

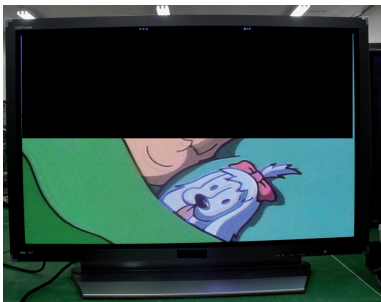
Symptom	Video is normal but there is no sound.
Major Checklist	- When the speaker connectors are disconnected or damaged. - When the sound processing part of the Main Board is not functioning. - Speaker defect. - SMPS not supplying voltage to the main board.
Diagnostics	 <pre> graph TD Q1[Is the cable connection between Main board and the speaker properly connected?] -- No --> A1[Connect the cable properly or replace the cable, if necessary.] Q1 -- Yes --> Q2[Is the output voltage of SMPS normal? (CN801 PIN 7 : 15V)] Q2 -- No --> A2[Replace the SMPS.] Q2 -- Yes --> Q3["(1) Is the speaker output terminal of the Main board normal?"] Q3 -- No --> A3[Replace the Main board.] Q3 -- Yes --> A4[Replace the Speaker.] </pre> Sound Output Shape (1) 

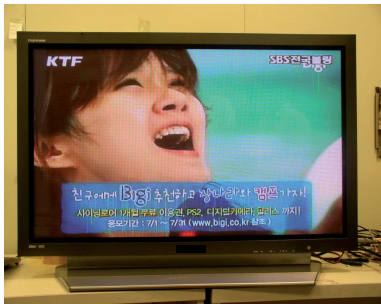


CAUTION

Make sure to disconnect the power before working on the IP board.

4.2.1. Example of Trouble Shooting

Symptom	Related Image	Causes and Countermeasures
A blank vertical cell (block) appears on the screen.		- Address buffer defect - Replace the corresponding upper/lower buffers. - COF defect (burnt) - Replace the module.
A green screen appears when the TV is turned on.		- The Scale is not resetting. - Replace the Main board.
The OSD box appears but there is no text.		- Incorrect program version. - Check the version of each program. - Replace the Main board.
A blank upper (or lower) block appears on the screen.		- Upper/Lower Y Buffer defect - Replace the corresponding upper/lower buffers.
Either the main or sub picture does not appear.		Replace the Main board.

Symptom	Related Image	Causes and Countermeasures
A vertical green line appears on the screen.		- The SMPS voltage is incorrect. - Adjust the SMPS voltage according to the voltage printed on the module label.
Dim screen (blurred in red)		- X-Main board defect - Replace the X-Main board.
A blank screen appears.		Replace the Y-Main board.

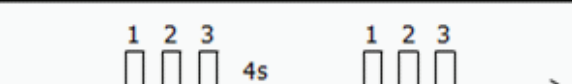
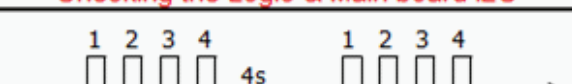
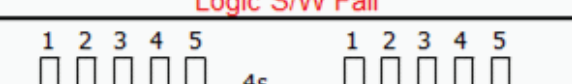
4.2.2. Operating Logic LED and Front Cover LED(IR)

■ Normal

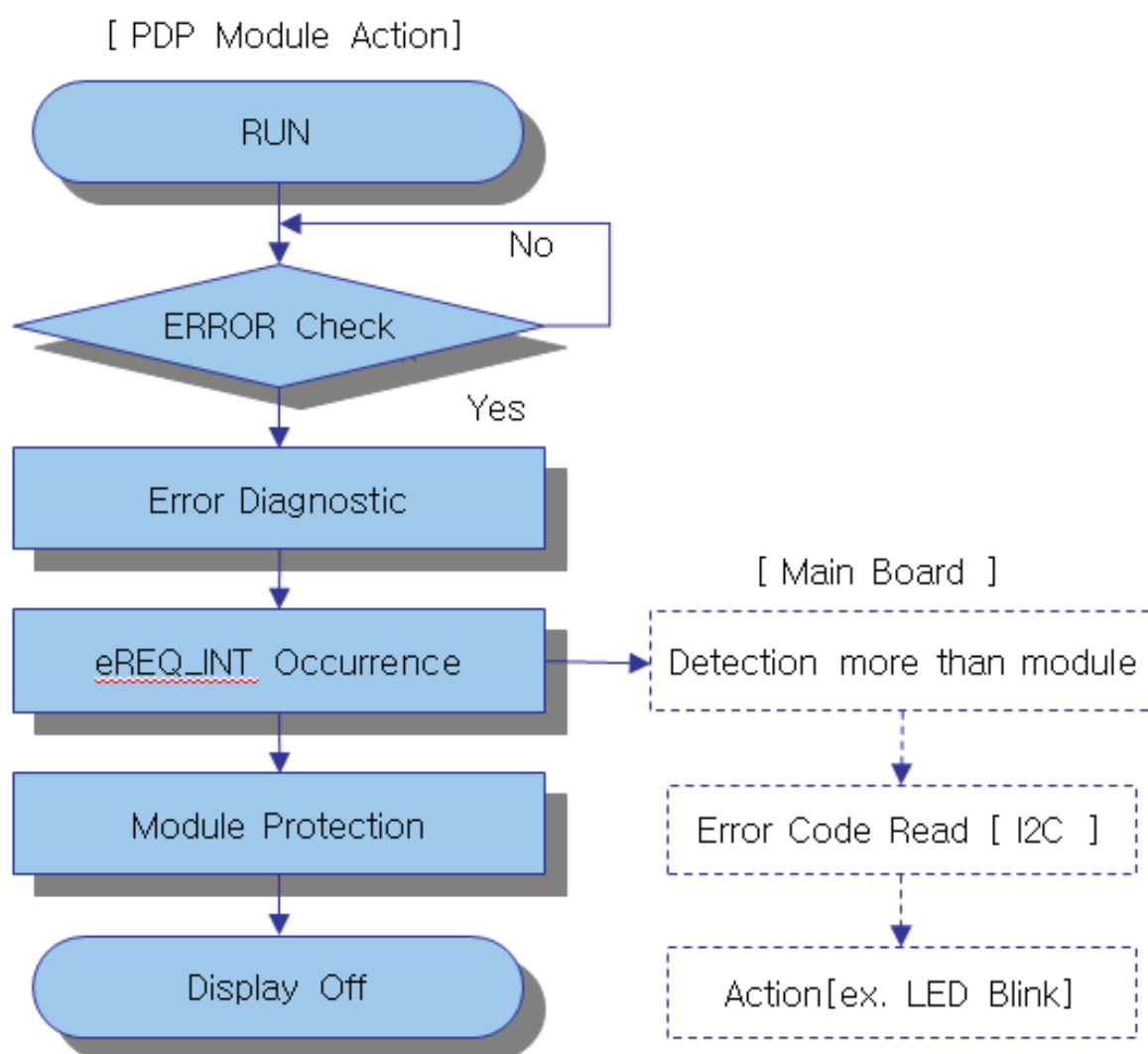
- LED blink time is once per 0.5s

■ Abnormal

- LED Blink interver is 0.3s and Off time 4s

Error Part	Operation / Blnk		Error Code(Hex)
X,Y Driver Fail	Off	1	 Y main or X-buffer Fail Check
Temp Protect		2	 Checking temperature sensor in logic board
Logic Board Fail		3	 Checking the Logic & Main board I2C
Err code Detect		4	 Logic S/W Fail
Module Protection		5	 Checking PDP Module State

■ PDP Module Action



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.



- If you have Factory remote-control.



- If you don't have Factory remote control, can't control some menu.

Option
Control
SVC
Expert
ADC/WB
Advanced
T-NVTF6DAAC-XXX T-NVTFDAACS-XXX Logic S/W : L-xxFH-XXX / E-Manual : NVDVBEU4F-xxxx EDID SUCCESS CALIB : AV / COM / PC / HDMI / Option : XXXX XXXX XXXX X USB RS232C DTP-SDAL-NT13-MAIN : xxx RFS : NT13 KERNEL Backend IC[9], Data Ver : DTP-DTVTD-XXX Model: PNxxxx Wireless MAC CIP SUCCESS Factory Data Ver EERC VERSION : XXX DTP-BP-HAL-XXXX DTP-AP-CNC-XXXX DTP-AP-MM-XXXX DTP-BP-MV-XXXX DTP-BP-APP-XXXX POP-PNG DATE OF PURCHASE : XX/XX/XX

4.3.2. Factory Data

■ Option

Menu	Data	Remark
Factory Reset		
Type	51FVHc	
Local set	ED_INDIA	
SW Model	PF4000	
BOM Model	4000	
TUNER	SI_ADI	
Ch table	NONE	
MRT Option		
Front Color	P-W-D-40	
Lvds Format	PDP	
Language_Arabic	WEST ASIA	
Region	INDIA_ATV	
PnP Language	ENG	
WIFI REGION	AB	
OTN Support	OFF	
TTX	OFF	
China HD	OFF	
NT Conversion	OFF	
Num of DTV	0	
Num of AV	1	
Num of COMP	1	
Num of HDMI	2	
Num of SCART	0	
Num of USB Port	1	
Num of HeadPhone	0	
Num of RVU	0	
Num of Display	2	
Num of IPTV	0	
Num of RUI	0	
TOOLS Support	57	
LNA Support	0	
24Px4 Support	ON	
BD Wise Support	OFF	
Data Service Support	OFF	
PVR Support	OFF	
CI Support	OFF	
OTA Support	OFF	

Menu	Data	Remark
LEDMotionPlus Support	OFF	
Natural Mode Support	OFF	
Relax Mode Support	OFF	
HDMI/DVI SEL	2	
Select LCD/PDP	PDP	
Wall Mount	OFF	
HV Flip	OFF	
PVR RECORD NUM	0	
Ligth Effect	OFF	
e-Pop Default	ON	
CAMERA Support	OFF	
NETWORK Support	Not Support	
EcoSensor Support	ON	
3D Support	OFF	
BT Support	OFF	
BT ADDRESS	0	
Engineer Option		
Auto Power	MEMORY	
Type Of PANEL KEY	Horizontal	
5 Way Function Key	L_BOTTOM	
Contents Bar	0	
Cable Modulation		
Standby led on/off	OFF	
Recognition Support	OFF	
IF AGC	0	
D AGC	0	
PH BW	3	
FQ BW	3	
PH RATE	4	
PD EN	1	
PEQ Inx	3	
WF Scale		
Num of Network Stream	0	
DP V Size	1	
Backend Device	NT13	
BT_AUDIO_ON_OFF	OFF	
Config_AV_PATH		
V_HDMI IDENT TYPE	1234	
V_HDMI PATH TYPE	ABCD	
V_EDIT TYPE	PDP_HD	

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Menu	Data	Remark
V_ATV	CVBS_PORT_2	
V_AV1	AV_COMP_G1	
V_AV2	None	
V_COMP1	ADC_PORT_1	
V_COMP2	None	
V_PC	ADC_PORT_0	
V_SCART1_CVBS	CVBS_PORT_3	
V_SCART1_RGB	CVBS_PORT_2	
V_SCART2_CVBS	None	
V_SCART2_RGB	None	
A_ATV	SIF	
A_DTV	DECODER	
A_AV1	AUIN1	
A_AV2	AUIN3	
A_COMP1	AUIN1	
A_COMP2	None	
A_PC	AUIN0	
A_SCART1A_SCART1	AUIN2	
A_SCART1A_SCART2	None	
A_DVI	None	
A_HDMI	None	
A_Media	DECODER	
Fast Logo Delay	0	
Num_of PANEL KEY	6	

■ Control

Menu			Data	Remark
EDID	EDID ON/OFF		ON	
	EDID WRITE ALL		Success	
	EDID WRITE PC		Success	
	EDID WRITE HDMI			
	EDID WRITE HDMI1		Success	
	EDID WRITE HDMI2		Success	
	EDID WRITE HDMI3		Success	
	EDID WRITE HDMI4		Success	
	HDMI EDID Ver		HDMI 1.3	
	HDMI EDID Port		NONE	
	EDID WRITE DVI			
Sub Option	RS-232 Jack		Debug	
	Watchdog		OFF	
	Checksum		0x0000	
	Fast Boot in Production		OFF	
	USB Serial		OFF	
	Eeprom Reset			
	EER Reset			
	NVR All Clear			
	ECO IC TYPE		MC8121_REV	
	Info Link Server Type		operating	
	Info Link Country		None	
	OPTION_SWU			
	OTN Server Type		operating	
	OTN Test Server		OFF	
	SWU Reset			
	SWU Duration		OFF	
	SWU Fail Test		OFF	
	SWU_Diag_Code			
	OPTION_NUM			
	Num of ATV		1	
	Num of SVIDEO		0	
	Num of PC		0	
	Num of DVI		0	
	Num of OPTICAL Link		1	
	Num of MEDIA		1	
	Num of Tuner		1	
	Num of PVR RECORD		0	
	RF Remocon Supporty		OFF	

Menu			Data	Remark
PDP Option	DPMS Support		OFF	
	Num of IPTV CIP		OFF	
	Num of CI		0	
	Num of DECODER		0	
	T-CON Device			
	BOARD CONTROL		OFF	
	HP LINE		NONE	
	RM			
	Server Type		operating	
	RTS mode		0	
	PSA			
	FKP Download 1			
	FKP Download 2			
	LMK threshold		0	
	Low threshold		0	
	High threshold		0	
	CSB		ON	
	CLB		ON	
	PIXEL SHIFT TEST		OFF	
	LOGIC SW			
	Panel Temperature			
	LOGIC Waveform Day			
	LOGIC CheckSum			
	MRT			
	SAPC TIMER		ON	
	APC SPEED		SLOW	
	Hospitality Mode			
	Power On			
	Menu OSD			
	Operation			
	Music Mode			
	External Source			
	Eco Solution			
	Cloning			
Shop Option	Shop Mode		OFF	
	Exhibition Mode		OFF	
Asia Option	Sepeco 120Hz		OFF	
	Unbalance		OFF	
	FMTransmitter Support		OFF	
	FMTransmitter Carrier		OFF	

Menu			Data	Remark
Sound	AF Level adjust		3	
	TX power Level		0	
	Mono Last Memory		OFF	
	H Shaking		OFF	
	High Devi		OFF	
	Carrier Mute		ON	
	Speaker Delay Normal		0	
	Wiselink Delay Menu		0	
	Pilot Level High Thld		0x0Fh	
	Pilot Level Low Thld			
	FM Prescale		0	
	AM Prescale		0	
	NICAM Prescale		0	
	Amp Model		TAS5745	
	Amp Volume		0xc7h	
	Amp Scale		0x7ah	
	Amp Check Sum		0x0215EFCA	
	SubWoofer Support		0	
	Woofer Type		0	
	Woofer Volme		0xcbh	
	Woofer Scale		0x8ah	
	Woofer Check Sum		NONE	
	Woofer Local Check Sum		NONE	
	Amp Local Check Sum		NONE	
	Speaker EQ		ON	
	PEQ Test		Ready	
	Amp Model		0	
	Speaker cut-off Freq		NTP7411	
	SPDIF PCM Gain		-9 dB	
	FM M Prescale			
	BTSC Mono Prescale			
	BTSC stereo Prescale			
	SAP Prescale			
	A2 Ident High Thld			
	A2 Ident Low Thld		2	
Config Option	Carrier2 Amp High Thld		4	
	Carrier2 Amp Low Thld		3	
	Carrier2 SNR High THR			
	Carrier2 SNR Low THR			
	Audio-IP Test		Ready	

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Menu			Data	Remark
	SRS Tuning Param		0	
	TruBass-Checksum		0x200190E2	
	Mic Scale		0	
	India Sound		OFF	
	Wall Filter Type		0	
	SAP High Thid			
	SAP Low Thid			

■ Debug

Menu			Data	Remark
Spread Spectrum	LVDS Spread		ON	
	LVDS Period		40K	
	LVDS Amplitude		1	
	DDR Spread		OFF	
	DDR Period		20K	
	DDR Amplitude		0	
	FRC LVDS SSC ON/OFF		ON	
	FRC LVDS SSC MER'		1	
	FRC LVDS SSC MRR			
	FRC LVDS SSC Period		0	
	FRC LVDS SSC Modulation		1	
	FRC DDR SSC ON/OFF		ON	
	FRC DDR SSC MER'		1	
	FRC DDR SSC MRR			
	FRC DDR SSC Period		1	
	FRC DDR SSC Modulation		1	
DDR Margin	A CTRL_OFFSET_0_3			
	A CTRL_OFFSET_D			
	B CTRL_OFFSET_0_3			
	B CTRL_OFFSET_D			
ND ADJ Support			0	
MICOM POWER OFF			0	
RF Mute Time			6ms	
CI +1.3			0	
FRC				
Tuner Margin			0	
MPEG Margin			1000	
H.264 Margin			8	
CAM Wait Time			0	
TS Clock delay			0	
MultiACC Checksum				
IIC Bus Stop				
Tuner Status				

■ SVC

Menu		Data	Remark
Test Pattern	Pattern Sel	...	
	LOGIC Pattern Sel	0	
	LOGIC Level Sel	255	
PANEL DISPLAY TIME		2Hr	
SVC Info			
Dlete S/N			
Upgrade	LOGIC USB D/L		
	SUBMICOM UPGRADE		
	BT UPGRADE		
	BT FREPAIRING		
	Function Upgrade		
	FRC3D FW Upgrade		
	Camera Upgrade		
	Mic Upgrade		
	JP MICOM UPGRADE		
	DP MICOM UPGRADE		
	Jump Upgrade		
Smart Hub Reset			
ER Count	WD Count		
	AR Count		
	WIFI ER Count		
	BT ER Count		
	HDMI Err Cnt		
	Camera ER Count		
LOG	Select Log Type		
	Log View		
	Delete Log		
	Debug Log Down		
Self Diagnosis			
Loop Back	LAN Test		
	AV Audio Test		
	DVIN Audio Test		
	CVBS Test		
	COMP Test		
	USB HUB Test		
	HDMI Test		
	SCART Audio Test		
	SCART CVBS Test		
	SCART RGB Test		

Menu			Data	Remark
	CPU			
	DDR			
	FLASH			
	Eeprom Reset			
	X-TAL			
	Tuner1			
	Sound AMP			
	HDMI Switch IC			
	WIFI ER Count			
	LVDS			
	T-CON/FRC			
	PCB Test			
	MOIP			
	BT			
	EcoSensor Support			
	Voltage			
	Divece Self Test			
	App Self Test			
	EXT Sound Inspection			
	Woofer Sound Inspection			
	ATV CH Inspection			
	DTV CH Inspection			
	Satellite CH Inspection			
IPERF			Stopped	
OPTION_HDMI	DVI/HDMI SOUND		Auto	
	HDMI HOT PLUG		Disable	
	HOT PLUG SWITCHING		Boot	
	HOT PLUG DURATION		200ms	
	CLK TERM DURATION		200ms	
	HDMI FLT CNT SIG		100ms	
	HDMI LFT CNT LOS		100ms	
	UNSTABLE BAN CNT		3500ms	
	HDMI ROBIN		1	
	HDMI Callback		0	
	HDMI CTS Thid		8	
	HDMI CTS Cnt1		1	
	HDMI EQ		AUTO	
	HDMI Write Type		Combine	
	HDMI Switch IC		NOEN	
	DVI SET TIME		300ms	

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Menu			Data	Remark
	DHMI Sync		DE	
	HDMI 3D DET		0	
	HOT PLUG OFF HOLD TIME		0	
DVB CI	TS Clock delay TC			
	TS Clock delay S			
	CI Control Buf ON		ON	
	TS Clock delay CPU		-1	
CAL Data Restore_Copy			0	
Expert	N/D ADJ			
	Source			

■ ADC/WB

Menu		Data	Remark
ADC	AV Calibration	/	
	Comp Calibraion	/	
	PC Calibration	/	
	HDMI Calibration	/	
ADC Target	1st_AV_Low	64	
	1st_AV_High	880	
	1st_AV_Delta	2	
	1st_COMP_Y_Low	64	
	1st_COMP_Cb_Low	512	
	1st_COMP_Cr_Low	512	
	1st_COMP_Y_High	940	
	1st_COMP_Cb_High	512	
	1st_COMP_Cr_High	512	
	1st_COMP_Delta	2	
	1st_PC_Low	4	
	1st_PC_High	1004	
	1st_PC_Delta	2	
	2nd_ACH_Low	4	
	2nd_ACH_High	940	
	2nd_PC_Low	4	
	2nd_PC_High	940	
	2nd_Delta	2	
ADC Result	1st_Y_GH	258	
	1st_Y_GL	128	
	1st_Cb_BH	...	
	1st_Cb_BL	...	
	1st_Cr_RH	...	
	1st_Cr_RL	...	
	2nd_R_L	133	
	2nd_G_L	133	
	2nd_B_L	133	
	2nd_R_H	70	
	2nd_G_H	70	
	2nd_B_H	70	
White Balance	Sub Brightness	128	
	R-Offset	128	
	G-Offset	128	
	B-Offset	128	
	Sub Contrast	128	

Menu		Data	Remark
	R-Gain	128	
	G-Gain	128	
	B-Gain	128	
	Movie R-Offset	...	
	Movie B-Offset	...	
	Movie R-Gain	...	
	Movie B-Gain	...	

■ Advanced

Menu			Data	Remark
Picture_2D	Sub Setting	Gamma	1	
		Natural Gamma	0	
		Pwm Max	100	
		PWM Min	0	
		Pwm Mid	0	
		Contrast Dimming	OFF	
		7.5 IRE NTSC	OFF	
		7.5 IRE Offset		
		Comp Phase	110	
		Led Peak OnOff	OFF	
		Dither Bypass	OFF	
		D Motion Light	On	
		Dynamic Contrast	On	
	EPA Standard	Standard Contrast	100	
		Standard Brightness	45	
		Standard Sharpness	50	
		Standard Color	50	
		Standard Tint	0	
		Standard Backlight	10	
	WB Movie	W/B Movie On/Off	OFF	
		Model	...	
		Color Tone	...	
		Msub Brightness	...	
		Msub Contrast	...	
		N_Rgain	...	
		N_Bgain	...	
		N_Roffset	...	
		N_boffset	...	
		W2_Rgain	...	
		W2_Bgain	...	
		W2_Roffset	...	
		W2_Boffset	...	
		Movie Contrast	...	
		Movie Bright	...	
		Movie Color	...	
		Movie Sharpness	...	
		Movie Tint	...	
		Movie Backlight	...	
		Movie Gamma	...	

Menu			Data	Remark
		M_Sub_Gamma	...	
		HDMI Black Level	...	
	WCE	WRHue	64	
		WRSat	16	
		WYHue	64	
		WYSat	16	
		WGHue	64	
		WGSat	16	
		WCHue	64	
		WCSat	16	
		WBHue	64	
		WBSat	16	
		WMHue	64	
		WMSat	16	
		ARHue	64	
		ARSat	16	
		AYHue	64	
		AYSat	16	
		AGHue	64	
		AGSat	16	
		ACHUE	64	
		ACSat	16	
		ABHue	64	
		ABSat	16	
		AMHue	64	
		AMSat	16	
	VDEC	AGC mode	3	
		AGC manual gain	72	
		Ifcomptype	1	
		Ifcompsel	15	
		Saturain Cb/Cr	145	
		Secam Filter Sel	0	
		RGB Delay	150	
		Peaking Gain	0	
		Coring Gain	3	
		Chroma Peak	10	
		2D V Peaking	0	
		2D H Peaking	0	
		2D Peaking Gain	0	
	Sharpness	Post_H1	20	

Menu			Data	Remark
		Post_H2	26	
		Post_H3	20	
		Post_H4	15	
		Post_v1	20	
		Post_v2	18	
		Post_H2 Overshoot	128	
		Post_H2 Undershoot	128	
		Post_H3 Overshoot	128	
		Post_H3 undershoot	128	
		Core Gain1	2	
		CoreGain2	3	
		D_Tot_Gain	24	
		S_Tot_Gain	24	
	ColorMapping	A_Red_R	60	
		A_Red_G	0	
		A_Red_B	0	
		A_Green_R	67	
		A_Green_G	100	
		A_Green_B	0	
		A_Blue_R	0	
		A_Blue_G	49	
		A_Blue_B	100	
		A_Yellow_R	100	
		A_Yellow_G	100	
		A_Yellow_B	0	
		A_Cyan_R	0	
		A_Cyan_G	46	
		A_Cyan_B	100	
		A_Magenta_R	27	
		A_Magenta_G	0	
		A_Magenta_B	67	
		N_Red_R	50	
		N_Red_G	0	
		N_Red_B	0	
		N_Green_R	0	
		N_Green_G	50	
		N_Green_B	0	
		N_Blue_R	0	
		N_Blue_G	0	
		N_Blue_B	50	

Menu			Data	Remark
		N_Yellow_R	50	
		N_Yellow_G	50	
		N_Yellow_B	0	
		N_Cyan_R	0	
		N_Cyan_G	50	
		N_Cyan_B	50	
		N_Magenta_R	50	
		N_Magenta_G	0	
		N_Magenta_B	50	
	Enhance	BLE_Gain	22	
		D Sub Color	80	
		D Skin Hue	84	
		D Skin Sat	18	
		S Sub Color	80	
		S Skin Hue	72	
		S Skin Sat	16	
		M Sub Color	55	
		M Skin Hue	64	
		M Skin Sat	16	
		Sub Tint	45	
		CE_Normal_Left_Gain	35	
		CE_Normal_Right_Gain	20	
		CE_Normal_Offset	-10	
		CE_Special_Left_Gain	15	
		CE_Special_Right_Gain	10	
		CE_Special_Offset	-50	
		CE_S_Left_gain	10	
		CE_S_Right_Gain	40	
		CE_S_Normal_Offset	-2	
	LNA_Plus	Synctip_Noise	102	
		dB01_th	3	
		dB12_th	4	
		dB23_th	6	
		dB34_th	8	
		dB45_th	10	
		dB56_th	12	
		dB67_th	15	
		dB78_th	28	
		LNA_Plus_Yfiller	3	
	YC_Delay	RF PAL BG	10	

Menu			Data	Remark
		RF PAL DK	11	
		RF PAL I	13	
		RF PAL M	6	
		RF PAL n	11	
		RF SECAM BG	5	
		RF SECAM DK	8	
		RF SECAM L	8	
		RF NT 358	14	
		RF NT 443	8	
		AV PAL	9	
		AV PAL M	7	
		AV PAL N	9	
		AV SECAM	9	
		AV NT 358	10	
		AV NT 443	4	
		AV Pal 60	6	
		SCART PAL	9	
		SCART PAL M	9	
		SCART PAL N	9	
		SCART SECAM	4	
		SCART NT 358	10	
		SCART NT 443	4	
		SCART PAL 60	6	
		SCART RGB PAL	8	
		SCART RGB PAL M	8	
		SCART RGB PAL N	8	
		SCART RGB SECAM	8	
		SCARTRGB NT 358	8	
		SCARTRGB NT 443	8	
		SCARTRGB PAL 60	8	
	Picture Update			
Picture_3D	Sub Setting_3D	3D_Gamma	0.95	
		3D_Natural Gamma	0	
		3D_Pwm Max	100	
		3D_PWM Min	0	
		3D_Pwm Mid	0	
		3D_Contrast Dimming	OFF	
		3D_Led Peak OnOff	OFF	
		3D_Dither Bypass	OFF	
		3D_D Motion Light	OFF	

Menu			Data	Remark
	EPA_3D	3D_Dynamic Contrast	OFF	
		3D Contrast	100	
		3D Brightness	45	
		3D Standard Sharpness	50	
		3D Standard Color	50	
		3D Standard Tint	0	
		3D Standard Backlight	7	
	WB Movie_3D	3D_W/B Movie On/Off	OFF	
		3D_Model	...	
		3D_Color Tone	...	
		3D_Msub Brightness	...	
		3D_Msub Contrast	...	
		3D_C_Rgain	...	
		3D_C_Bgain	...	
		3D_C_Roffset	...	
		3D_C_boffset	...	
		3D_N_Rgain	...	
		3D_N_Bgain	...	
		3D_N_Roffset	...	
		3D_n_Boffset	...	
		3D_W2_Rgain		
		3D_W2_Bgain		
		3D_W2_Roffset		
		3D_W2_Boffset		
		3D_Movie Contrast	...	
		3D_Movie Bright	...	
		3D_Movie Color	...	
		3D_Movie Sharpness	...	
		3D_Movie Tint	...	
		3D_Movie Backlight	...	
		3D_Movie Gamma	...	
		3D_M_Sub_Gamma	...	
		3D_HDMI Black Level	...	
		3D_Sub Contrast	128	
		3D_Sub_Brightness	128	
	WCE_3D	3D_WRHue	64	
		3D_WRSat	17	
		3D_WYHue	72	
		3D_WYSat	17	
		3D_WGHue	47	

Menu			Data	Remark
		3D_WGSat	17	
		3D_WCHue	58	
		3D_WCSat	17	
		3D_WBHue	54	
		3D_WBSat	18	
		3D_WMHue	64	
		3D_WMSat	17	
		3D_ARHue	64	
		3D_ARSat	16	
		3D_AYHue	64	
		3D_AYSat	16	
		3D_AGHue	64	
		3D_AGSat	16	
		3D_ACHUE	64	
		3D_ACSat	16	
		3D_ABHue	64	
		3D_ABSat	16	
		3D_AMHue	64	
		3D_AMSat	16	
		ColorMapping_3D	3D_A_Red_R	50
	3D_A_Red_G		0	
	3D_A_Red_B		0	
	3D_A_Green_R		0	
	3D_A_Green_G		50	
	3D_A_Green_B		0	
	3D_A_Blue_R		0	
	3D_A_Blue_G		0	
	3D_A_Blue_B		50	
	3D_A_Yellow_R		50	
	3D_A_Yellow_G		50	
	3D_A_Yellow_B		0	
	3D_A_Cyan_R		0	
	3D_A_Cyan_G		50	
	3D_A_Cyan_B		50	
	3D_A_Magenta_R		50	
	3D_A_Magenta_G		0	
	3D_A_Magenta_B		50	
	3D_N_Red_R		50	
	3D_N_Red_G		0	
	3D_N_Red_B	0		

Menu			Data	Remark
		3D_N_Green_R	0	
		3D_N_Green_G	50	
		3D_N_Green_B	0	
		3D_N_Blue_R	0	
		3D_N_Blue_G	0	
		3D_N_Blue_B	50	
		3D_N_Yellow_R	50	
		3D_N_Yellow_G	50	
		3D_N_Yellow_B	0	
		3D_N_Cyan_R	0	
		3D_N_Cyan_G	50	
		3D_N_Cyan_B	50	
		3D_N_Magenta_R	50	
		3D_N_Magenta_G	0	
		3D_N_Magenta_B	50	
	Sharpness_3D	3D_Post_H1	16	
		3D_Post_H2	10	
		3D_Post_H3	10	
		3D_Post_H4	10	
		3D_Post_v1	20	
		3D_Post_v2	14	
		3D_Post_H2 Overshoot	32	
		3D_Post_H2 Undershoot	32	
		3D_Post_H3 Overshoot	16	
		3D_Post_H3 Undershoot	16	
		3D_Core Gain1	1	
		3D_CoreGain2	2	
		3D_D_Tot_Gain	28	
		3D_S_Tot_Gain	28	
	Enhance_3D	3D_BLE_Gain	22	
		3D_D Sub Color	65	
		3D_D Skin Hue	100	
		3D_D Skin Sat	18	
		3D_S Sub Color	65	
		3D_S Skin Hue	72	
		3D_S Skin Sat	16	
		3D_M Sub Color	55	
		3D_M Skin Hue	64	
		3D_M Skin Sat	16	
		3D_Sub Tint	50	

Menu				Data	Remark
		3D_CE_Normal_Left_Gain		20	
		3D_CE_Normal_Right_Gain		30	
		3D_CE_Normal_Offset		-10	
		3D_CE_Special_Left_Gain		15	
		3D_CE_Special_Right_Gain		10	
		3D_CE_Special_Offset		-50	
		3D_CE_S_Left_gain		10	
		3D_CE_S_Right_Gain		40	
		3D_CE_S_Normal_Offset		-2	
	3D Setting	LED_BT_IR	BTPairDis_Ho	2	
			BTPairDis_sh	25	
			BTTransDis	10	
			BTSlaveDelay48	0	
			BTSlaveDelay50	0	
			BTSlaveDelay60	0	
			BTEmiDel_48	0	
			BTEmiDel_50	0	
			BTEmiDel_60	0	
			BTGlsDUTY	100	
			IREmiDel_48	0	
			IREmiDel_50	0	
			IREmiDel_60	0	
			IREmiMask	1	
			IRMASKPRD	1	
			IREmiNum	1	
			SlavDelay48	0	
			SlavDelay50	0	
			SlavDelay60	0	
		PDP_BT_IR	BTPairDis_Ho_PDP	2	
			BTPairDis_sh_PDP	25	
			BTTransDis_PDP	10	
			BTSlaveDelay48_D	0	
			BTSlaveDelay50_D	0	
			BTSlaveDelay60_D	0	
			BTGlsDUTY_D	100	
			BTEmiDel_48_S	0	
			BTEmiDel_50_S	0	
			BTEmiDel_60_S	0	
			BTGlsDUTY_S	100	
			IREmiDel_48_R	0	

Menu				Data	Remark
			IREmiDel_50_R	0	
			IREmiDel_60_R	0	
			BTGlsDUTY_R	100	
			BTEmiDel_48_M	0	
			BTEmiDel_50_M	0	
			BTEmiDel_60_M	0	
			BTGlsDUTY_M	100	
			IREmiMask_PDP	1	
			IRMASKPRD_PDP	1	
			IREmiNum_PDP	1	
			SlavDelay48_PDP	0	
			SlavDelay50_PDP	0	
			SlavDelay60_PDP	0	
		Duty	PDuty192	25	
			PDuty200	25	
			PDuty240_Dyn	25	
			PDuty210_Mov	25	
		Dcc	Glmit_LBT0	88	
			Glmit_LBT1	89	
			Glmit_LBT2	90	
			Glmit_LBT3	91	
			Glmit_LLT0	95	
			Glmit_LLT1	96	
			Glmit_LLT2	97	
			Glmit_LLT3	98	
			DCCX1	0	
			DCCX2	0	
			DCCX3	0	
			DCCY1	0	
			DCCY2	0	
			DCCH1	0	
			DCCH2	0	
			DCCH3	0	
			DCCV1	0	
			DCCV2	0	
			Temp_Read	0	
			Time_HOT	120	
			Time_Cold	120	
			Temp_ST	16	
			Temp_TH	40	

Menu				Data	Remark
			delta	5	
		Effect	Depth_Min	10	
			Depth_Max	100	
			Viewp_Min_2D3D	64	
			Viewp_Max_2D3D	192	
			Viewpoint_Min	64	
			viewpoint_Max	192	
			Debug	Debug	OFF
		DccMode		0	
		DccSele0_0		0	
		DccSele0_1		0	
		DccSele0_2		0	
		DccSele0_3		0	
		DccSele0_4		0	
		DccSele0_5		0	
		DccSele0_6		0	
		DccSele0_7		0	
		PosiSel_0_0		0	
		PosiSel_0_1		0	
		PosiSel_0_2		0	
		PosiSel_0_3		0	
		PosiSel_0_4		0	
		PosiSel_0_5		0	
		PosiSel_0_6		0	
		PosiSel_0_7		0	
		PosiSel_0_8		0	
		PosiSel_0_9		0	
		PosiSel_0_10		0	
		PosiSel_0_11		0	
		Bypass		IREmiMask	1
			IRMASKPRD	1	
			IREmiNum	1	
			SlavDelay48	0	
			SlavDelay50	0	
			SlavDelay60	0	
		PDP_BT_IR	BTPairDis_Ho_PDP	2	
			BTPairDis_sh_PDP	25	
			BTTransDis_PDP	10	
			BTSlaveDelay48_D	0	
			BTSlaveDelay50_D	0	

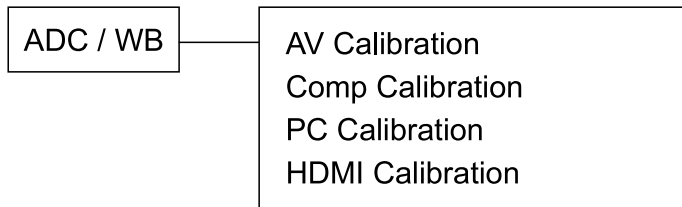
Menu				Data	Remark
			BTSlaveDelay60_D	0	
			BTGlsDUTY_D	100	
			BTEmiDel_48_S	0	
			BTEmiDel_50_S	0	
			BTEmiDel_60_S	0	
			BTGlsDUTY_S	100	
			IREmiDel_48_R	0	
			IREmiDel_50_R	0	
			IREmiDel_60_R	0	
			BTGlsDUTY_R	100	
			BTEmiDel_48_M	0	
			BTEmiDel_50_M	0	
			BTEmiDel_60_M	0	
			BTGlsDUTY_M	100	
			IREmiMask_PDP	1	
			IRMASKPRD_PDP	1	
			IREmiNum_PDP	1	
			SlavDelay48_PDP	0	
			SlavDelay50_PDP	0	
			SlavDelay60_PDP	0	
		Duty	PDuty192	25	
			PDuty200	25	
			PDuty240_Dyn	25	
			PDuty210_Mov	25	
		Dcc	Glmit_LBT0	88	
			Glmit_LBT1	89	
			Glmit_LBT2	90	
			Glmit_LBT3	91	
			Glmit_LLT0	95	
			Glmit_LLT1	96	
			Glmit_LLT2	97	
			Glmit_LLT3	98	
			DCCX1	0	
			DCCX2	0	
			DCCX3	0	
			DCCY1	0	
			DCCY2	0	
			DCCH1	0	
			DCCH2	0	
			DCCH3	0	

Menu				Data	Remark
			DCCV1	0	
			DCCV2	0	
			Temp Read	0	
			Time_HOT	120	
			Time_Cold	120	
			Temp_ST	16	
			Temp_TH	40	
			delta	5	
		Effect	Depth_Min	10	
			Depth_Max	100	
			Viewp_Min_2D3D	64	
			Viewp_Max_2D3D	192	
			Viewpoint_Min	64	
			viewpoint_Max	192	
		Debug	Debug	OFF	
			DccMode	0	
			DccSele0_0	0	
			DccSele0_1	0	
			DccSele0_2	0	
			DccSele0_3	0	
			DccSele0_4	0	
			DccSele0_5	0	
			DccSele0_6	0	
			DccSele0_7	0	
			PosiSel_0_0	0	
			PosiSel_0_1	0	
			PosiSel_0_2	0	
			PosiSel_0_3	0	
			PosiSel_0_4	0	
			PosiSel_0_5	0	
			PosiSel_0_6	0	
			PosiSel_0_7	0	
			PosiSel_0_8	0	
			PosiSel_0_9	0	
			PosiSel_0_10	0	
			PosiSel_0_11	0	
		Bypass		OFF	

4.4. White Balance – Calibration

4.4.1. White Balance - Calibration

Factory

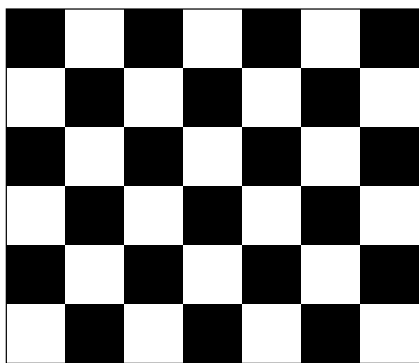


4.4.2. Service Adjustment

- You must perform Calibration in the Lattice Pattern before adjusting the White Balance.

■ Color Calibration

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



- 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_#1)	Perform in NTSC/PAL B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

■ Method of Color Calibration (AV)

- 1) Apply the NTSC/PAL 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 “ADC” 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 “ADC” 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 (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 “ADC” 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

Factory	(Low light)	(High light)
ADC / WB - White Balance	Sub Bright R offset G offset B offset	Sub Contrast R gain G gain B gain