

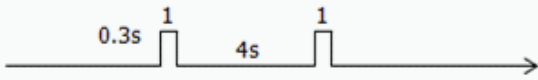
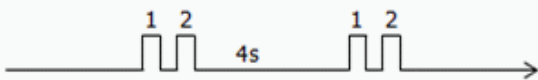


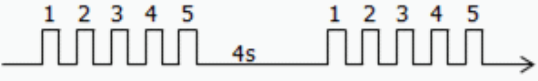
4.2.2. Operating Logic LED

■ Normal

- LED blink time is once per 0.5s

■ Abnormal

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

Error Part	Operation / Bilnk	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

4.3. Factory Mode Adjustments

4.3.1. Detail Factory Option

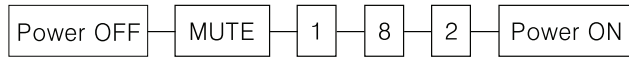
- If you replace the main board with new one, please change the factory option as well.
- The options you must change are “Type”.

Model Name		PN51F5500	PN60F5500
Panel	Vendor	SDI	SDI
	Code	BN96-25240A	BN96-25241A
	Spec		
SMPS	Code	BN44-00600A	BN94-06194B
Main Assy	Chassis Ass'y	BN94-06194A	BN91-10288B
	PBA Ass'y code	BN97-07107W	BN97-07107X
Factory			
0	Factory Reset	-	
1	Type	51FFHcD	60FFHcD
2	Local set	US	
3	SW Model	PF5500	
4	BOM Model	-	
5	Tuner	SI_ADI	
6	Ch table	NONE	
7	Country	-	
8	Front Color	P-W-D-55	

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.



- If you have Factory remote-control.



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

Option
Control
Debug
SVC
ADC/WB
Advanced
<p>T-MST12DEUC-xxxx T-MST12DEUS-xxxx BT Version : xxxx Camera Version : xxxx E-Manual : xxxx EDID SUCCESS CALIB : AV/COMP/PC/HDMI/ Option : xxxx,US,6400,NONE USB RS232C : OFF</p> <p>SDAL-X12-MAIN-xxxx-xxxx RFS : "X12 0071" KER/201x-xx-xx KERNEL : 8.0837, D / Onboot :xxxx.x Backend IC[x], Data Ver : xxxx TCON Version : xxxx DTP-DTVTD-xxxx</p> <p>Model : PN51F5500 Wired MAC SUCCESS Wireless MAC SUCCESS DRM : Crt O, Nf O, Wv O, Hc O, Dc O, Mx O, MI O Factory Data Ver : 97 EERC Version : 51 DTP-BP-HAL-3183 DTP-AP-CNC-3151 DTP-AP-MM-3145 DTP-AP-WP-3148 DTP-BP-MW-3156 DTP-BP-APP-3156 POP-FLA-13-TEMP Date of purchase : mm/dd/yyyy</p>

4.3.3. Factory Data

■ Option

Factory Menu Name		Data	Remark
Factory Reset			
Type			51FFHcD/60FFHcD/64FFHcD
Local Set		US	
SW Model		PF5500	
BOM Model			
TUNER		SI_ADI	
Ch Table		NONE	
MRT Option	Front Color	P-W-D-55	
	LVDS FORMAT	VESA	
	Language_Arabic	US	
	Region	USA	
	PnP Language	ENG_US	
	WIFI REGION	S	
	OTN Support	ON	
	OTA Support	OFF	
	TTX	OFF	
	China HD	OFF	
	NT Conversion	OFF	
	Num of DTV	1	
	Num of AV	1	
	Num of COMP	1	
	Num of HDMI	3	
	Num of SCART	0	
	Num of USB Port	2	
	Num of HeadPhone	0	
	Num of RVU	1	
	Num of Display	2	
	Num of IPTV	0	
	Num of RUI	0	
	Num of PVR RECORD	0	
	TOOLS Support	40	
	LNA Support	OFF	
	24Px4 Support	OFF	
BD Wise Support	ON		
Data Service Support	OFF		
PVR Support	OFF		
CI Support	OFF		

Factory Menu Name		Data	Remark
	LEDMotionPlus Support	ON	
	Natural Mode Support	ON	
	Relax Mode Support	OFF	
	HDMI/DVI SEL	3	
	Select LCD/PDP	PDP	
	Wall Mount	OFF	
	HV Flip	OFF	
	Light Effect	OFF	
	e-Pop Default	1	
	CAMERA Support	OFF	
	NETWORK Support	3	
	EcoSensor Support	ON	
	3D Support	ON	
	BT Support	ON	
	BT ADDRESS		
Engineer Option	Auto Power	MEMORY	
	Type Of PANEL KEY	None	
	5 Way Function Key	L_BACK	
	Contents Bar	OFF	
	Cable Modulation	QAM	
	Standby led on/off	OFF	
	Recognition Support		
	IF AGC	0	
	D AGC	0	
	PH BW	0	
	FQ BW	0	
	PH RATE	0	
	PD EN	0	
	PEQ Inx	0	
	WF Scale		
	WF Type	0	
	Nu of Network Stream	1	
	DP V Size	0	
	Backend Device	PARMA	
	BT_AUDIO_ON_OFF	OFF	
	Config_AV_PATH		
	ECO Standby	OFF	
	Fast Logo Delay	0	
	Num of PANEL KEY	6	

■ Control

Menu	Item	Data	Remark	
EDID	EDID ON/OFF	OFF		
	EDID WRITE ALL	...		
	EDID WRITE HDMI	...		
	EDID Ver	...		
	EDID Port			
Sub Option	RS-232 Jack	UART		
	Watchdog	OFF		
	Checksum	0x0000		
	Fast Boot in Production	OFF		
	USB Serial	OFF		
	Eeprom Reset			
	ECO IC TYPE	NONE		
	Info Link Server Type	development		
	Info Link Country	None		
	TTX Group			
	Visual Test			
	MediaPlayDB			
	OPTION_SWU			
		OTN Server Type	operating	
		OTN Test Server	OFF	
		SWU Reset		
		SWU Duration	OFF	
		SWU Fail Test	OFF	
	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 ISP	1	
	RF Remocon Support		OFF	
	CDD mode			
	DPMS Support		OFF	
	Num of IPTV CIP		0	
	Num of CI		0	
Num of DECODER		0		
T-CON Device				

Menu	Item	Data	Remark	
	BOARD CONTROL	OFF		
	HP LINE	LineOut		
	RM			
		Server Type	Operating	
		RTS Mode	OFF	
	PSA			
		FKP Download1	0	
		FKP Download2	0	
		LMK threshold	3	
		Low threshold	10	
		High threshold	15	
		CSB	ON	
		CLB	ON	
PDP Option	Pixel Shift Test	OFF		
	Logic SW	0		
	Panel Temperature	0		
	LOGIC Waveform Day	0		
	Logic CheckSum	0		
	MRT	0		
	SAPC Timer			
	APC Speed			
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 Cube	OFF		
Asia Option	Unbalance	OFF		
	AF Level adjust	3		
	TX Power Level	0		
	Mono Last Memory	OFF		
	H Shaking	OFF		
Sound	Carrier_Mute	OFF		
	High Devi	OFF		
	Speaker Delay Normal	0x96h		

Menu	Item	Data	Remark
	SPDIF PCM Gain	-9dB	
	FM M Prescale	0x30h	
	FM Prescale	0z44h	
	AM Prescale	0x32h	
	NICAM Prescale	0x48h	
	BTSC Mono Prescale	0x19h	
	BTSC stereo Prescale	0x2Fh	
	BTSC SAP Prescale	0x2Bh	
	A2Ident High THID	36	
	A2Ident Low THID	9	
	Pilot Level High Thld	0x28h	
	Pilot Level Low Thld	0x10h	
	Carrier2 Amp High THID	4	
	Carrier2 Amp Low THID	3	
	Carrier2 SNR High THR	16	
	Carrier2 SNR Low THR	80	
	Sig Error On	35	
	Sig Error Off	41	
	Amp Model	TAS5745	
	Amp Volume	0xcbh	
	Amp Scale	0x2Fh	
	Amp Check Sum		
	Woofer Type	0	
	Woofer Scale	0x8ah	
	Woofer Check Sum	NONE	
	Woofer Local EQ Checksum	0	
	Speaker EQ	ON	
	PEQ Test	Ready	
	Local Speaker EQ	0	
	Local EQ Checksum	0	
	Speaker cut-off Ferq	4	
	Audio-IP Test		
	SRS Tuning Parm	0	
	TruBass-CheckSum	0	
	Mic Scale	0	
	Subwoofer Support	0	
	India Sound	OFF	
	AudioDock BT delay	50	
	Wall Filter Type	0	
	Wiselink Delay Menu	70	

■ Debug

Menu	Item	Data	Remark
Spread Spectrum	LVDS Spread	ON	
	DDR Spread	1.0% Spectrum	
	Period	30K	
	Amplitude	1	
	HD SSC ON/Off	ON	
	HD SSC Value	1	
	LVDS SSC ON/Off	ON	
	LVDS SSC Value	0	
	DDR SSC ON/Off	ON	
	DDR SSC Value	1	
	FRC LVDS SSC ON/OFF	ON	
	FRC LVDS SSC MRR	10	
	FRC LVDS SSC MFR	1	
	FRC LVDS SSC Period	1	
	FRC LVDS SSC Modulation	1	
	FRC DDR SSC ON/OFF	ON	
	FRC DDR SSC MRR	15	
	FRC DDR SSC MFR	1	
	FRC DDR SSC Period	1	
	FRC DDR SSC Modulation	1	
DDR Margin	A CTRL_OFFSET_0_3	ON	
	A CTRL_OFFSET_D	1.0% Spectrum	
	B CTRL_OFFSET_0_3	30K	
	B CTRL_OFFSET_D	1	
ND ADJ Support		ON	
MICOM POWER OFF		1	
RF Mute Time		ON	

Menu	Item		Data	Remark
CI+1.3			0	
FRC			ON	
	FRC FDISPLAY ON/OFF		1	
	3D FDISPLAY ON/OFF		ON	
	PC Mode ON/OFF		10	
	Tuner Margin		1	
	MPEG Margin		1	
	H.264 Margin		1	
	CAM Wait Time		ON	
	TS Clock deldy		15	
	TCON_TEMP READ		1	
	TEMP LAST		1	
	DCC VERSION		1	
	DCC CHK SEL		0	
	DCC CHECK LOCAL		0x0	
	DCC CHECK TOTAL		0x0	
	MulitACC Checksum		0	
	IIC Bus stop		OFF	
Tuner Status	DVB	SNR		
		BER		
		Signal Strength		
		Bandwidth		
		Frequency		
		LNA Status		
		FFT		
		Modulation		
		Code Rate		
		GI		
		Hier Modulation		
		Frequency offset		
		Timing offset		
		AGC		
		UCB		
		PLL Type		
		DEMOD Type		
	TPS Lock			

Menu	Item		Data	Remark
		RS Lock		
		SSI		
		SQI		
		Firmware Version		
	ISDB-T	FFT Size_1		
		Guard Interval_1		
		Freq. Offset_1		
		SNR_1		
		IF AGC_1		
		TMCC Lock_1		
		TS Packer_1		
		Master Lock_1		
		A_Modulation_1		
		A_Code Rate_1		
		A_Timer InterLeave_1		
		A_Segments Num_1		
		A_BER_1		
		B_Modulation_1		
		B_Code Rate_1		
		B_Timer InterLeave_1		
		B_Segments Num_1		
		B_BER_1		
		C_Modulation_1		
		C_Code Rate_1		
		C_Timer InterLeave_1		
		C_Segments Num_1		
		C_BER_1		

■ SVC

Menu	Item	Data	Remark
Test Pattern	Pattern Sel	OFF	
	Logic Pattern Sel		
	Logic Level Sel		
	FRC Pre Test Pattern	0	
	FRC Post Test Pattern	0	
	FRC3D Fdisplay	OFF	
	FRC3D PC Mode	OFF	
	SOC TCON Test Pattern	0	
	SOC TCON Pattern Level	##	
	SOC TCON FRC Pattern	0	
	HDMI WB Pattern	OFF	
	HDMI Pattern Sel	0	
	Parma Pre Test Pattern	0	
	Parma Post Test Pattern	0	
Panel Display Time		0Hr	
SVC Info		0	
Delete S/N		0	
Upgrade	T-CON Usb Download	...	
	T-CON CheckSum	...	
	Logic Usb D/L	Failute	
	SUBMICOM UPGRADE	Ready	
	BT UPGRADE		
	BT FREEPAIRING	ON	
	Function Upgrade	Failute	
	FRC3D FW Upgrade		
	Camera Upgrade		
	Mic Upgrade		
	CPLD USB Download		
	JP MICOM UPGRADE	Failute	
	DP MICOM UPGRADE	Failute	

Menu	Item	Data	Remark
	Jump Upgrade	Failute	
	Smart Hub Reset	0	
ER Count	WD Count	0	
	AR Count	0	
	WIFI ER Count	0	
	BT ER Count	0	
	HDMI Err Cnt	0	
	Camera ER Count	0	
LOG(View Log)	Select Log Type	NVRAM	
	Log View	0	
	Delete Log		
	Debug Log Down		
	Emergency Log Copy		
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		
	CPU		
	DDR		
	FLASH		
	EEPROM		
	Sound AMP		
	HDMI Switch IC		
	USB HUB IC		
	WIFI		
	LVDS		
	T-CON/FRC		
	PCB Test		
	MOIP		
	App Self Test		
	Device self Test		
Voltage			

Menu	Item	Data	Remark
	EcoSensor		
	BT		
	EXT Sound Inspection		
	Woofers Sound Inspection	NONE	
	ATV CH Inspection		
	DTV CH Inspection		
	Satellite CH Inspection		
IPERF		Stopped	
OPTION HDMI			
Expert			
DVB CI			
CAL Data Backup			
CAL Data Restore			

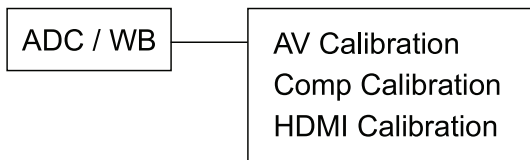
■ ADC/WB

Menu	Item	Data	Remark
ADC	AV Calibration	Success	
	Comp Calibraion	Success	
	PC Calibration	Success	
	HDMI Calibration	Success	
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	132	
	2nd_G_L	132	
	2nd_B_L	132	
	2nd_R_H	70	
	2nd_G_H	70	
	2nd_B_H	70	
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	164	
	WB_W2_B_Gain	63	
	WB_N_R_Offset	128	
	WB_N_B_Offset	128	
	WB_N_R_Gain	151	
WB_N_B_Gain	108		
MGA	MGA On/Off	OFF	
	R1_Gain		
	B1_Gain		
	G1_Gain		
	R2_Gain		
	B2_Gain		
	G2_Gain		
	R3_Gain		
B3_Gain			

Menu	Item		Data	Remark
	G3_Gain			
	R4_Gain			
	B4_Gain			
	G4_Gain			
	R5_Gain			
	B5_Gain			
	G5_Gain			
	R6_Gain			
	B6_Gain			
	G6_Gain			
	R7_Gain			
	B7_Gain			
	G7_Gain			
	R8_Gain			
	B8_Gain			
	G8_Gain			
	R9_Gain			
	B9_Gain			
	G9_Gain			
	R10_Gain			
	B10_Gain			
	G10_Gain			

4.4.1. White Balance - Calibration

- Factory

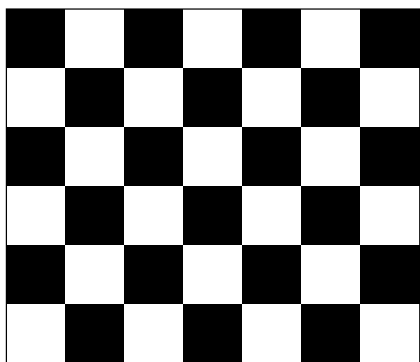


4.4.2. Service Adjustment

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

■ Color Calibration

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



- 4) Use Equipment : CA210 & Master MSPG925 Generator

Use other equipment only after comparing The result with that of The Master equipment.

Input mode	Calibration	Pattern
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
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/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.

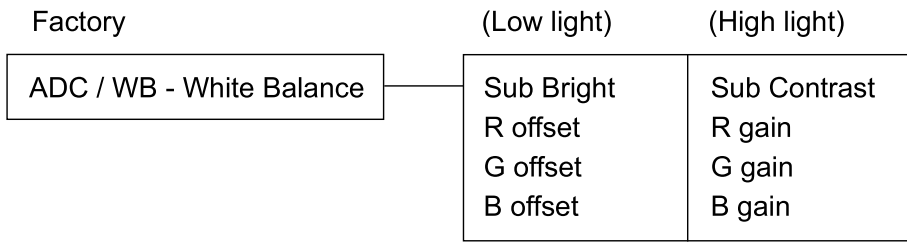
- **Method of Color Calibration (Component)**

- 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



4.5. Software Upgrade

Samsung may offer upgrades for the TV's firmware in the future.

These upgrades can be performed via the TV when it is connected to the Internet, or by downloading the new firmware from samsung.com to a USB memory device.

- Alternative Software (Backup) shows The previous version that will be replaced.
- Software is represented as 'Year/Month/Day_Version'.
The more recent the date, the newer the software version.
Installing the latest version is recommended.

■ By USB



Insert a USB drive containing the firmware upgrade downloaded from samsung.com into the TV.
Please be careful to not disconnect the power or remove the USB drive while upgrades are being applied.

The TV will turn off and turn on automatically after completing the firmware upgrade.
Please check the firmware version after the upgrades are complete (the new version will have a higher number than the older version).

When software is upgraded, video and audio settings you have made will return to their default (factory) settings.
We recommend you write down your settings so that you can easily reset them after the upgrade.

■ By Online

Upgrades the software using the Internet.

- First, configure your network. For detailed procedures on using the Network Setting, refer to the 'Setting the Network' instructions.
- If The internet connection doesn't operate properly, connection can be broken, please retry downloading. If the problem still happens, download by USB and upgrade.

■ Alternative Software (Backup)

If there is an issue with the new firmware and it is affecting operation, you can change the software to the previous version.

- If Software was changed, existing Software is displayed.
- you can change current Software to Alternative Software by 'Alternative Software'.

4.6. AV control code

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	
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	
		Picture	Mode	Dynamic(Entertain)	0x0b	0x00	0x00	0x00
				Standard				0x01
				Movie				0x02
				Natural				0x03
				CAL-NIGHT				0x04
				CAL-DAY				0x05
				BD Wise				0x06
BackLight	0~20			0x01	0x00	(0~20)		

Control Item		Cmd1	Cmd2	Cmd3	Value	
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	
		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
		On				0x01
	xvYCC	Off			0x10	0x00
		On				0x01
	Motion Lighting	Off			0x11	0x00
		On				0x01
	LED Motion Plus	Off			0x07	0x00
On(Normal)					0x01	
Cinema					0x02	
Ticker					0x03	

Control Item			Cmd1	Cmd2	Cmd3	Value	
Picture Option	Color Tone	Cool		0x0a	0x00	0x00	
		Normal				0x01	
		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	
	Auto Motion Plus	Off			0x06	0x00	
		Clear				0x01	
		Standard				0x02	
		Smooth				0x03	
		Custom				0x04	
		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	
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	

Control Item			Cmd1	Cmd2	Cmd3	Value		
		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)	
		Picture Correction				0x04	0x00	
		3D Auto View	Off			0x05	0x00	
			Message Notice				0x01	
			On				0x02	
		Sound	SRS TheaterSound(Genoa)	Standard	0x0c	0x00	0x00	0x00
			Sound Mode(X6)	Music				0x01
Movie						0x02		
Clear Voice						0x03		
Amplify						0x04		
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(Genoa)	Off			0x02	0x00	0x00		
Virtual Surrond(X6)	On					0x01		
SRS TruDialog(Genoa)	Off			0x03	0x00	0x00		
Dialog Clarify(X6)	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		
	Normal					0x01		
	Night					0x02		
Speaker Select	TV Speaker			0x07	0x00	0x00		

Control Item			Cmd1	Cmd2	Cmd3	Value
		External Speaker				0x01
	Sound Select	Main		0x08	0x00	0x00
		Sub				0x01
	Sound Reset	Sound Reset		0x09	0x00	0x00
KEY	Key Generation		0x0d	0x00	0x00	refer to the table of below

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)