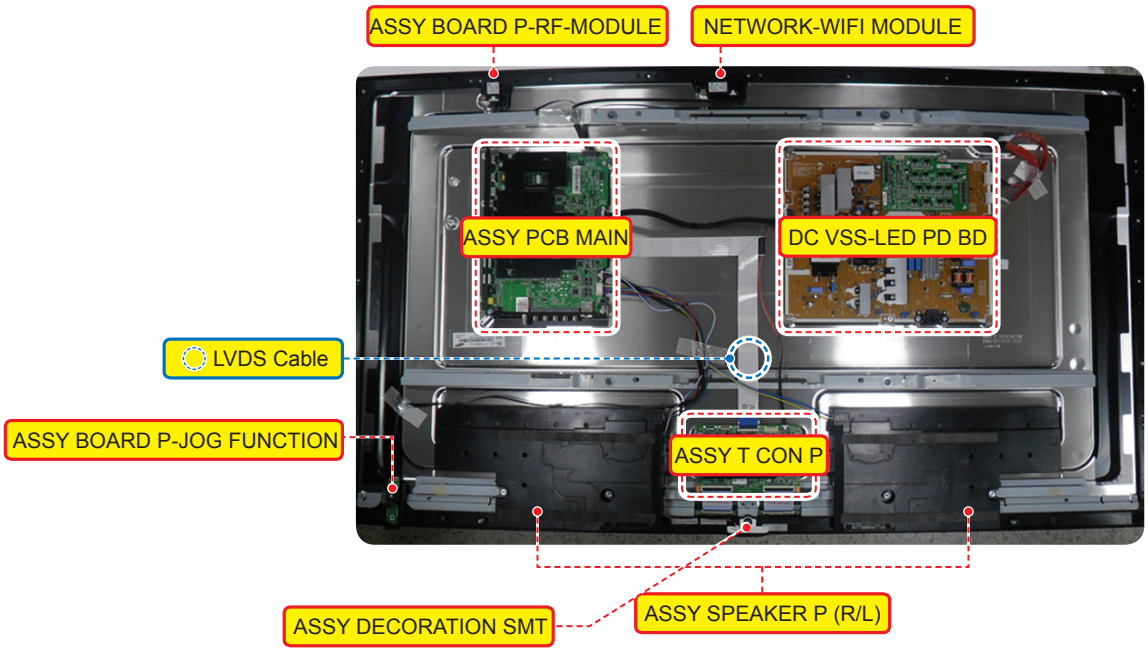
4. Troubleshooting

4-1. Previous Check

■ Check list for initial operation

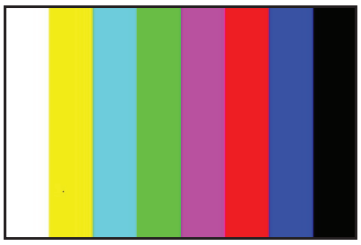
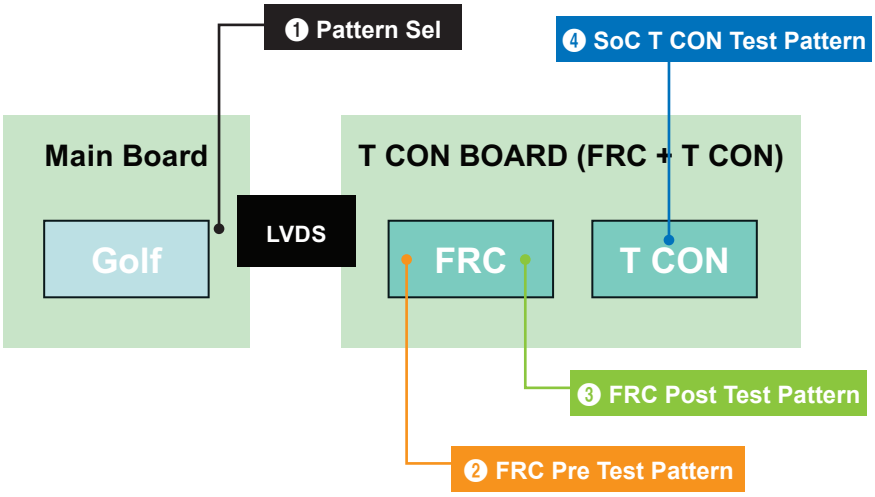


- AC Power Cord connected to the TV and the wall receptacle.
- Standby Power/IR Indicator LED is turned On.
- If Power/IR Indicator is not on check 10p power cable is connected and for correct Standby Voltage from SMPS to Main. Also check Jog Function Cable.
- Power turned On with Jog Function or Remote.
- Power on command from main Board to SMPS.
- Power/IR Indicator Flashes.
- Panel Back Lights are turned On.
- If no Backlights, unplug AC Power Cord, unplug 10 pin connector to SMPS, plug in AC Power Cord, Back light should come on. Check Main Board operation for error.
- Power/IR Indicator goes off.
- Picture or banner is displayed.
  - If nothing is displayed, check the LVDS cable.

4-2. How to Check Fault Symptom

4-2-1. Video

Main Board	Pre-T-Con.	Post T-Con.	Problem
Pass	Pass	Pass	Check Signal Source and other inputs.
Fail	Pass	Pass	Main Board or LVDS Cable.
Fail	Fail	Pass	T CON Board.
Fail	Fail	Fail	T CON Board or Panel.

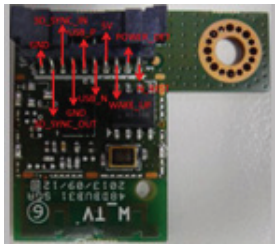
Symptom	Major checkpoints
	• **ENTER** : Factory mode - SVC Info - Test Pattern  • **CHECK TEST PATTERNS** ❶ Verify "Pattern Sel" ❷ Verify "FRC Pre Test Pattern" ❸ Verify "FRC Post Test Pattern" ❹ Verify "SoC T CON Test Pattern"

4-2-2. Network

Troubleshooting	Major checkpoints
Bluetooth Module	• **MAIN : SVC, MODE : DTV, RES : NOTSUPPORT**

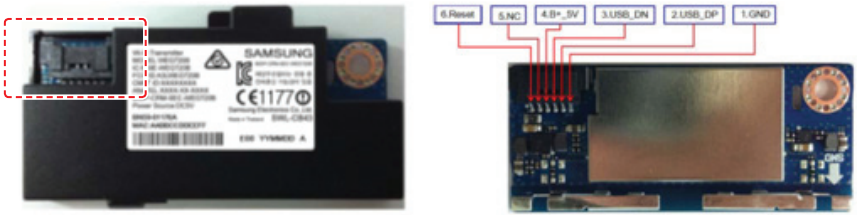
WD Count	65280	Serdes Error Count	-1
Power Fail Count	0	Serdes Reset Count	-1
AR Count	0	Serdes WatchDog On/Off	OFF
WIFI ER Count	4		
WIFI NO DETECTION COUNT	-1		
WIFI DETACHMENT COUNT	-1		
BT ER COUNT	4		
BT NO DETECTION COUNT	-1		
BT DETACHMENT COUNT	-1		
BT MGT OPEN FAIL COUNT	-1		
BT MGT DISCONNET COUNT	-1		
Camera ER Count	0		
FRC3D Emergency Reboot On/Off	OFF		
FRC3D ER Count	0		
Fan Error Count	-1		

1. Check Bluetooth Address at **Contact Samsung**.
2. Check BT F/W Version at Factory Mode screen.
   - Might require upgrade.
   - Check GSPN.
3. If errors exist than Check BT Connector Voltages. If DC voltages are missing check cable & Main Board feed.



Pin No.	Pin Name	Direction	Description
1	N_RESET	I	Active-low reset input
2	GPIO_0	I/O	POWER_DET (BT_SLEEP)
3	GPIO_1	I/O	WAKE_UP
4	5V	---	5V
5	USb_D-	I/O	USB_N
6	USb_D+	I/O	USB_P
7	GND	GND	GND
8	GPIO_5	I/O	3D_SYNC_IN_FROM_TV
9	GPIO_6	I/O	3D_SYNC_OUT_FROM_BT
10	GND	GND	GND

Troubleshooting	Major checkpoints
WIFI Module	**1.** Check Wired MAC Address and Wireless MAC Address at **Contact Samsung**. **2.** Check Wired MAC and Wireless MAC at Factory Mode Menu. (Success/Failure) – If Wired MAC errors exist the Main Board is defective. – If Wireless MAC errors exist: Check Wi-Fi Module Connector Voltages. If OK replace Module.



Pin No.	Pin Name	Description	Type
1	GND	Ground	G
2	USB_DP	USB Interface	I/O
3	USB_DN	USB Interface	I/O
4	B+_5V	+5V DC Power supply for SWL -R55	V
5	NC	NC	-
6	Reset	Reset signal Input	I

4-2-3. Problems and Solutions

■ Apps

- Due to the product characteristics featured on the Samsung Smart Hub, as well as limitations in available content, certain features, applications, and services may not be available on all devices or in all territories. Some Smart Hub features may also require additional peripheral devices or membership fees. Visit http://www.samsung.com for more information on specific device information and content availability. Services and content availability are subject to change without prior notice.
- Samsung Electronics takes no legal responsibility whatsoever for any interruption of app services caused by the service provider for any reason.
- Application services may be provided in English only and available content may vary depending on the area.
- For more information about applications, visit the applicable service provider's website.
- An unstable Internet connection may cause delays or interruptions. In addition, applications may terminate automatically depending on the network environment. If this occurs, check your Internet connection and try again.
- Application services and updates may become unavailable.
- Application content is subject to change by the service provider without prior notice.
- Specific services may vary depending on the version of the application installed on the TV.
- An application's functionality may change in future versions of the application. If this occurs, run the application's tutorial or visit the service provider's website.
- Depending on the service provider's policies, certain applications may not support multitasking.

■ WebBrowser

- Select **Web Browser**. The browsing screen may differ from the one on your computer.
- The web browser is not compatible with Java applications.
- You cannot download files. If you attempt to download a file, you will receive an error message instead.
- The web browser may not be able to access certain websites.
- Playing Flash videos may be restricted.
- E-commerce for online purchases is not supported.
- With websites that have scrollable windows, scrolling through such a window can result in corrupted characters.
- ActiveX is not supported.
- Certain options are not accessible in Link Browsing mode. (Switch to Pointer Browsing to activate this.)
- Only a limited number of fonts are supported. Certain symbols and characters may not be displayed properly.
- The response to remote commands and the resulting on-screen display may be delayed while a webpage is loading.
- Loading a webpage may be delayed or suspended completely with certain operating systems.
- The copy and paste operations are not supported.
- When composing an email or a simple message, certain functions such as the font size and color selection may not be available.
- There is a limit to the number of bookmarks and the size of the log file that can be saved.
- The number of windows that can be opened concurrently varies depending on the search conditions and the TV model.
- The web browsing speed will vary depending on the network environment.
- Playing embedded video automatically disables PIP. Video playback may not commence after PIP is disabled. In this case, you will have to reload the page.
- The web browser supports .mp3 audio files only.
- The web browser supports a specific file format for importing and exporting bookmarks. (Compatible Format: Netscape-bookmarkfile- 1)
- The folder tree information is not included when importing and exporting bookmarks.
- Exporting bookmarks to a USB device connected to the TV saves the bookmarks under a folder named "Samsung SmartTV Bookmark".
- If **Clock** (**System** - **Time** - **Clock**) has not been enabled, the browsing history will not be saved.
- The browsing history is saved in the order of latest to oldest, with the oldest entries being overwritten first.

- Depending on the types of video/audio codecs supported, it might not be possible to play back certain video and audio files during Flash playback.
- A sudden change in the picture brightness inside a video window may affect the brightness of the screen. This problem applies to PDP TVs only.
- Video sources from PC-optimized streaming service providers may not play properly on our proprietary web browser.
- Using the on-screen QWERTY keyboard automatically disables PIP. (Except when entering a URL.)

■ Photo, Video, and Music File Use Limitations

- The TV supports MSC (Mass Storage Class) USB devices only. MSC is a class designation for mass storage devices. Types of MSC devices include external hard drives, flash card readers, and digital cameras. (USB hubs are not supported.) These kinds of devices must be connected directly to the TV's USB port. The TV may not be able to recognize the USB device or read the files on the device if it is connected to the TV via a USB extension cable. Do not disconnect the USB device while transferring files.
- When connecting an external hard drive, use the USB (HDD) port. We recommend that you use an external hard drive with its own power adapter.
- Certain digital cameras and audio devices may not be compatible with the TV.
- If there are multiple USB devices connected to the TV, the TV might not be able to recognize some or all the devices. USB devices that use high-power input should be connect the USB [5V, 1A] port.
- The TV supports the FAT, exFAT, and NTFS file systems.
- After sorting files in the Folder view mode, the TV can display up to 1000 files per folder. If the USB device contains more than 8,000 files and folders, however, some files and folders might not be accessible.
- The PTP (pier to pier) connection mode is available only for digital cameras. If you connect a smartphone or tablet to the TV using PTP mode, the TV will not recognize it.

4-3. Factory Mode Adjustments

4-3-1. Detail Factory Option

NOTE

If you replace the main board with new one, please change the factory option as well.
The options you must change are "**Type**".

■ UN**H8000AFXZA

Inches		48"	55"	65"
PANEL	Vendor	SDC	SDC	SDC
	Code	BN95-01414A	BN95-01415A	BN95-01416A
	Spec.	CY-VH048DSLV2V	CY-VH055DSLV2V	CY-VH065DSLV2V
SMPS BOARD	Vendor	SEM	SEM	DYREL
	Code	BN44-00740A	BN44-00740A	BN44-00743A
	Spec.	L55C2L_ESM	L55C2L_ESM	L65C2L_EDY
MAIN BOARD	Chassis Ass'y	BN91-12908J	BN91-12421C	BN44-00743A
	PBA Ass'y	BN94-07616J	BN94-07389C	BN94-07389D

Byte	Item			
0	Factory Reset	-	-	-
1	Type	48A2UFBR	55A2UFBR	65A2UFBR
2	Local set	US	US	US
3	SW Model	UH8000	UH8000	UH8000
4	BOM Model	8000	8000	8000
5	Tuner	SI2190	SI2190	SI2190
6	Ch table	NONE	NONE	NONE

4-3-2. Entering Factory Mode

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

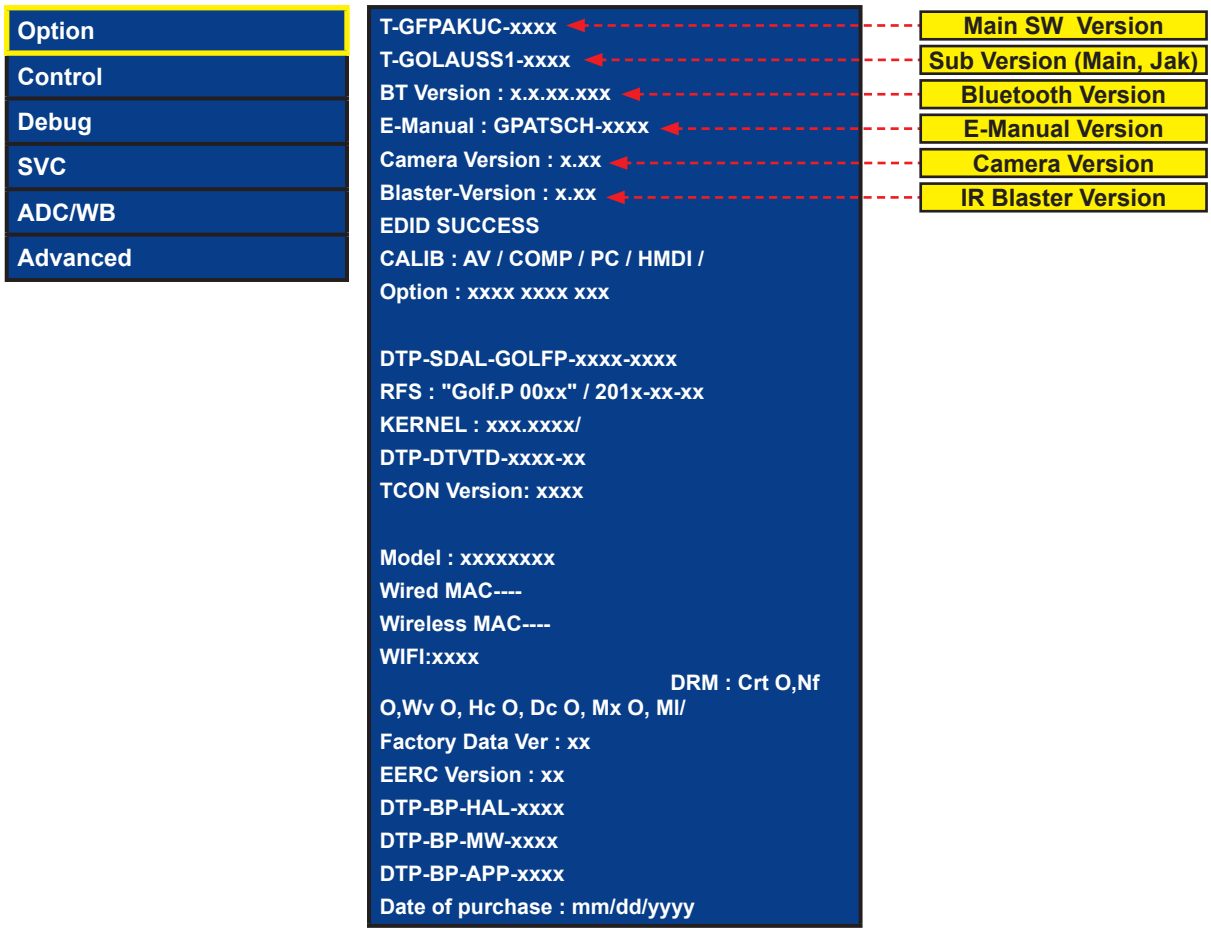
- If you do not have Factory remote control

  Power OFF → INFO → MENU → MUTE → Power On

- If you have Factory remote control

  INFO → Factory

- Some items are not available without a factory remote.



4-3-3. Factory Data

■ Option

Factory Menu Name	Data	Range
Factory Reset	-	
Type	48A2UFBR 55A2UFBR 65A2UFBR	
Local Set	US	Depends on the region.
SW Model	UH8000	
BOM Model	8000	
TUNER	SI2190	
Ch Table	NONE	
MRT Option		
Engineer Option		

■ Control

Factory Menu Name	Data	Range
EDID		
EDID ON/OFF	Off	
EDID WRITE ALL	…	
EDID WRITE HDMI	…	
EDID WRITE PC	…	
HDMI EDID Ver	…	
HDMI EDID Port	…	
Sub Option		
RS-232 Jack	UART	
Serial Log On/Off	OFF	
Watchdog	ON	
Checksum	0x0000	
Fast Boot In Production	ON	
USB Serial	OFF	
EEPROM RESET		
ECO IC TYPE	CT802FN	
Info Link Server Type	development	
Info Link Country	None	
TTX Group	…	
Visual Test	Diable	
Mediaplay DB	On with 10MB	

Factory Menu Name	Data	Range
OPTION_SWU		
OPTION_NUM		
RF Remocon Support	OFF	
CDD mode		
DPMS Support	OFF	
Num of IPTV CIP	0	
Num of CI	0	
Num of DECODER	1	
T-CON Device	1	
BOARD CONTROL	ON	
RM		
LMK threshold	3	
Low threshold	0	
High threshold	0	
CLB	…	
EOS Click	OFF	
Last Screen	OFF	
App Resume	ON	
BP PMS Reset	1	
Fanet Thread	2	
User InstantOn Default Value	OFF	
ACM_MC	OFF	
Hotel Option		
Hospitality Mode	OFF	
Power On		
Menu OSD		
Operation		
Music Mode		
External Source		
Eco Solution		
Cloning		
Shop Option		
Shop Mode	OFF	
Exhibition Mode	OFF	
3D_EmitOn	ON	
3D_EmitShowMode	OFF	
3D GLASS PULSE_S	5	

Factory Menu Name	Data	Range
3D GLASS PULSE_H	3	
3D CUBE	OFF	
Asia Option		
Unbalance	OFF	
AF Level adjust	0	
TX Power Level	0	
Mono Last Memory	OFF	
H Shaking	0	
SOUND		
High Devi	OFF	
Carrier_Mute	OFF	
FM Prescale	20	
FM M Prescale	21	
AM Prescale	21	
NICAM Prescale	20	
Pilot Level High Thld	0x20h	
Pilot Level Low THLD	0x10h	
chattering Count	5	
Carrier2 Amp High ThLD	9	
Carrier2 Amp Low THLD	6	
A2 pilot sensitivity	1	
Amp Volume	0xc7h	
Amp Scale	0x8eh	
Amp EQ Check Sum	0x1F6A2A08	
Amp Local Check Sum	0x00000000	
Subwoofer Support	3	
Woofer Type	0	
Woofer Volume	0xc7h	
Woofer Scale	0x5ch	
Woofer Check sum	0x02CBF3C4	
Woofer Local Check Sum	0x00000000	
Local Speaker EQ	0	
PEQ Test	Ready	
Amp Model	NTP7414	
Speaker EQ	ON	
Bottom CheckSum	0x017A6E0A	
Bottom Local Check Sum	0x00000000	

Factory Menu Name	Data	Range
Wall Filter Type	0	
SRS Tuning Parm	0	
SPDIF PCM Gain	-9	
AudioDock BT Delay	50	
3D_Glass BT delay	50	
Speaker cut-off Freq	0	
Audio-IP Test	0	
TruBass-Checksum	0	
Mic Scale	OFF	
India Sound	0	
Speaker Delay Normal	0	
NTV CU Delay	0	
Lipsync Inx	3:GP_U_ATSC	
Lipsync CheckSum	OK:B391:127	
Lipsync USB Test	Ready	
Lipsync BT CheckSum	OKA4EC:127	

■ Debug

Factory Menu Name	Data	Range
Spread Spectrum		
DDR Margin		
ND ADJ Support	OFF	
MICOM POWER OFF	OFF	
BT_ON_OFF	ON	
RF Mute Time	600ms	
CI +1.3	OFF	
FRC		
Tuner Margin	3	
MPEG Margin	20	
H.264 Margin	15	
CAM Wait Time	1500	
TCON_TEMP READ	50.88	
TEMP LAST	50.88	
DCC VERSION	0xC9C7	
DCC CHK SEL	0	
DCC CHECK LACAL	0x0	
DCC CHECK TOTAL	0x0	

Factory Menu Name	Data	Range
MulitACC Checksum	0	
IIC Bus Stop	OFF	
Tuner Status		
Voice Debug	OFF	
Power Management		
HHP option	SHOW	
RM_BIST_DTV	0	
RM_BIST_ATV	0	

■ SVC

Factory Menu Name	Data	Range
Self Test(for HW)		
Info		
Upgrade		
T-CON Usb Download	Failure	* UpgradeT-CON eeprom
T-CON CheckSum	0x3131	* virsion of T-CON eeprom
T-CON2 Usb Download	Failure	
T-CON2 CheckSum		
PANEL EEPROM UPGRADE	Failure	
PANEL FLASH UPGRADE	Failure	
Logic Usb D/L	…	
SUBMICOM UPGRADE	Ready	* Upgrade Sub-Micom Program
SUBMICOM JP UPGRADE	Ready	
BT UPGRADE		* Upgarde BT (There is upgrade program in Main-Image)
BT FREEPAIRING	ON	
Function Upgrade	Failure	
FRC3D FW UPGRADE		
FRC3D LD UPGRADE	Failure	
FRC2 3D FW UPGRADE		
Camera Upgade		* Upgarde Camera module (There is upgrade program in Main-Image)
Mic Upgrade		* Upgarde MIC in Camera module (There is upgrade program in Main-Image)
CPLD USB Download		
CPLD DownLoad		* Upgarde CPLD (There is upgrade program in Main-Image)
Jump UPGRADE	Failure	
IR Blaster Upgrade	Failure	

Factory Menu Name	Data	Range
LP eeprom update	50	
NTV Cu Update	Failure	
Main FPGA Upgrade	Failure	
Serdes FPGA Upgrade	Failure	
Jack FPGA Upgrade	Failure	
UD LDC PROFILE UPGRADE	Failure	
Pic Data USB Update	VER:0x000	
Audio Data USB Update		
Eco Data USB Update	VER:0x0002	
SC ADK Upgrade	Failure	
SC MBR Upgrade	Failure	
Reset		
OPTION_HDMI		
DVB CI		
Test Pattern		
Other setting		
Restriction		
SVC Panel		

■ ADC/WB

Factory Menu Name	Data	Range
ADC		
AV Calibaration	/	
Comp Calibration	/	
PC Calibration	/	
HDMI Calibration	/	
ADC Result		
1st_Y_GH	252	
1st_Y_GL	245	
1st_Cb_BH	.	
1st_Cb_BL		
1st_Cr_RH		
1st_Cr_RL		
2nd_R_L	130	
2nd_G_L	130	
2nd_B_L	130	
2nd_R_H	107	

Factory Menu Name	Data	Range
2nd_G_H	107	
2nd_B_H	107	
White Balance		
R-Offset	128	
G-Offset	128	
B-Offset	128	
R-Gain	128	
G-Gain	128	
B-Gain	128	
WB-W2_R_Offset	128	
WB_W2_B_Offset	128	
WB_W2_R_Gain	128	
WB_W2_B_Gain	70	
WB-N_R_Offset	128	
WB_W2_N_Offset	128	
WB_W2_N_Gain	142	
WB_W2_N_Gain	109	
MGA		
MGA On/Off	OFF	
R1_Gain	512	
G1_Gain	512	
B1_Gain	512	
R2_Gain	512	
G2_Gain	512	
B2_Gain	512	
R3_Gain	512	
G3_Gain	512	
B3_Gain	512	
R4_Gain	512	
G4_Gain	512	
B4_Gain	512	
R5_Gain	512	
G5_Gain	512	
B5_Gain	512	
R6_Gain	512	
G6_Gain	512	
B6_Gain	512	

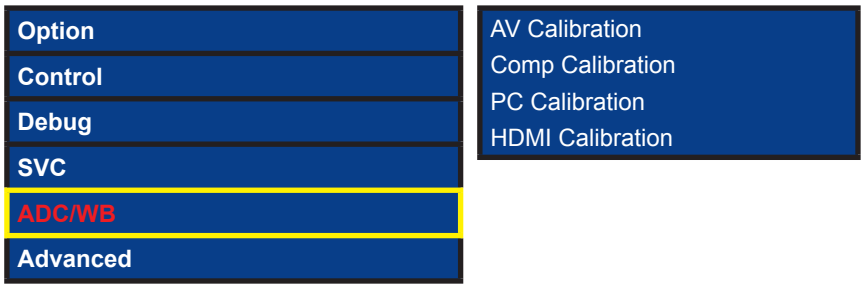
Factory Menu Name	Data	Range
R7_Gain	512	
G7_Gain	512	
B7_Gain	512	
R8_Gain	512	
G8_Gain	512	
B8_Gain	512	
R9_Gain	512	
G9_Gain	512	
B9_Gain	512	
R10_Gain	512	
G10_Gain	512	
B10_Gain	512	

■ Advanced

4-4. White Balance

4-4-1. Calibration

1. Into the Factory Mode.
2. Select **ADC/WB** menu.
3. Select **ADC** menu.



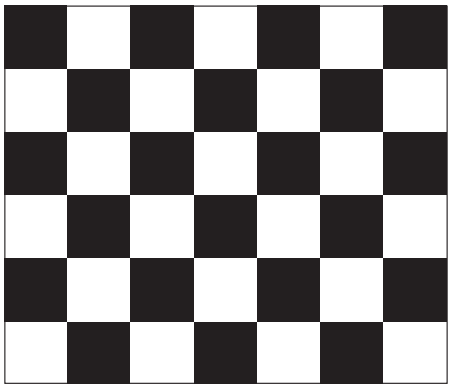
4-4-2. Service Adjustment

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

■ Color Calibration

- Adjust Specification

Source	Setting Mode	Pattern	Use Equipment
HDMI	1280 x 720@60 Hz	Pattern #24 (Chess Pattern)	CA210 & Master MSPG925 Generator



(Chess Pattern)

- 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 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	Perform in 720p B&W Pattern #24	Lattice

■ 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 “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 (PC)

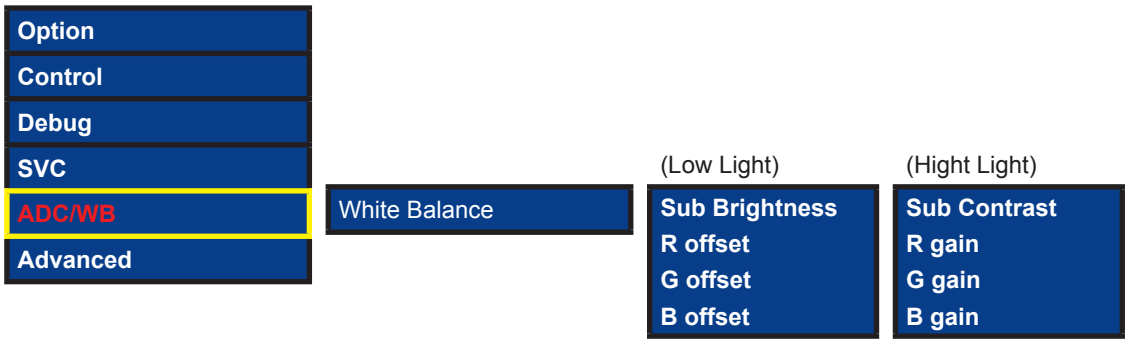
1. Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port.
2. Press the Source key to switch to “PC” mode.
3. Enter Service mode.
4. Select the “ADC” menu.
5. Select the “PC Calibration” menu.
6. In “PC Calibration Off” status, press the “ ►” key to perform Calibration.
7. When Calibration 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 “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.

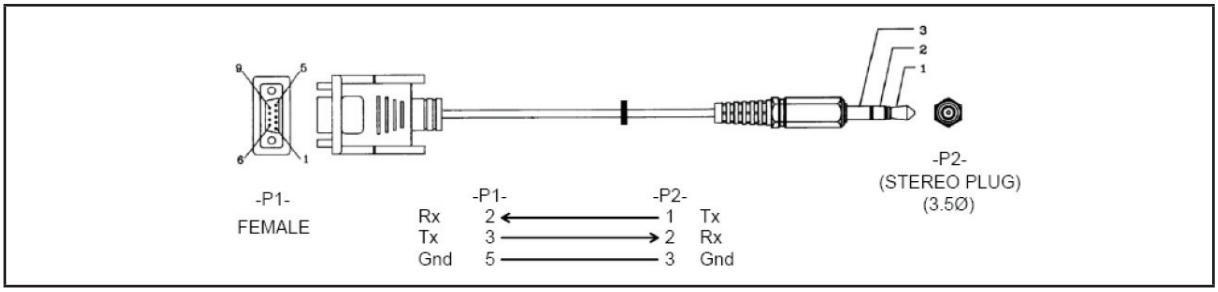
4-4-3. Adjustment

1. Into the Factory Mode.
2. Select **ADC/WB** menu.
3. Select **White Balance** menu.



4-5. RS-232C

- **RS232C Control**
  - Port : COM#(Serial)
  - Bit rate : 115200
  - Data Bit : 8 bit
  - Parity : None
  - Stop Bits : 1
  - Flow Control : None



- Description of RS232C

Pin#	Name	Full Name	Pin#	Name	Full Name	Pin#	Name	Full Name
1	CD	Carrier Detect	**4**	DTR	Data Terminal Ready	**7**	RTS	Request To Send
2	RxD	Received Data	**5**	GND	Signal Ground	**8**	CTS	Clear To Send
3	TxD	Transmitted Data	**6**	DSR	Data Set Ready	**9**	RI	Ring Indicator

4-6. AV Control Tabe

Control Item					Cmd1	Cmd2	Cmd3	Value
General	Power	Power			0x00	0x00	0x00	0x00
		Off						0x01
		On						0x02
	Volume	Direct			0x01	0x00	0x00	(0~100)
		Up					0x01	0x00
		Down					0x02	0x00
	Mute				0x02	0x00	0x00	0x00
		Ch.	Direct		0x04	-		
			Continuous	Up	0x03	0x00	0x01	0x00
				Down			0x02	0x00

Control Item				Cmd1	Cmd2	Cmd3	Value
Input	Source List	TV	TV	0x0a	0x00	0x00	0x00
		AV	AV1			0x01	0x00
			AV2				0x01
			AV3				0x02
		S-Video	S-Video1			0x02	0x00
			S-Video2				0x01
			S-Video3				0x02
		Component	Component1			0x03	0x00
			Component2				0x01
			Component3				0x02
		PC	PC1			0x04	0x00
			PC2				0x01
			PC3				0x02
		HDMI	HDMI1			0x05	0x00
			HDMI2				0x01
			HDMI3				0x02
			HDMI4				0x03
		DVI	DVI1			0x06	0x00
			DVI2				0x01
			DVI3				0x02

Control Item				Cmd1	Cmd2	Cmd3	Value
PICTURE	Mode	Dynamic(Entertain)		0x0b	0x00	0x00	0x00
		Standard					0x01
		Movie					0x02
		Natural					0x03

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE	Mode	CAL-NIGHT					0x04	
		CAL-DAY					0x05	
		BD Wise					0x06	
		Relax					0x07	New function of 12" (only PDP TV)
	BackLight (CellLight)		0~20		0x01	0x00	(0~20)	
	Contrast		0~100		0x02	0x00	(0~100)	
	Brightness		0~100		0x03	0x00	(0~100)	
	Sharpness		0~100		0x04	0x00	(0~100)	
	Color		0~10		0x05	0x00	(0~100)	
	Tint	G/R			0x06	0x00	(0~100)	
	Advanced Settings	Black Tone	Off		0x07	0x00	0x00	
			Dark				0x01	
			Darker				0x02	
			Darkest				0x03	
		Dynamic Contrast	Off			0x01	0x00	
			Low				0x01	
			Medium				0x02	
			HIgh				0x03	
		Shadow Detail	-2 ~ 2			0x02	(-2~2)	
		Gamma	-3 ~ 3			0x03	(-3~3)	
		RGB Only Mode	Off			0x05	0x00	
			Red				0x01	
			Green				0x02	
			Blue				0x03	
		Color Space	Auto			0x06	0x00	
			Native				0x01	
			Custom				0x02	
		White Balance	R-Offset(LCD)			0x07	(0~50)	
		White Balance	G-Offset(LCD)			0x08	(0~50)	
		White Balance	B-Offset(LCD)			0x09	(0~50)	
		White Balance	R-Gain(LCD)			0x0a	(0~50)	
		White Balance	G-Gain(LCD)			0x0b	(0~50)	
		White Balance	B-Gain(LCD)			0x0c	(0~50)	
		White Balance	Reset(LCD)			0x0d	0x00	
		Flesh Tone	-15 ~ 15			0x0e	(-15~15)	
		Edge Enhancement	Off			0x0f	0x00	

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE			On				0x01	
		xvYCC	Off			0x10	0x00	
			On				0x01	
		Motion Lighting	Off			0x11	0x00	
			On				0x01	
		LED Motion Plus	Off		0x0a	0x07	0x00	
			On(Normal)				0x01	
			Cinema				0x02	
			Ticker				0x03	
	Picture Option	Color Tone	Cool		0x0a	0x00	0x00	
			Standard				0x01	Change **Normal** → **Standard** mode
			Warm1				0x02	
			Warm2				0x03	
		Digital Noise Filter	Off			0x02	0x00	
			Low				0x01	
			Medium				0x02	
			High				0x03	
			Auto				0x04	
			Auto Visualization				0x05	
		MPEG Noise Filter	Off			0x03	0x00	
			Low				0x01	
			Medium				0x02	
			High				0x03	
			Auto				0x04	
		HDMI Black Level	Normal			0x04	0x00	
			Low				0x01	
		Film Mode	Off			0x05	0x00	
			Auto1				0x01	
			Auto2				0x02	
			Cinema Smooth				0x03	New function of 12" (only PDP TV)
		Auto Motion Plus	Off			0x06	0x00	
			Clear				0x01	
			Standard				0x02	
			Smooth				0x03	
			Custom				0x04	

Control Item				Cmd1	Cmd2	Cmd3	Value	
PICTURE			Demo				0x05	
	Screen Adjustment	Picture Size	16:9	0x0b	0x0a	0x01	0x00	
			Zoom1				0x01	
			Zoom2				0x02	
			Wide Fit				0x03	
			4:3				0x04	
			Screen Fit				0x05	
			Smart View I				0x06	
			Smart View II				0x07	
			Auto Wide				0x08	New function of 12" (only DVB TV)
			Wide Zoom				0x09	
			Zoom				0x0a	
	Reset Picture	Reset Picture		0x0b	0x0b	0x00	0x00	
	3D	3D Mode	Off	0x0b	0x0c	0x00	0x00	
			2D ⇢ 3D				0x01	
			Side By Side				0x02	
			Top Bottom				0x03	
			Line By Line				0x04	
			Vertical Line				0x05	
			Checker BD				0x06	
			Frame Sequence				0x07	
		3D ⇢ 2D	Off			0x01	0x00	
			On				0x01	
		3D View Point				0x02	(-5~5)	
		Depth				0x03	(1~10)	
		3D Auto View	Off			0x05	0x00	
			Message Notice				0x01	
			On				0x02	

Control Item				Cmd1	Cmd2	Cmd3	Value
Sound	Sound Mode	Standard		0x0c	0x00	0x00	0x00
		Music					0x01
		Movie					0x02
		Clear Voice					0x03
		Amplify					0x04

Control Item				Cmd1	Cmd2	Cmd3	Value	
Sound	Equalizer	Balance			0x01	0x00	(0~20)	
		100hz				0x01	(0~20)	
		300hz				0x02	(0~20)	
		1khz				0x03	(0~20)	
		3khz				0x04	(0~20)	
		10khz				0x05	(0~20)	
		Reset				0x06	0x00	
	SRS TruSurround HD (echo)	Off			0x02	0x00	0x00	
	Virtual Surrond (echo)	On					0x01	
	SRS TruDialog (echo)	Off			0x03	0x00	0x00	
	Dialog Clarify (X9)	On					0x01	
	Preferred Language	English			0x04	0x00	0x00	
		Spanish					0x01	
		French					0x02	
		Korean					0x03	
		Japanese					0x04	
	Multi-Track Sound	Mono			0x05	0x00	0x00	
		Stereo					0x01	
		SAP					0x02	
	Auto Volume	Off			0x06	0x00	0x00	
		ON					0x01	
		Night					0x02	
	Speaker Select	TV Speaker			0x07	0x00	0x00	
		External Speaker					0x01	
	Sound Select	Main			0x08	0x00	0x00	
		Sub					0x01	
	Sound Reset	Sound Reset			0x09	0x00	0x00	
	3D Audio	Off			0x0a	0x00	0x00	
		Low					0x01	New function of 12"
		Medium					0x02	
		High					0x03	

Control Item			Cmd1	Cmd2	Cmd3	Value	
KEY	Key Generation		0x0d	0x00	0x00	refer to table	
OSD	Show/Hide Control	Show	0x0e	0x00	0x00	0x00	New function of 12"
		Hide				0x01	
Get Status	Power (On/Off)		0xf0	0x00	0x00	0x00	
	Volume(0~100)		0xf0	0x01	0x00	0x00	
	Mute (On/Off)		0xf0	0x02	0x00	0x00	
	Channel Number		0xf0	0x03	0x00	0x00	
	Source (TV/AV/…/HDMI/…)		0xf0	0x04	0x00	0x00	
	Picture Size		0xf0	0x05	0x00	0x00	
	3D (On/Off)		0xf0	0x06	0x00	0x00	
	Picture Mode		0xf0	0x07	0x00	0x00	
	Sound Mode		0xf0	0x08	0x00	0x00	

Key value	Value
Up	96 (0x60)
Down	97 (0x61)
Left	101 (0x65)
Right	98 (0x62)
Menu	26 (0x1A)
Internet	147 (0x93)
Enter(OK)	104 (0x68)
EXIT	45 (0x2D)

4-7. Updating the TV's Software

- **MENU** > **Support** > **Software Update**

View your TV's software version and update it if necessary.

The TV is set to update software automatically via the internet by default. If you don't want to update it automatically, set **Auto Update** (**Support** > **Software Update** > **Auto Update**) to **Off**.

CAUTION

DO NOT turn off the TV's power until the update is complete. The TV will turn off and on automatically after completing the software update. All video and audio settings return to the default settings after a software update.

■ Update now

- **MENU** > **Support** > **Software Update** > **Update now**

Update now lets you update your TV's software in three ways:

- Online, by downloading the update from the Internet directly to your TV.
- Manually, using a USB flash drive.
- Automatically (Auto Update), while the TV is in Standby Mode.

CAUTION

Do not turn off the TV during the Software Update. It may cause the TV to malfunction.

Online

To update your TV using the Online method, follow these steps:

1 Make sure that your TV is connected to your local network and the Internet.
- The connection can be wired or wireless.

2 All video and audio settings return to their default settings after a software update.
- We recommend you record your current settings now so you can easily re-establish your settings when the update is complete.

3 Press the **MENU** button, and then select **Support** > **Software Update** > **Update now**.
- The Update now pop-up appears.

4 The TV searches on line for the latest software version for your TV.
- If it does not find an update, the "**No new updates**" pop-up appears. Press the **EXIT** button to exit.
- If the TV finds a new version, the Update Request pop-up appears.

5 Select **OK**. The TV updates the software, turns off, and then turns on automatically.

Manually, Using a USB Flash Drive

To update your TV using the Manual method, follow these steps:

1. All video and audio settings return to their default settings after a software update.
   - We recommend you record your current settings now so you can easily re-establish your settings when the update is complete.
2. On a computer, visit **www.samsung.com**.
   - Select **GET SUPPORT** > **Get Downloads**.
3. Enter the product's model number into the search field.
   - As you enter the model number, a drop down will display products that match the model number.
4. Click your product's model number in the drop down list.
   - On the page that appears, scroll down to and then click **Downloads**.
5. Click **Firmware** in the center of the page.
6. Click the **ZIP** button in the File column.
   - Click **Send** in the first pop-up that appears.
7. Click **Save** in the second pop-up to download, and then save the firmware file to your computer.
   - Unzip the zip archive to your computer. You should have a single folder with the same name as the zip file.
8. Copy the folder to a USB flash drive.
   - Insert the USB flash drive into a USB port of the TV.
9. In the TV's menu, go to **Support** > **Software Update** > **Update now**.
   - The TV searches for the software on the USB drive. When it finds the software, the Update Request pop-up appears.
10. Select **OK**. The TV updates the software, turns off, and then turns back on automatically.

Enabling Automatic Software Updates

- **MENU** > **Support** > **Software Update** > **Auto Update**

If the TV is connected to the Internet, it can be updated via Auto Update while watching the TV. When the Background upgrade completed, the update will be applied the next time the TV is used.

NOTE

This option requires an Internet connection.

If you agree to the Smart Hub terms and conditions, Auto Update will be set to On automatically. If you don't want the TV's software updated automatically, set **Auto Update** (**Support** > **Software Update** > **Auto Update**) to Off.