

How to use the Adjustment Remote Controller

SVC Mode Menus

EZ ADJUSTMENT MENUS



1. You need an LG ADJUST Remote P/N 105-201M (new Service remote MKJ39170828)
2. Press: “ADJ”
3. Default password to enter the SVC menu: “0413” (or else try: “0000”)

LG ADJUST REMOCON 105-201M

EZ ADJUST

The EZ-ADJUST menu displays up to 18 sub-menus for the engineer to check and adjust final TV settings. Please note that we show only the LCD related items and that the ADJ menu may be different per each model.



EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option**
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma
- 15. ACAP PING Test**
- 16. Module Control**
- 17. Temperature Threshold**
- 18. Touch Sensitivity Setting

Analog only*

Korea only*

PDP models only*

* We will not show these items any more after this slide.

Tool Option1

The SVC Tool Option 1 menu displays a number of items that generally describe the TV model:

- A number of five digits
- Tool Option 1 has four sub-items

EZ ADJUST

- 0. **Tool Option1**
- 1. Tool Option2
- 2. Tool Option3
- 3. Tool Option4
- 4. Tool Option5
- 5. Country Group
- 6. Area Option
- 7. ADC Calibration
- 8. White Balance
- 9. 10 Point WB
- 10. Test Pattern
- 11. EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma
- 15. Touch Sensitivity Setting

Tool Option1

Tool Option1 24742

Inch	42
Tool	LG70
Maker	LGD
Module Rev.	0

Inch (4bit): 19, 22, 26, 32, 37, 42, 47, 52, ..
Tool (7bit): LA20, LA30, LA40,
Maker (3bit): Module Maker (LGD, AUO, ...)
Module Rev (2bit): Info on Module Version

You can return to the EZ ADJUST main menu by pressing the ADJ button

Tool Option2

The SVC Tool Option 2 menu displays the input and output jacks and their location.

- A number of five digits
- Tool Option 2 has a number of sub-items

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2**
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
12. Sub B/C
13. V-Com
14. P-Gamma
15. Touch Sensitivity Setting

Tool Option2

54695

- HDMI Count: 3
- HDMI Switch IC: NONE
- HDMI Position: Rear
- Component Count: 1
- CompPosition: Rear
- CompAV Common: OFF
- Comp Swap: OFF
- Scart Count: Full
- RCA AV Count: 1
- RCA AV Position: Rear
- RGB Count: 1
- USB count: 0

Tool Option	bits	Range	Remark (UI display)
HDMI Count	2	0/1/2/3	HDMI input number. Minimum 1 unit 1:1EA 2:2EA 3:3EA 4:4EA
HDMI Switch IC	1	0/1/2/3/4	Type of HDMI Switch IC. 0:None 1:GPIO 2:PS 3:TDA 4:SI
HDMI Position	1	Rear/Side	HDMI Position (Rear/Side) HDMI 1 : rear or side HDMI 2 : rear or side HDMI 3 : rear or side HDMI 4: always on side
Component Count	2	0/1/2/3	Number of Component inputs
Comp Position	1	0/1	Jack position (Rear/Side) in case of 1 Component input
Comp AV Common	1	OFF/ON	Component/AV jack or not (Component 2 only)
Comp Swap	1	OFF/ON	Component 1, 2 : Swap classification
SCART Count	1	None/Full/	SCART input No.. AV1,2,3 input name are assigned the SCART prior to RCA AV. (None : Full)
RCA AV Count	2	0/1/2/3	Number of RCA input jacks except for SCART
RCA AV Position	1	Rear/Side	AV Jack position (Rear/Side)
RGB Count	1	0/1	Number of RGB inputs
USB Count	1	1/2	Number of USB ports

Tool Option3

The SVC Tool Option 3 menu displays a number of capabilities of the TV.

- A number of three digits
- Tool Option 3 has a number of sub-items

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
12. Sub B/C
13. V-Com
14. P-Gamma
15. Touch Sensitivity Setting

Tool Option3

Tool Option3

493

EMF(JPEG,MP3)	1
Divx	0
Bluetooth	1
Digital Eye	0
Headphone	0
E-Manual	1
Audio Amp	NTP70
Backlight Type	00
Wireless Ready	CCFL
Boot Logo	0
DVR Ready	0
Instant Boot	0

Tool Option	bits	Range	Remark(UI display)
EMF (JPEG,MP3)	1	0/1	EMF(JPEG,MP3) function support 0: no 1: yes
Divx	1	0/1	Divx function support
Bluetooth	1	0/1	Bluetooth function support
Digital Eye	1	0/1	Digital Eye function support
Headphone	1	0/1	Headphone function support
E-Manual	1	0/1	E-manual function support
Audio Amp	3	0/1/2	Type of Audio Amp IC 0:NTP7000 1:TAS5713 2:NTP3AMP, 3 :TAS3AMP, 4: NTP2AMP
Backlight Type	3	0/1/2	Backlight type 0:CCFL 1:NOR_LED 2:EDG_LED, 3: IOP_LED
Wireless Ready	1	0/1	Wireless Ready function support
Boot Logo	1	0/1	Boot logo function support
DVR Ready	1	0/1	DVR Ready function support
Instant Boot	1	0/1	Instant Boot function support

Tool Option4

The SVC Tool Option 4 menu displays more capabilities of the TV.

- EZ ADJUST**
- 0.Tool Option1
 - 1.Tool Option2
 - 2.Tool Option3
 - 3.Tool Option4**
 - 4.Tool Option5
 - 5.Country Group
 - 6.Area Option
 - 7.ADC Calibration
 - 8.White Balance
 - 9. 10 Point WB
 - 10.Test Pattern
 - 11.EDID D/L
 - 12. Sub B/C
 - 13. V-Com
 - 14. P-Gamma
 - 15. Touch Sensitivity Setting

- Tool Option4**
- 8448**
- Local Dimming 0
 - CIFS 0
 - DLNA 0
 - THX 0
 - Digital Demod DVB_S7
 - Analog Demod XC5000
 - THX Media Director 0
 - Picture Wizard 0
 - ISF 0
 - Energy Star OFF

- A number of four digits
- Tool Option 4 has a number of sub-items

Tool Option	bits	Range	Remark(UI display)
Local Dimming	1	0/1	Local Dimming function support 0: no, 1: yes
CIFS	1	0/1	CIFS function support
DLNA	1	0/1	DLNA function support
THX	1	0/1	THX function support
Digital Demod	5	0/1/2/3/4/.	Type of Digital Demodulator 0:Default,1:AT_S7, 2:AT_BCM, 3:AT_LGDT3305, 4:BR_MN884433, 5: BR_TC90517, 6:CN_LGDT3900, 7: CN_LGDT3911, 8:CN_LGS8G85, 9: DVB_DRXK,10: DVB_SONY_T2, 11: DVB_SONY_TC,12: DVB_BCM, 13: DVB_S7,14: NO_DEMOD
Analog demod	3	0/1/2/3/4	Type of Analog Demodulator 0:Default, 1: LGT10, 2:XC5000, 3: SANYO, 4:CHB
THX Media Director	1	0/1	THX Media Director function support
Picture Wizard	1	0/1	Picture Wizard function support
ISF	1	0/1	ISF mode function support
Energy Star	1	Off/On	Energy Star function support

Tool Option 5

The SVC Tool Option 5 menu displays more capabilities of the TV.

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
12. Sub B/C
13. V-Com
14. P-Gamma
- 15.Touch Sensitivity Setting

Tool Option4

Tool Option 5

8448

- HDMI Swap/Order 0
- WiFi 0
- Skype 0
- Motion Remocon 0
- Channel Browser 0
- Set ID 1
- USB Hub Count 0
- Mirror Mode 0
- Orange Service 0
- Netcast Service 0
- PSU Power 0

Orange (in France)

Power board: 2 types possible including PSU power

PSU = Power Supply Unit

- A number of four digits
- Tool Option 5 has a number of sub-items

Tool Option	bits	Range	Remark(UI display)
HDMI Swap/Order	1	4 digits order 1-2-3-4 1-3-2-4 2-1-4-3 1-2-4-3	Order of HDMI input port switching to Main Chip
WiFi	1	0/1	1:Wifi function support 0:No support
Skype	1	0/1	1:Skype function support 0:No support
Motion Remote control	1	0/1	1: Motion R/C support 0: No support
Channel Browser	1	0/1	1: channel browser function 0: no support
Set ID	1	0/1	1: Set ID function support 0: no support
USB Hub Count	1	0/1	1: USB hub support 0: no support
Mirror Mode	1	0/1	1: Mirror mode support 0: no support
Orange Service	1	0/1	1:Orange contents support 0: no support
Netcast Service	1	0/1	1:Netcast support 0: no support
PSU Power	1	0/1	1:PSU support 0: no support

Country Group

The SVC Tool Option 5 menu displays the assigned country group.

- EZ ADJUST
- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group**
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma
- 15. Touch Sensitivity Setting

In Europe we use Country Group Code 4 that corresponds to "EU"
(Note: this value will only change if the Country Group is changed)

Country Group

Country Group Code **04**

Country Group EU

Country --

Press (⊙) to save

The EU includes 36 different countries (UK, FR, DE, IT, SE,.... etc)

ADC Calibration

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration**
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma
- 15. Touch Sensitivity Setting

ADC Calibration

ADC Comp 480I	NG
ADC Comp 1080p	NG
ADC RGB	NG

Start **Reset**

•**Mstar model:** uses internal pattern for ADC calibration via this menu

•**BCM model:** needs external pattern for ADC Calibration so this menu is not activated. Use "External ADC" menu and connect a color pattern signal to the Component 1 input.

Before pressing the 'Start' button, check if all input jacks are unplugged

 **ADC Comp Success!!!**

ADC RGB Success!!!

ADC Calibration

ADC Comp 480I	OK
ADC CompP 1080p	OK
ADC RGB	OK

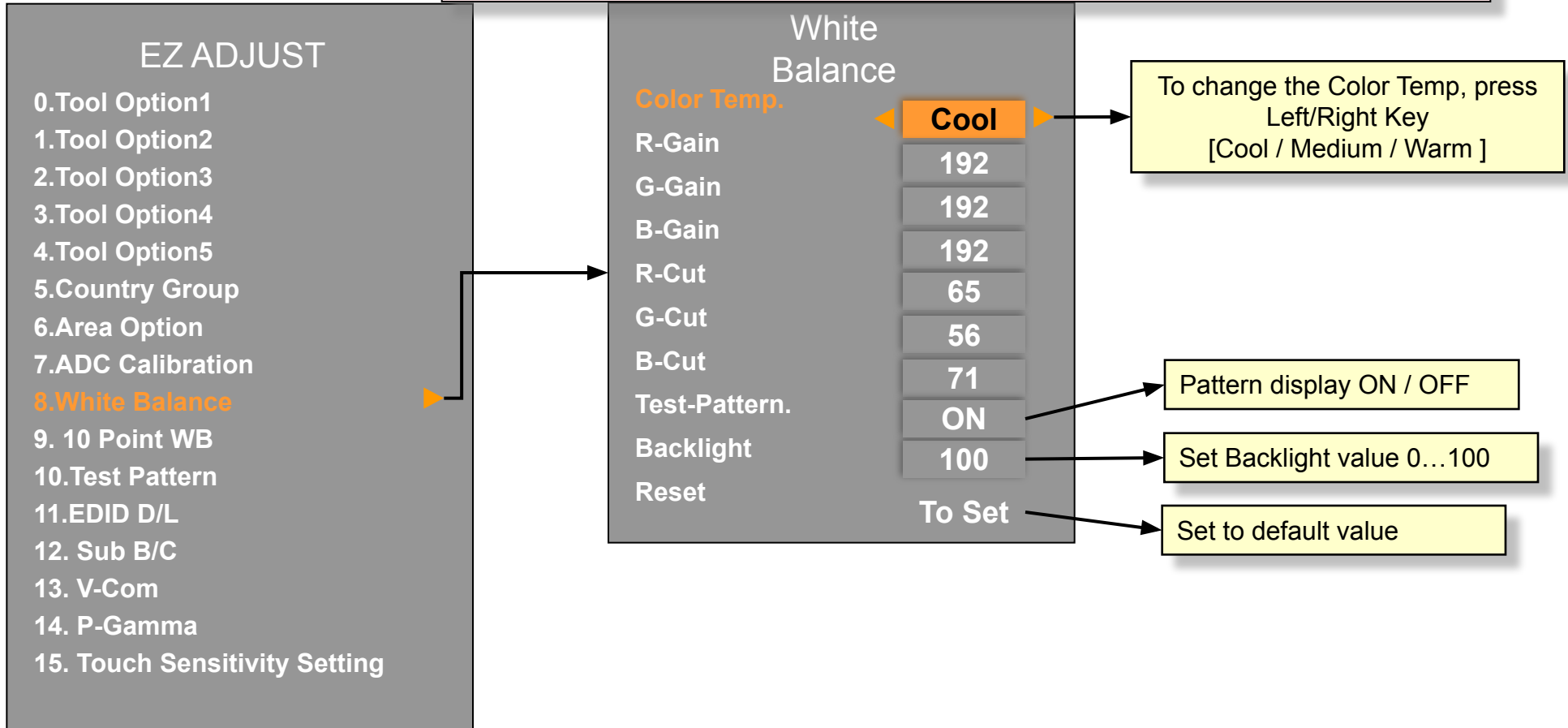
Start **Reset**

When calibration has finished, this message box will be displayed

ADC = Analog-to-Digital Converter
RGB = Red-Green-Blue color coding
Comp = composite

White Balance

This menu allows you to adjust the RGB values that belong to each of the three color temperatures. **It strongly advised not to change WB data** because you would need special measurement equipment



TV Mode (or Input mode) is changed to analog channel mode automatically when you enter WB function. You do not need to analog channel.

10 Point WB

This menu allows adjustment of the initial values for the White Balance by the R&D dept. **Please do not change them.**

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB**
- 10.Test Pattern
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma
- 15.Touch Sensitivity Setting

10 Point WB

On/Off **ON**

Pattern **Inner**

IRE **100**

Luminance **130**

Red(130.0 nit) **0**

Green(130.0 nit) **0**

Blue(130.0 nit) **0**

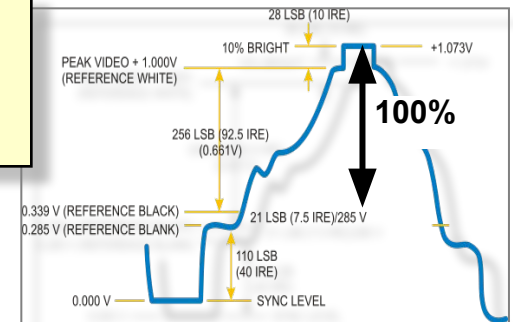
use 10 Point WB or not (Items are greyed out when "OFF")

Pattern on screen: Inner/Outer

Luminance: IRE is enabled only when IRE value is 100. Range 50 ~ 500

Red, Green, Blue : R, G, B offset range is -50 ~ +50

Value represents the scaling of the composite video signal luminance level. Range 0 ~ 100, determines the nits scale for R,G,B



- There are two types of WB (2-point and 10-point WB). The 2-point WB has already been adjusted on the mass production line.
- 10 Point WB Adjust Menu values are stored in the PSM (Program Status Memory) for the Expert mode or THX mode
- The stored value is composed of:
 - Value from adjust menu and
 - Value of 10 point WB in Picture menu

WB = White Balance
 PSM = Program Status Memory
 IRE = Institute of Radio Engineers
 THX = Theater mode
 Nit = Luminance value = 1Cd/m^2 (old)

Additional information about WB

1. **WB (White Balance)** means equality of white in the low and high brightness areas on the screen
2. **Equipment:** for WB measurement you need a pattern generator (for white pattern), color analyzer etc
3. **Measurement**
 - Condition: white pattern and APL 100% status
 - Measurement : you should determine in the center of the screen the color coordinates [X,Y]
 - Condition : adjust APL to 15 [Nits]
 - Measurement : determine the color coordinates [X,Y]
 - Calculate color temperature in the CIE (Commission International De L'Eclairage)

4. **Color temperature** *See also: http://en.wikipedia.org/wiki/Color_temperature*
 - This temperature is the nearest the source light and black body temperature
 - Unit is [$^{\circ}$ K] (Kelvin Degree)

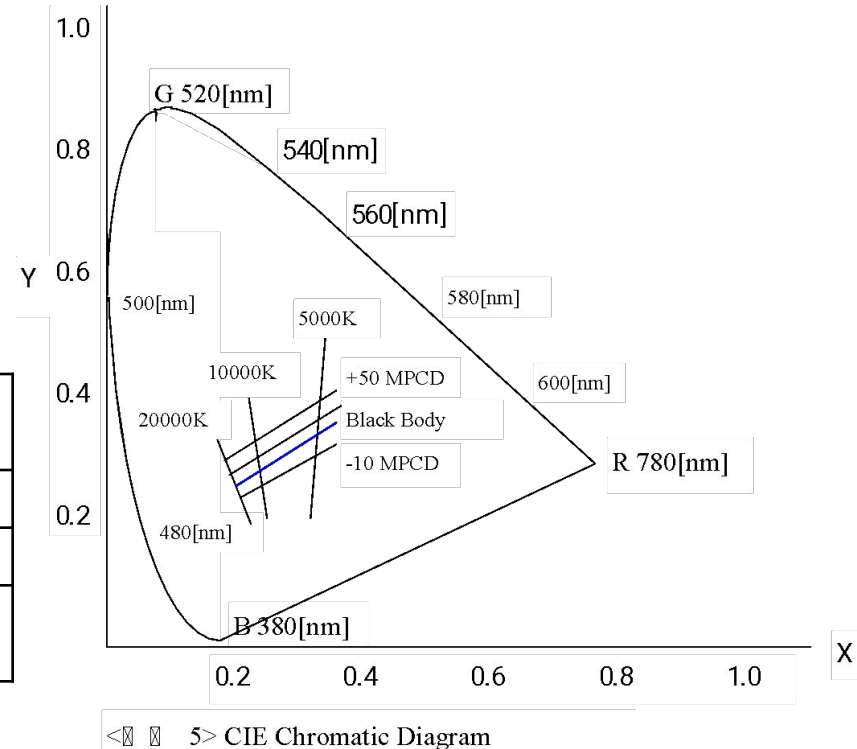
5. **White standard temperature**
 - CIE : 9300[$^{\circ}$ K] + 27MPCD (Minimum Perceptible Color Difference).
 - or [X,Y] color coordinates (0.281, 0.311)

6.LG management specification:

region	Korea	Japan	N. America	M/S America	Europe	Asia
X coordinate	0.266	0.281	0.282	0.268	0.281	0.281
Y coordinate	0.280	0.288	0.288	0.274	0.288	0.288
Color temperature	13000 K	10000 K	10000K	13000K	10000K	10000K

Coordinate deviation : ± 0.008 , color temperature deviation : $\pm 1000K$.

APL = Average Picture Level



Test Pattern

This menu allows you to display a test pattern in the color of your choice

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern**
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma
- 15. Touch Sensitivity Setting

Test Pattern

Pattern Control **Off**

Press Enter to hide OSD

- To change the Color Temp, press Left/Right Key
[Off White Red Green Blue Black]
- Aspect ratio is changed to 16:9 during display of the Test Pattern (fills whole screen)

OSD = On-Screen Display

EDID D/L

This menu allows you to download EDID data for each of the ports

Number of HDMI ports depends on the model

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L**
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma
- 15. Touch Sensitivity Setting

EDID D/L

HDMI1	NG
HDMI2	NG
HDMI3	NG
HDMI4	NG
RGB	NG

Start **Reset**

EDID D/L

HDMI1	Writing...
HDMI2	Writing...
HDMI3	Writing...
HDMI4	Writing...
RGB	Writing...

Start **Reset**

With the latest TV models, the EDID data is included in the Main SW load and must be downloaded to the EDID Memory via this menu.

With older models, EDID data was downloaded from GSFS and inserted via an USB stick or a special jig.

EDID D/L

HDMI1	OK
HDMI2	OK
HDMI3	OK
HDMI4	OK
RGB	OK

Start **Reset**

EDID = Extended Display Identification Data
D/L = Download

Sub B/C

This menu allows you to adjust the brightness and contrast control range

- EZ ADJUST
- 0.Tool Option1
 - 1.Tool Option2
 - 2.Tool Option3
 - 3.Tool Option4
 - 4.Tool Option5
 - 5.Country Group
 - 6.Area Option
 - 7.ADC Calibration
 - 8.White Balance
 - 9. 10 Point WB
 - 10.Test Pattern
 - 11.EDID D/L
 - 12. Sub B/C**
 - 13. V-Com
 - 14. P-Gamma
 - 15. Touch Sensitivity Setting

Sub Brightness/Contrast adjustment
Global range: 0~255
Initial value: 128

Sub B/C

Sub Bright 128

Sub Contrast 128

Brightness /contrast value in the main menu is:
user adjustment value + sub data

For example (contrast):
Condition : 1) 10 (contrast in main menu)
 2) Sub contrast change 128 -> 138

Result: 10 (contrast in main menu) □ Contrast data is 10.2 in the internal contrast data

B/C = Brightness / Contrast

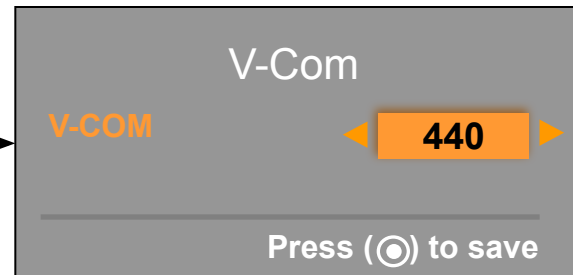
V-Com – only for models that have their T-CON function on the Main Bd

This menu allows you to adjust the V-Com value

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com**
- 14. P-Gamma
- 15. Touch Sensitivity Setting

- Input mode will change to analog input when you enter the V-Com menu
- Screen shows a green pattern.
- Adjust V-Com for a minimum of flicker
 - Range: 0~1023
 - Initial value is set in EEPROM of Main board
- New value is stored in EEPROM when pressing the “Enter” key



Note: contrast and color saturation will decrease for small and large values of V-COM, for example at 110 and 680

P-Gamma control *(only for >120Hz models and if FRC Chip is not PWIZ (MStar))*

This menu allows adjustment of the Gamma curve and store the new curve in EEPROM. **Don't change it.**

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma**
- 15. Touch Sensitivity Setting

P-Gamma

- PG1
- PG2
- PG3
- PG4
- PG5
- PG6
- PG7
- PG8
- PG9
- PG10
- PG11
- PG12

Store

P-Gamma adjustment
- range: 0~1023
- initial value is set in EEPROM

P-Gamma values are stored EEPROM when pushing the "Enter" key

< Pattern >

PG1 , PG12 : 255 Gray
PG2, PG11 : 223 Gray
PG3, PG10 : 191 Gray
PG4, PG9 : 64 Gray
PG5, PG8 : 31 Gray
PG6, PG7 : 0 Gray

< P-Gamma ID Address >

PG2 : 0x2
PG3 : 0x3
PG4 : 0x4
PG5 : 0x5
PG8 : 0x6
PG9 : 0x7
PG10 : 0xB
PG11 : 0xC

PG1, 6, 7, 12 have been reserved (beyond control)

Pattern is default. Please do not change this. Pattern will be changed automatically when you move the cursor.
Pattern change is used for precise Gamma adjustment

P-Gamma control (for >240Hz models in case FRC Chip is PWIZ (MStar))

This menu allows adjustment of the Gamma curve and store the new curve in EEPROM. **Don't change it.**

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma**
- 15. Touch Sensitivity Setting

P-Gamma

PG1	0
PG2	0
PG3	0
PG4	0
PG5	0
PG6	0
PG7	0
PG8	0
PG9	0
PG10	0
PG11	0
PG12	0
PG13	0
PG14	0
PG15	0
PG16	0

Store

- P-Gamma adjustment
 - range: 0~1023
 - initial value is set in EEPROM of V-Com Bd.

- P-Gamma values are stored EEPROM when pushing the “Enter” key

< Pattern >

PG1 , PG16 : 255 Gray
PG2, PG15 : 254 Gray
PG3, PG14 : 223 Gray
PG4, PG13 : 191 Gray
PG5, PG12 : 127 Gray
PG6, PG11 : 63 Gray
PG7, PG10 : 31 Gray
PG8, PG9 : 0 Gray

< P-Gamma ID Address >

PG1 : 0x0	PG9 : 0x8
PG2 : 0x1	PB10 : 0x9
PG3 : 0x2	PB11 : 0xa
PG4 : 0x3	PB12 : 0xb
PG5 : 0x4	PB13 : 0xc
PG6 : 0x5	PB14 : 0xd
PG7 : 0x6	PB15 : 0xe
PG8 : 0x7	PB16 : 0xf

Pattern is default. Please do not change this. Pattern will be changed automatically when you move the cursor. Pattern change is used for precise Gamma adjustment

Touch Sensitivity Setting – Only for models that have touch control

This menu allows you to adjust the sensitivity of the touch keys. Only for test by engineer.

For LCD

Data range is 0 ~ 255 (1byte)

EZ ADJUST

- 0.Tool Option1
- 1.Tool Option2
- 2.Tool Option3
- 3.Tool Option4
- 4.Tool Option5
- 5.Country Group
- 6.Area Option
- 7.ADC Calibration
- 8.White Balance
- 9. 10 Point WB
- 10.Test Pattern
- 11.EDID D/L
- 12. Sub B/C
- 13. V-Com
- 14. P-Gamma
- 15. Touch Sensitivity Setting**

Touch Sensitivity Setting

KEY TouchTHR

POWER	0	0
INPUT	0	0
MENU	0	0
OK	0	0
VOL+	0	0
VOL-	0	0
CH+	0	0
CH-	0	0
Count Time		0
Global THR		0

When you touch a button on the front panel, the “Touch” value is displayed in the SVC menu

For example: you touch an input key, input value of the “Touch” will be displayed, e.g. 20.

- Value 0 of the “THR” is the most sensitive and value 20 is the most insensitive
- If you adjust the “THR” value over 20, the touch sensor won’t work

THR : Threshold

IN-START MENUS



The IN-START menu displays system information and sub-menus for the engineer. Please note that the menus may be different for each model. Please note that we show only the LCD related items and that the menus may be different per each model.

LG ADJUST REMOCON 105-201M

IN START MENU

This menu allows you to check and change various settings

IN START

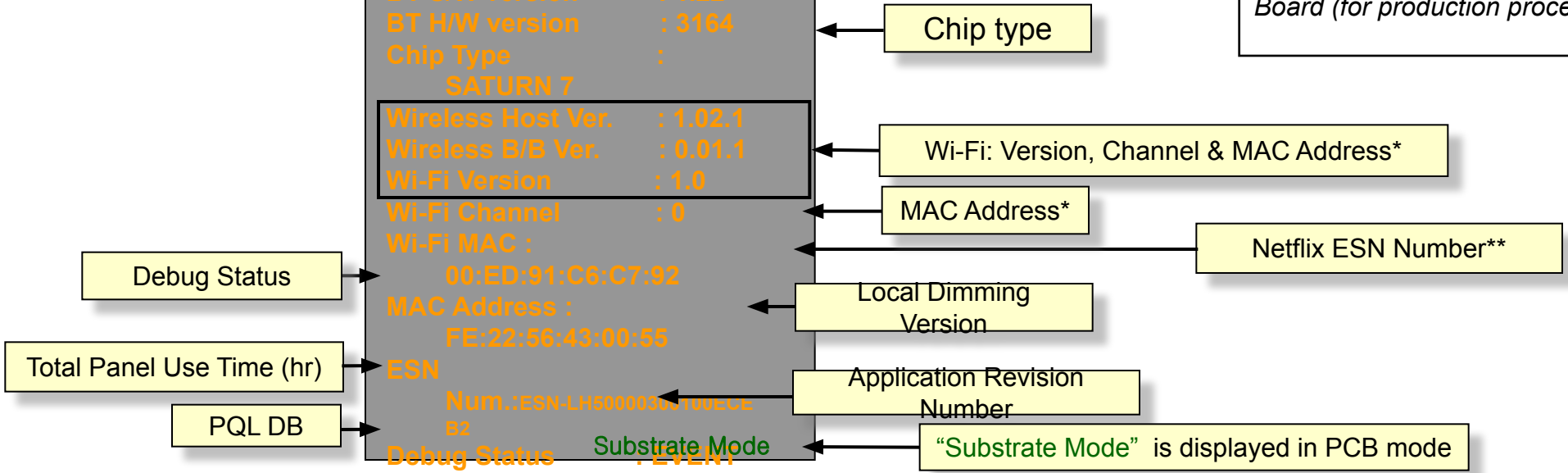
Model Name : 42LH20-UA
 Serial Number : SKJY0104
 S/W Version : 1.10.00.00
 MICOM Version : 0.10.4
 SPI BOOT Version : V00.01
 URSA Version : 0.00
 LED Version : 1
 EDID Version (RGB) : 1.01
 EDID Version (HDMI) : 1.01
 BT S/W version : 1.22
 BT H/W version : 3164
 Chip Type : SATURN 7

Wireless Host Ver. : 1.02.1
 Wireless B/B Ver. : 0.01.1
 Wi-Fi Version : 1.0

Wi-Fi Channel : 0
 Wi-Fi MAC : 00:ED:91:C6:C7:92
 MAC Address : FE:22:56:43:00:55
 ESN Num.: ESN-LH50000350700ECC82
 Debug Status : EVENT
 Local Dimming Ver. : 0x0702

Substrate Mode

URSA = MStar Frame Rate Controller chip
 EDID = Extended Display Information Data
 BT = BlueTooth
 MAC = Media Access Control
 SPI = Serial Peripheral Interface
 PQL DB = Picture Quality Level Data Base
 UTT = Usage total Time
 ESN = Electronic Serial Number
 PCB mode = Printed Circuit Board (for production process)



** Only for models that support Netflix. The LG Device uses the ESN number to communicate with the Netflix server. This number is automatically validated during the handshake between the LG Device and Netflix service

*Only for models that support networking

IN START MENU

This sub menu allows you to check and change various settings

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System1
5. System2
6. Model Number D/L
7. Test Option
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Cfg.
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

Bluetooth models only

Wireless Ready models only

ADC = Analog to Digital Converter

D/L = Down Load

ODC = Over Driving Control

Local Dimming ver. : 0x0702

Adjust Check

This menu allows you to check and adjust various settings. The orange colored values were inserted during manufacturing

- 1. Adjust Check
- 2. ADC Data
- 3. Power Off Status
- 4. System1
- 5. System2
- 6. Model Number D/L
- 7. Test Option
- 8. External ADC
- 9. Bluetooth Test
- 10. Bluetooth AV CODEC Cfg.
- 11. Spread Spectrum
- 12. Sync Level
- 13. Wireless Ready

- 1. "Country Group" selection; you can make changes from here too and they are stored real-time
- 2. Tool Option values; you can make changes from here
- 3. Result of White Balance adjustment
- 4. Adjustment result of auto ADC adjustment for each input mode
- 5. EDID data loaded or not
- 6. CI+ key: EU Only

Adjust Check

1. **Country Group** (Press OK to Save)

Country Group Code	02
Country Group	US
Country	US

2. **Tool Option**

Tool Option1	0
Tool Option2	24640
Tool Option3	30914
Tool Option4	48256

3. **Adjust White Balance :** 8448

4. **Adjust ADC :** OK

480i Component	
1080p Component	OK
RGB	OK

5. **EDID :** OK

RGB	
HDMI1	NG(0x71)
HDMI2	NG(0x1D,0xCE)
HDMI3	NG(0x1C,0xCD)
HDMI4	NG(0x1A,0xCF)

6. **CI+ Key :** OK(DD20)

	NG(0x1B,0xCE)
--	---------------

ADC Data

This menu allows you to check and adjust the settings for the Analog-to-Digital converter that converts the analog input signals into digital values.

- 1. Adjust Check
- 2. **ADC Data**
- 3. Power Off Status
- 4. System 1
- 5. System 2
- 6. Model Number D/L
- 7. Test Option
- 8. External ADC
- 9. Bluetooth Test
- 10. Bluetooth AV CODEC Config
- 11. Spread Spectrum
- 12. Sync Level
- 13. Wireless Ready
- 14. Stable Count
- 15. ODC Test
- 16. Local Dimming

ADC Data

- 0. Source **◀ Comp 480i ▶**
- 1. Save to Nvram **Off**
- 2. Red Offset **192**
- 3. Green Offset **192**
- 4. Blue Offset **65**
- 5. Red Gain **56**
- 6. Green Gain **71**
- 7. Blue Gain **7F**
- 8. Reset **Off**

ADC manual adjust menu
Comp 480i/Comp 1080p/RGB

Power Off Status

This menu shows you the list of occasions when the TV has been switched off. The history is very helpful for trouble shooting in case the TV switched itself off due to an internal failure. Next slide shows more details for each cause.

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

Power Off Status

0. POWER_OFF_BY_INSTOP
1. POWER_OFF_BY_SW_DN
2. POWER_OFF_BY_ACDET
3. POWER_OFF_BY_REMOTE_KEY
4. POWER_OFF_BY_5VMNT
5. POWER_OFF_BY_KEYTIMEOUT
6. POWER_OFF_BY_RESET
7. POWER_OFF_BY_KEYTIMEOUT
8. POWER_OFF_BY_KEYTIMEOUT
9. POWER_OFF_BY_KEYTIMEOUT
10. POWER_OFF_BY_REMOTE_KEY
11. POWER_OFF_BY_REMOTE_KEY
12. POWER_OFF_BY_KEYTIMEOUT
13. POWER_OFF_BY_KEYTIMEOUT
14. POWER_OFF_BY_KEYTIMEOUT
15. POWER_OFF_BY_RESET
16. POWER_OFF_BY_KEYTIMEOUT
17. POWER_OFF_BY_KEYTIMEOUT
18. POWER_OFF_BY_RESET
19. POWER_OFF_BY_KEYTIMEOUT

Power off history

Power Off Status

This list shows possible causes for switching the TV off.

Factor	MODE	Contents
Micom	POWER_OFF_BY_CPUCMD	Power off by CPU Command
	POWER_OFF_BY_ABN	Power off by abnormal status
	POWER_OFF_BY_KEYTIMEOUT	Power off when TV is not turned off during a certain time
	POWER_OFF_BY_ACDDET	Power off by not detecting AC (abnormal case)
	POWER_OFF_BY_RESET	Power off by Micom Reset
	POWER_OFF_BY_5VMNT	Power off by not detecting 5V monitoring
	POWER_OFF_BY_NO_POLLING	Power off when receiving no ack
CPU	POWER_OFF_BY_REMOTE_KEY	Power off by remote key
	POWER_OFF_BY_OFF_TIMER	Power off by Off timer
	POWER_OFF_BY_SLEEP_TIMER	Power off by sleep timer
	POWER_OFF_BY_ABNORMAL1 (POWER_OFF_BY_TS_END) – DVR Ready	Power off by abnormal status Power off by time shift end
	POWER_OFF_BY_FAN_CONTROL	Power off by fan control
	POWER_OFF_BY_INSTOP_KEY	Power off by Instop Key
	POWER_OFF_BY_AUTO_OFF	Power off by auto off function
	POWER_OFF_BY_ON_TIMER	Power off by On timer
	POWER_OFF_BY_RS232C	Power off by RS232C command
	POWER_OFF_BY_RESREC	Power off by reserved recording
	POWER_OFF_BY_RECEND	Power off when recording stops
	POWER_OFF_BY_SWDOWN	Power off by software download
	POWER_OFF_BY_LOCAL_KEY	Power off by local key
	POWER_OFF_BY_CPU_ABNORMAL	Power off by CPU Abnormal status
	POWER_OFF_BY_INV_ERROR	Power off by LCD module inverter error
	POWER_OFF_BY_HOMING_COMPLETE	Power off by Cable Card Update (USA only)
POWER_OFF_BY_OTA	Power off by OTA update	
POWER_OFF_BY_UNKNOWN	Power off by the other causes	

System 1

This menu allows you to check and adjust various settings.
More details about System 1 settings are shown on the next slide.

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

0. Baudrate	115200
1. 2Hour Off(On Timer)	On
2. 2 Hours Off(Screen Mute)	On
3. 15Min Force Off	11
4. Audio EQ	HDMI Port 1
5. Audio Bass EQ	0
6. A2 Threshold	Default
7. HDMI Sound (Port1)	Off
8. Lip Sync Adjust (DTV)	Reset
9. Dimming	Event
10. Tuner Option	EEPROM
11. Atten RF Signal	On
12. UTT Reset	0
13. Channel Mute	0

Variable -10...+20

Doing, Reset

*UTT = Usage Total Time
Specific Chinese items are not shown.*

Only for models that have a booster

System 1

System 1	
0. Baudrate	115200
1. 2Hour Off(On Timer)	On
2. 2 Hours Off(Screen Mute)	On
3. 15Min Force Off	11
4. Audio EQ	HDMI Port 1
5. Audio Bass EQ	0
6. A2 Threshold	On
7. HDMI Sound (Port1)	Default
8. Lip Sync Adjust (DTV)	Off
9. Dimming	Event
10. Tuner Option	EEPROM
11. Atten RF Signal	On
12. UTT Reset	0
13. Channel Mute	0

0. Baudrate :

Data Download speed
[2400 / 4800 / 9600 / 14400 / 19200 /
38400 / 57600 / 115200 / 460800]
(Default : 9600 – after Instop)

1. 2 Hours Off(On Timer) :

TV Turns off with no any key input
during the 2hours after power on by
On timer (Default On)

2. 2 Hours Off(Screen Mute) :

TV Turns off with no any key input
during the 2 hours after Screen Mute
(Default Off)

3. 15 Min Force Off :

15 forced Power Off . (Default On)

4. Audio EQ:

5. Audio Bass EQ:

Audio (Bass) equalizer setting (Default On)

6. A2 Threshold :

A2 Threshold(0~39, Default 11)
korea only (enable)

7. HDMI Sound(Port1):

HDMI Sound Path Switching용
(HDMI Port1/ RGB Phone Jack)

8. Lip Sync Adjust(DTV):

Audio Lip Sync adjust item
(range : -10 ~ 20)

9. Dimming :

Dimming On/Off Control Function

10. Tuner Option :

DTV Phase/Ghost noise support

11. Atten RF Signal :

Signal down for strong signal of Analog TV

12. UTT Reset :

TV Used Time Reset function

13. Channel Mute :

Video mute or not when changing analog
Channel
(On : Mute Enable, Off : Mute Disable)

14. Debug Status :

Changing debug option status of source

15. NVRAM Type:

NVRAM Type (EEPROM, NAND Flash)
Default : EEPROM

16. HDEV:

High Deviation On/Off control
Default : Off
Country Group : disable (in case of
A-ASIA).

17. Booster On (VHF):

18. Booster Off (VHF) :

19. Booster On (UHF) :

20. Booster Off (UHF) :

Booster AGC Gain value setting menu
(Booster supported models only)

System 2

This menu allows you to check and adjust various settings for System 2

We use Sanyo tuner or LG Tuner
Items 6 ~12 for analog channel tuning.
Data value is changed accordingly each tuner

NSU mode
- User mode : real NSU status
- Engineer mode : mode for NSU test

System 2

1. Screen Saver Cube	On
2. RS-232C Control	Off
3. SSID Control	On
4. Tuner Video Offset	0
5. VCR Format	PAL60
6. Tuner CR Threshold	0
7. VBI Line (PAL-N)	22 Line
8. NSU Mode (TV will reboot)	User Mode
9. Color Killer Fix	On
10. H-Shaking Fix	4
11. H-Unstable Count	50
12. H-Unstable Thres.	Normal
13. Step	
14. LGT10 Color Mode	

Only for S-America

Dynamic or static

9 ~ 1: for H-sync level adjustment

May not exist

- 4. System 1
- 5. **System 2**
- 6. Model Number D/L
- 7. Test Option
- 11. Spread Spectrum
- 12. Sync Level
- 13. Wireless Ready
- 14. Stable Count
- 15. ODC Test
- 16. Local Dimming

SSID = Service Set Identifier = Public name of a wireless network (not in use anymore)
 VCR = Video Cassette Recorder
 CR = CarRier (register value for carrier level control)
 VBI = Video Blanking Interval (see http://en.wikipedia.org/wiki/Vertical_blanking_interval)
 NSU = Network Software Update
 LGT10 = LG tuner name

Model Number D/L

This menu displays the model name and serial number and allows to make changes

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

Model Number D/L

1. Model name GLOBAL-PLA
2. Serial Number 911KCYQ539
T2
14

Press OK to Save

- You can change the Model name and Serial Number
- Characters following a space bar are ignored
- Input characters : +, -, A ~Z, 0~9, Space

Test Option

These Test Options are only for test engineers and the QE test department. **Don't use this menu.**

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. **Test Option**
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

UI= User Interface

ODC = Over Driving Control

UART= Universal Asynchronous Receiver/Transmitter

OSD = On-Screen Display

AV = Audio Video

Test Option

1. Auto Test
2. UI Time Out
3. Store Mode Test

Off

On

Off

(For QE department test)
For remote control key value return in the BSI system (BSI is for QE test system) or UART/Drive print

(For engineer and QE department)
UI time out control. For OSD language test. When "off", no OSD time out

(For engineer test)
For e-streamer test. Selects store mode checking time for tester. [On : 50sec, Off : 3600sec]

External ADC

This menu allows calibration of the ADC in the BCM chipset. Only for engineers or the production process. **Do not use this menu.**

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

External ADC

1. Comp 480i
2. Comp 1080p
3. RGB

External analog sources for ADC

Pattern must be provided by external equipment. ADC calibration is adjusted automatically when the input signal is connected.

Bluetooth Test – *only for models that support BT*

This menu allows you to check the settings for the Bluetooth control system. It is recommended not to change any of these items.

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. **Bluetooth Test**
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

Bluetooth Test

BT USB Drv is connected!
BT USB Drv is Open

1. DUT
2. BT Force Reset
3. BT NVRAM Init
4. BT Streaming
5. FTP Format

ON: BT test mode for binary code downloaded from dongle

Off

Reset of dongle

Yes

Initialisation of BT eqt in menu

Yes

Start

Instant audio stream decoding

JPEG

FTP transfer format of image files. JPEG is the fixed format for TV

DUT = Device Under Test

BT = BlueTooth

NVRAM = Non-Volatile Random Access Memory

FTP = File Transfer Protocol

Drv = Driver

Bluetooth AV CODEC Config – *only for models that support BT*

This menu allows you to check and change the settings for the audio-video CODEC that is used with Bluetooth (for headset).

Bluetooth AV CODEC Cfg.	
1. Adjust Check	
2. ADC Data	
3. Power Off Status	
4. System 1	
5. System 2	
6. Model Number D/L	
7. Test Option	
8. External ADC	
9. Bluetooth Test	
10. Bluetooth AV CODEC Cfg.	
11. Spread Spectrum	
12. Sync Level	
13. Wireless Ready	
14. Stable Count	
15. ODC Test	
16. Local Dimming	
1. Sampling Frequency	48000
2. Channel Mode	STEREO
3. Block Length	16
4. Subbands	8
5. Allocation Method	Loudness
6. SBC Bitrate	127

1) Sampling frequency
- Sampling rates are 44.1 k or 48 k for authentication
- Output sampling rate at the TV is fixed to 48 k

2) Channel Mode
- Output sound stereo or mono
- Stereo is default and supported

3) Block length
- Block length is fixed to 16 byte for data transfer to headset

4) Subbands (2~8)
- The number of audio sub channel bands and is fixed to 8

5) Allocation Method
- Loudness or SNR
- Fixed to loudness

6) SBC bitrate
- Output bitrate is fixed to 127 kbps

SBC = Sub Band Coding

Spread Spectrum

This menu relates to EMI problem improvement. Either the MStar menu or the BCM menu will be displayed. **These values are optimized so don't change these items**

- 2. ADC Data
- 3. Power Off Status
- 4. System 1
- 5. System 2
- 6. Model Number D/L
- 7. Test Option
- 8. External ADC
- 9. Bluetooth Test
- 10. Bluetooth AV CODEC Config
- 11. Spread Spectrum**
- 12. Sync Level
- 13. Wireless Ready
- 14. Stable Count
- 15. ODC Test
- 16. Local Dimming

Spread Spectrum

- 1. LVDS SS Control
- 2. LVDS Percent (%) (1~4)
- 3. LVDS Period (KHz) (25~40)

Enabl

e

1

25

MStar model

- 1. FRC LVDS SS Control
- 2. Percent (%) (1~4)
- 3. Period (KHz) (20~40)
- 4. BCM LVDS SS Control
- 5. Percent (%) (1~4)
- 6. Period (KHz) (20~40)

Enabl

e

1

20

Disabl

e

1

20

BCM model

SS Control is spread spectrum output or not

Percent and Period are items for clock adjustment

EMI : Electro Magnetic Interference
FRC = Frame Rate Controller
LVDS = Low Voltage Differential System
SS = Spread Spectrum
BCM and MStar are two different chipsets

Sync Level

This menu allows you to set the synchronization level for the Component input and the HDMI input.

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

0 ...31. Default Component sync level is 13. Value 0 is most sensitive.

Sync Level

1. Component
2. HDMI

6

6

0 ...31. Default HDMI sync level is 0. Value 0 is most sensitive.

HDMI = High Definition Multimedia Interface

Wireless Ready – only for models that support WiFi

This menu allows you to check and change the WiFi settings.

- You can change the RF Frequency and Power Gain values
- Push OK button to store the changed values

- 3. Power Off Status
- 4. System 1
- 5. System 2
- 6. Model Number D/L
- 7. Test Option
- 8. External ADC
- 9. Bluetooth Test
- 10. Bluetooth AV CODEC Config
- 11. Spread Spectrum
- 12. Sync Level

You should connect wireless dongle and Media box to see the Tx/Rx MAC addresses. If no wireless box connected then MAC address will be displayed as ff:ff:ff:ff:....

- Rx MAC address: Dongle MAC address
- Tx MAC address: Media box MAC address

U/L = UpLnk
 D/L = DownLink
 RF = Radio Frequency
 MAC = Media Access Control
http://en.wikipedia.org/wiki/MAC_address
 SNR = Signal to Noise Ratio
 BER = Bit Error Rate
 RSSI = Radio Signal Strength Indicator

Wireless Ready Config.

A. RF Group Config. A Group

B. Media-Box Type ATSC

1. RF Frequency Auto

2. RF Frequency Value 1)5190Hz/38

3. U/L RFPower Gain Manual

4. U/L RFPower Gain Val 20

5. D/L RFPower Gain Manual

6. D/L RFPower Gain Val 20

7. Link Mode Unicast

8. Rx MAC Address 00:03:00:04:86:56

9. Tx MAC Address 00:03:00:04:86:56

Press OK to save.

Wireless Diagonostics

- **Wireless status** : [Connected]

- **Average SNR (dB)** : [23.22]
 [24.22] [22.54] [23.65] [23.65] [22.65]

- **Average RSSI (dBm)** : [65.33]
 [67.34] [56.34] [76.43] [66.34] [70.32]

- **Video BER (%)** : [0.0]

- RF Group selection
- Mediabox type selection
- RF Frequency selection Auto or Manual
- Uplink/Downlink RF Power Gain adjust – Auto or Manual
- Unicast/Broadcast
- Wireless connection status
- Average SNR (dB) per each channel
- Average RSSI (dBm) per each channel

Bit error rate (%)

Stable Count

This menu determines how long the signal must be stable (after changing the input mode) before the screen muting stops. One unit is equal to 40 ms.

- 1. Adjust Check
- 2. ADC Data
- 3. Power Off Status
- 4. System 1
- 5. System 2
- 6. Model Number D/L
- 7. Test Option
- 8. External ADC
- 9. Bluetooth Test
- 10. Bluetooth AV CODEC Config
- 11. Spread Spectrum
- 12. Sync Level
- 13. Wireless Ready
- 14. Stable Count**
- 15. ODC Test
- 16. Local Dimming

Stable Count

- | | | |
|-----|----------------|----|
| 1. | DTV | 1 |
| 2. | ATV | 10 |
| 3. | SCART | 0 |
| 4. | AV | 0 |
| 5. | Auto AV | 0 |
| 6. | Component | 0 |
| 7. | RGB | 0 |
| 8. | HDMI | 0 |
| 9. | HDD | 1 |
| 10. | USB | 0 |
| 11. | Bluetooth | 1 |
| 12. | Media Share | 1 |
| 13. | Picture Wizard | 1 |
| 14. | Support | 1 |
| 15. | BB | 1 |
| 16. | Flash | 1 |

BB = Broad Band

ODC Test

This menu allows you to control the panel response time.

The image shows a software menu interface for 'ODC Test'. On the left is a vertical list of 16 menu items, with item 15, 'ODC Test', highlighted in orange. On the right is the 'ODC Test' configuration screen, which includes three settings: '1. Test Enable' set to 'Off', '2. Table Index' set to '0', and '3. Mini LVDS Signal Level' set to '11K'. Two callout boxes point to the '0' and '11K' values, explaining that '0' represents values from 0 to 15, and '11K' represents either 6.8K or 11K. A white box at the bottom right of the configuration screen defines 'ODC' as 'Over Driving Control'.

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

ODC Test

1. Test Enable Off
2. Table Index 0
3. Mini LVDS Signal Level 11K

0 ...15
6.8K or 11K

ODC = Over Driving Control

Local Dimming – *only for models that support Local Dimming*

This menu allows you to load the local dimming firmware

The screenshot shows a menu with two columns. The left column contains a list of 16 items, with the 16th item, 'Local Dimming', highlighted in orange. The right column is titled 'Local Dimming' and contains the following text: '1. Local Dimming Download' with a 'Start' button to its right, 'Version : 0x0000', 'Inch : 42 Inch', and 'Backlight Type : EDG_LED'.

1. Adjust Check
2. ADC Data
3. Power Off Status
4. System 1
5. System 2
6. Model Number D/L
7. Test Option
8. External ADC
9. Bluetooth Test
10. Bluetooth AV CODEC Config
11. Spread Spectrum
12. Sync Level
13. Wireless Ready
14. Stable Count
15. ODC Test
16. Local Dimming

Local Dimming

1. Local Dimming Download **Start**

Version : 0x0000
Inch : 42 Inch
Backlight Type : EDG_LED

- The Local dimming Download option is displayed after the Version, the diagonal Inches and the BLU type are read from the tool option.
- If you press the OK button, the software (binary code) that fits to this option will be uploaded (not “downloaded”!) from a PC to the Local dimming Chip for operating the local dimming. The binary code is embedded in the internal software

BLU = BackLight Unit

The End