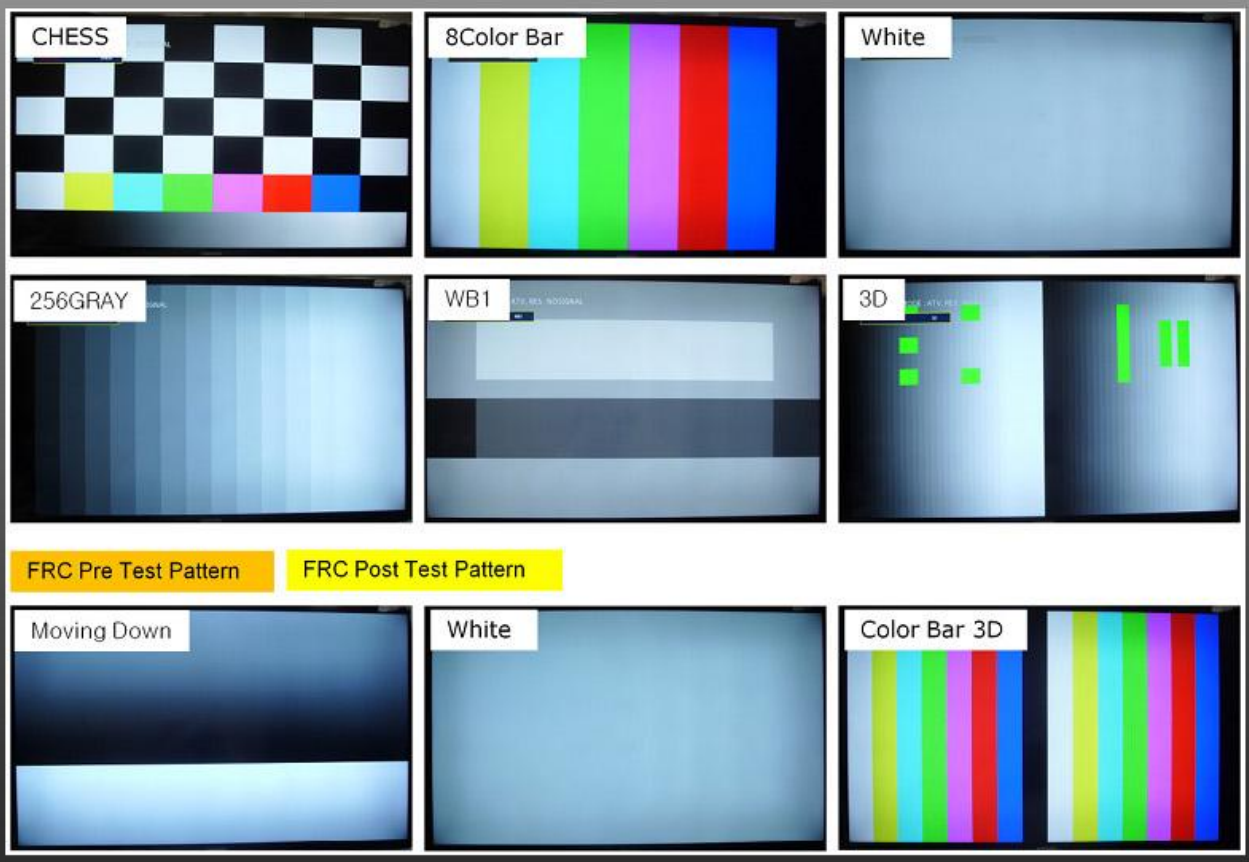
SAMSUNG

2011 & 2013 LCD/LED

TV Training Guide



http://www.LCDRepairGuide.com

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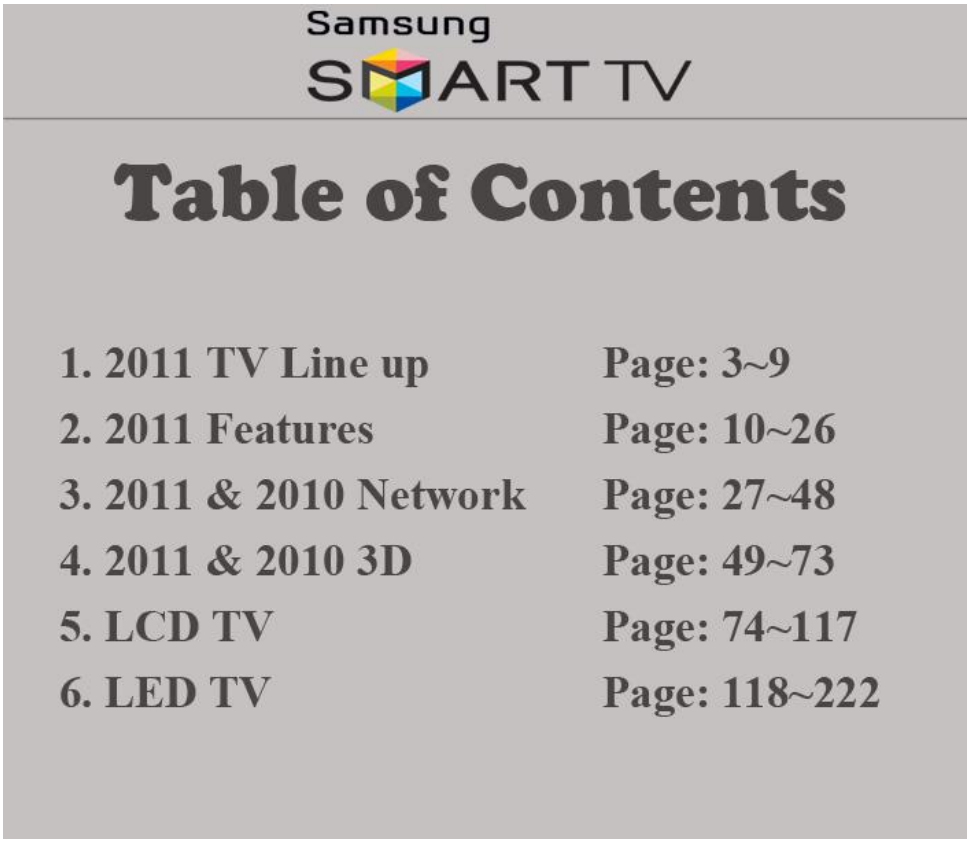
(A) Samsung 2011 TV Training Guide



Samsung SMART TV

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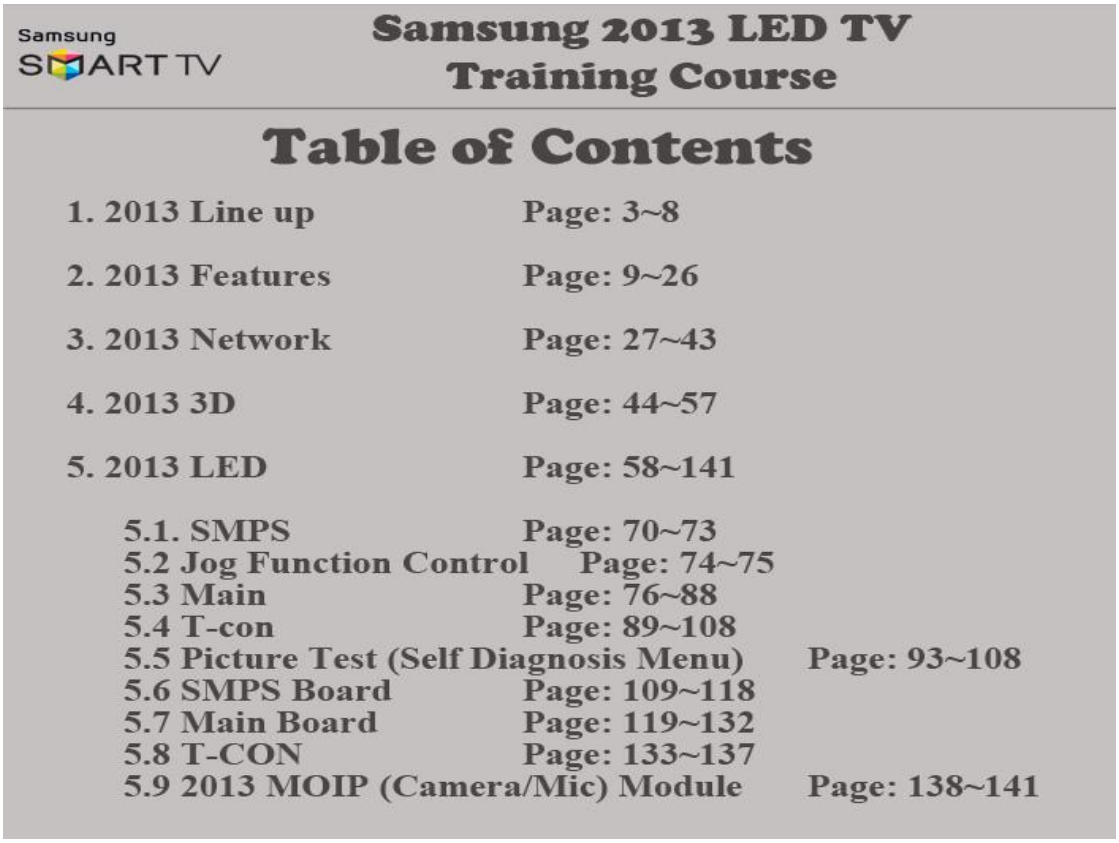
(B) Samsung 2013 TV Training Guide



Samsung SMART TV

Samsung 2013 LED TV Training Course

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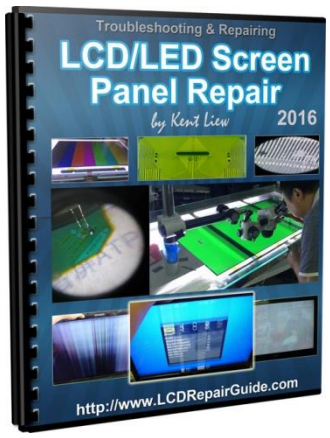
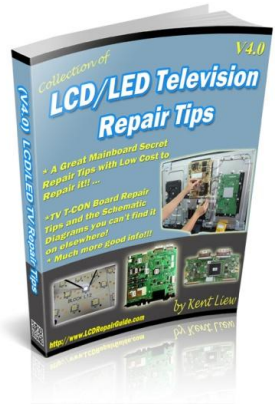
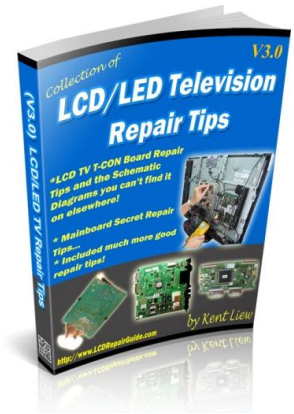
Highly recommended other great related repair information for you:

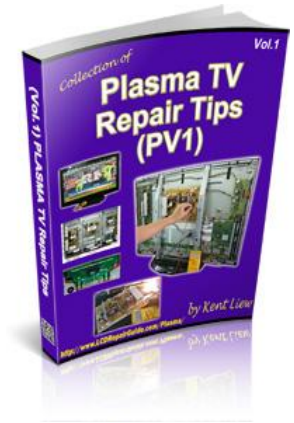
With all these great repair information, it will help you in troubleshooting and repairing electronic and the other display devices: (Please click on the ebook cover to get more details)

1) Best Selling Flat Screen TV Troubleshooting & Repairing Ebooks and Membership Sites:





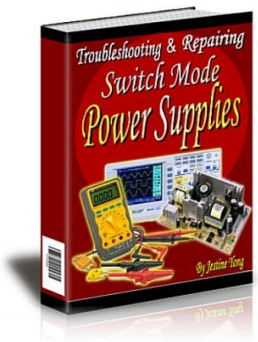


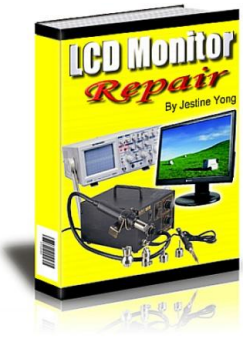


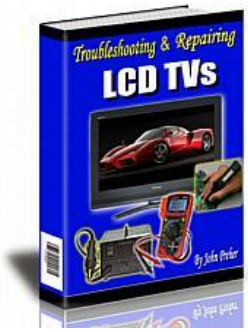
http://www.LCDRepairGuide.com

http://www.lcd-television-repair.com/newsletter/Recommend.html

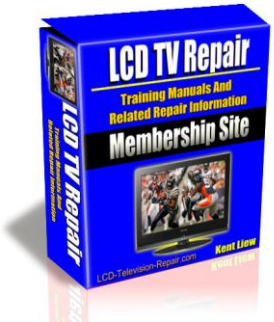
2) Other Great Electronic Repairing Ebooks:







3) Membership site:



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'2011 TV Training Guide

Samsung SMART TV

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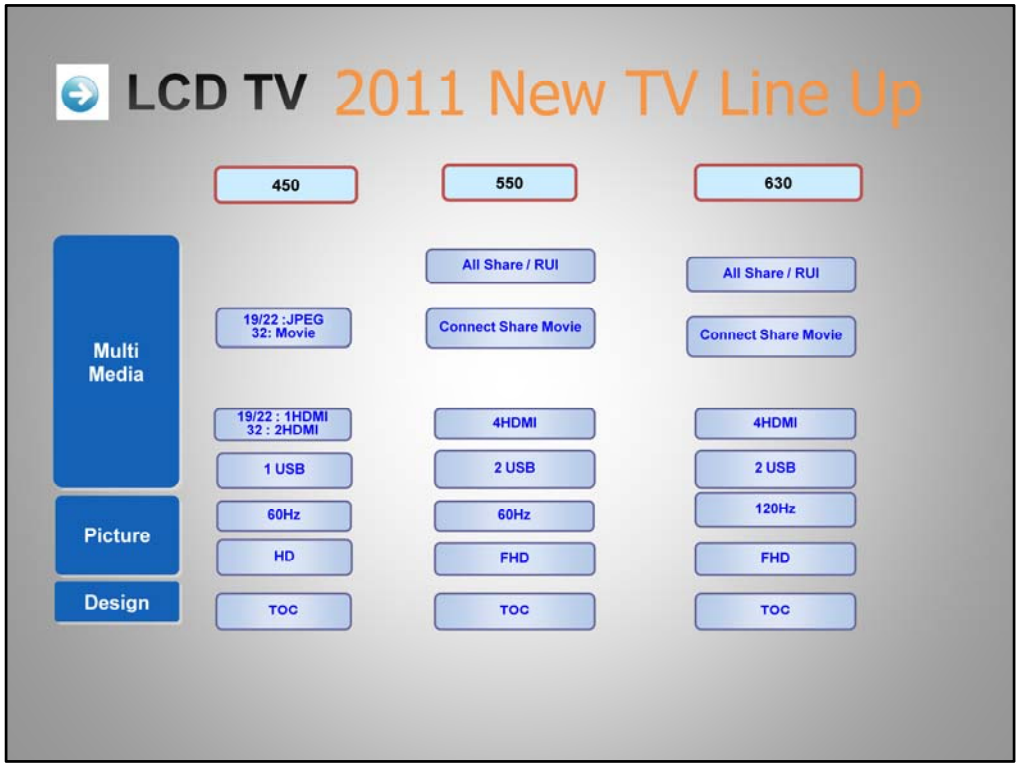
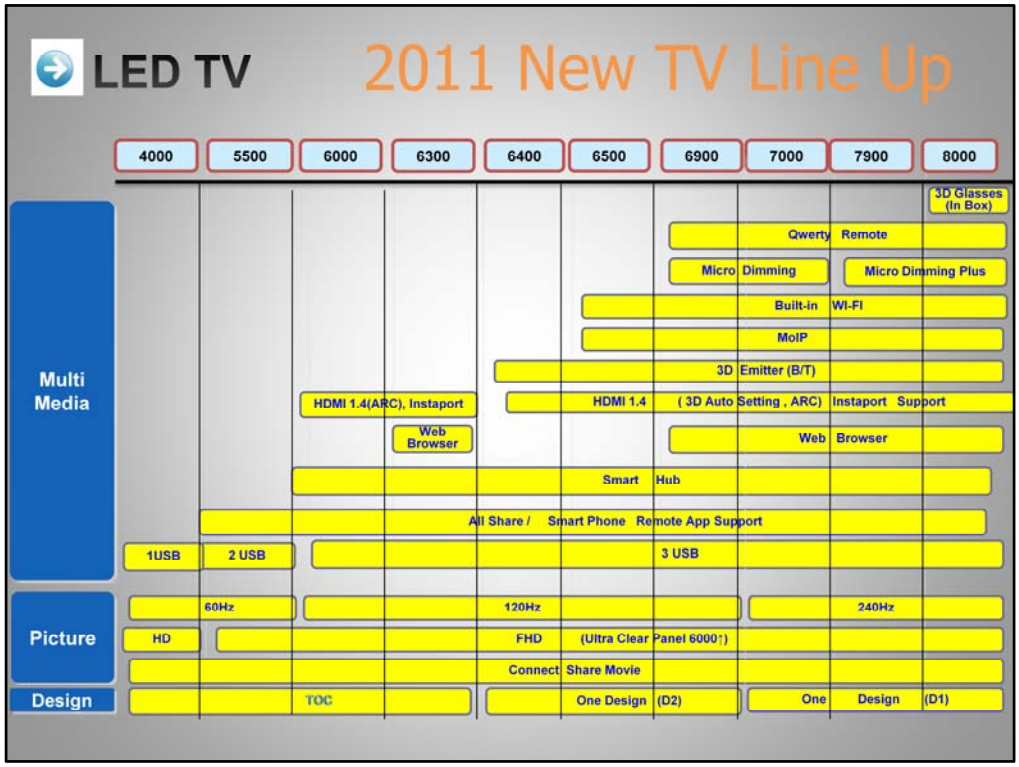
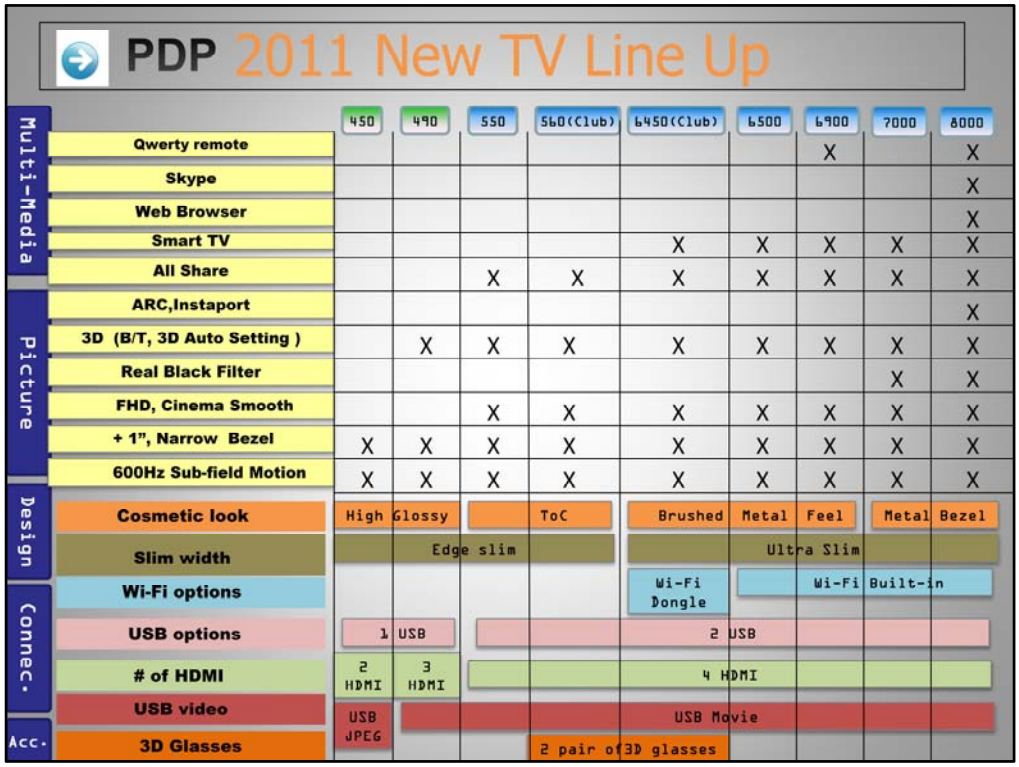
'2011TV Line-Up



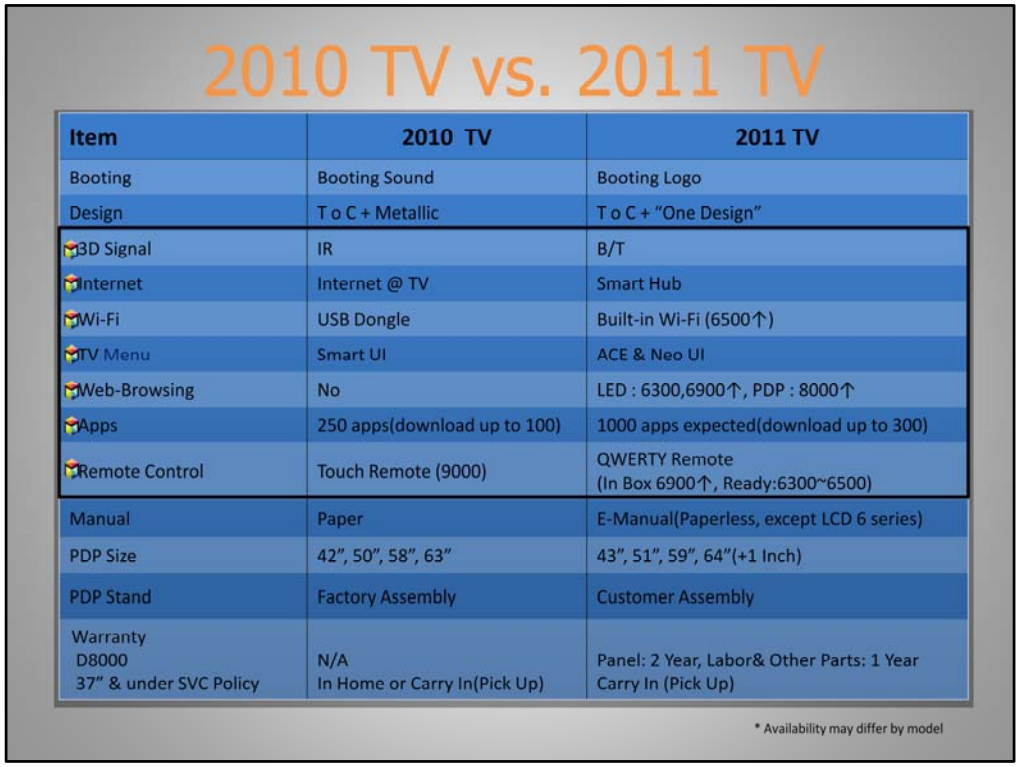
LCD 2011 Lineup…… only the 630 series is 120 Hz, 450 & 550 series are 60Hz models



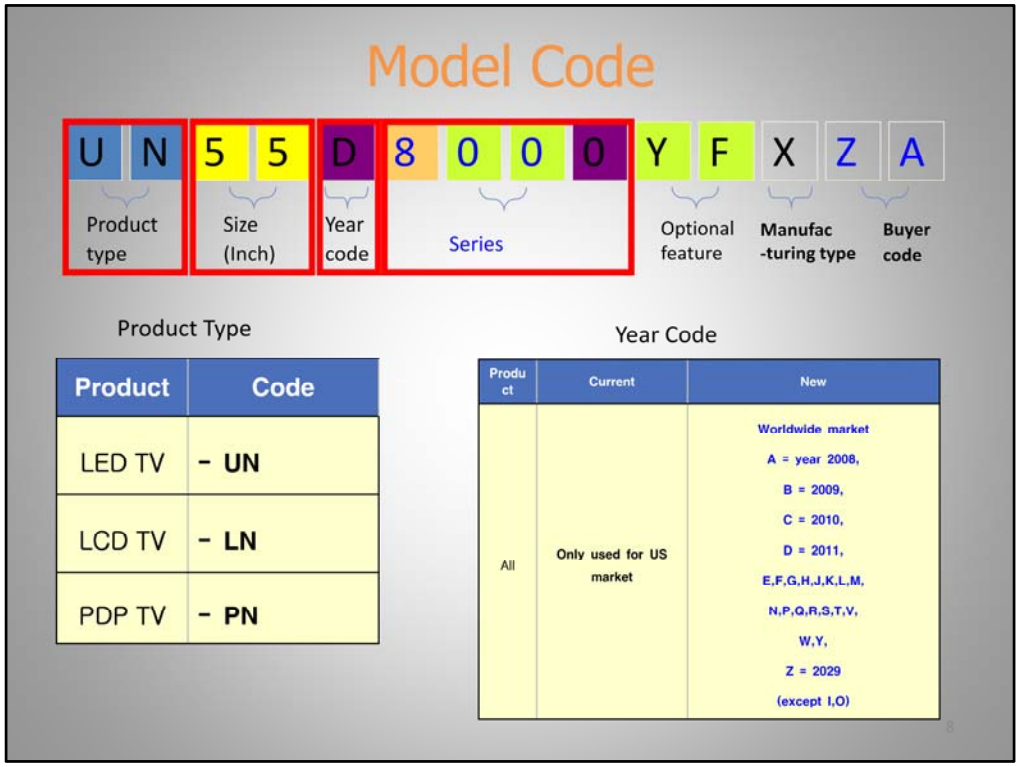
LED 2011 Lineup only two models 60Hz…. 6000 – 6900 120Hz …. 7000 – 8000 240Hz…. Only 120Hz is required in 2011 for 3D! As compared to 240Hz for 2010…. 3D now Bluetooth…. (more later)…. New Built in Wi-Fi in 6500-8000….



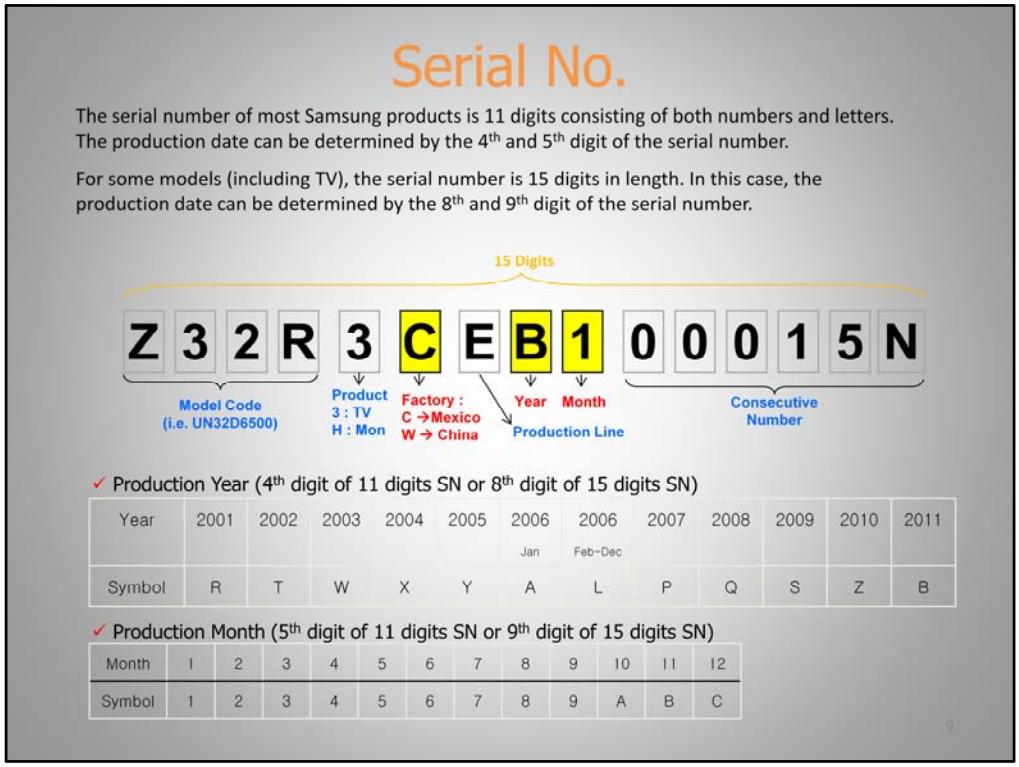
Extra "1 Inch" (actually approx .75 ") Screen with reduced Bezel size but body is same dimensions as 2010…. …..Bluetooth 3D in all models except 450 series… New Built In Wi-Fi 6500 – 8000 series



2010 vs. 2011 comparison chart…. 3D from IR to Bluetooth…. Wi-Fi from external Dongle to Built In…



Important Model Code Information….
Product Type, Size, Year, Series…



Important Serial Number Info
Model Code, Product, Factory, Production Line, Year/Month…

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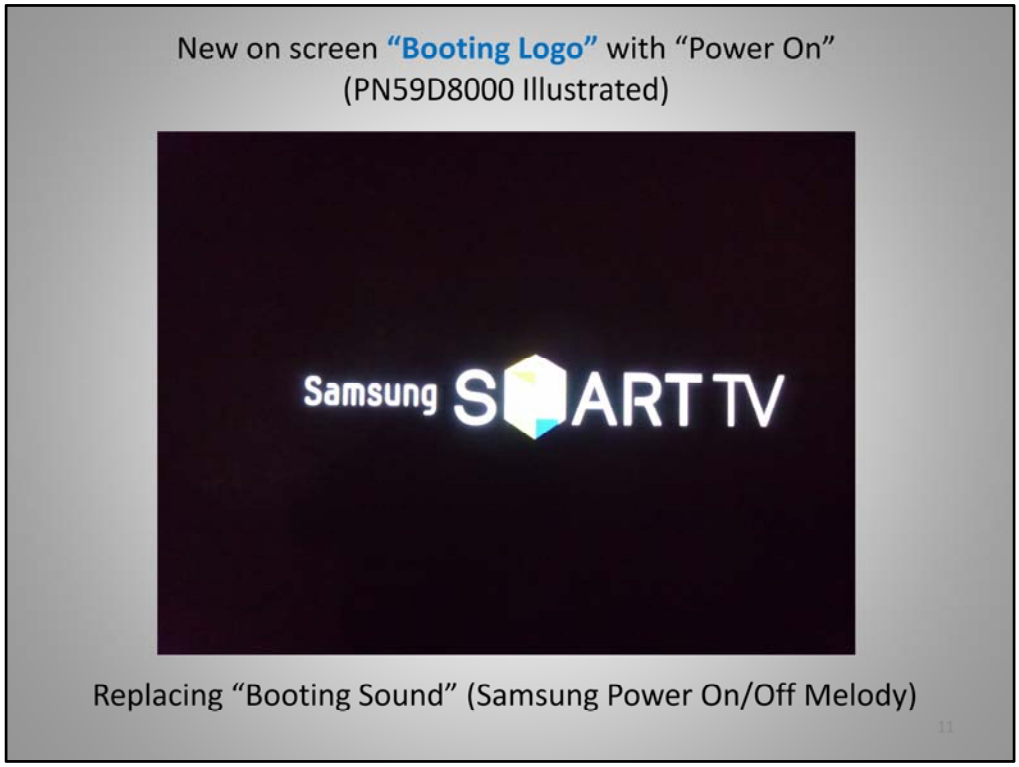
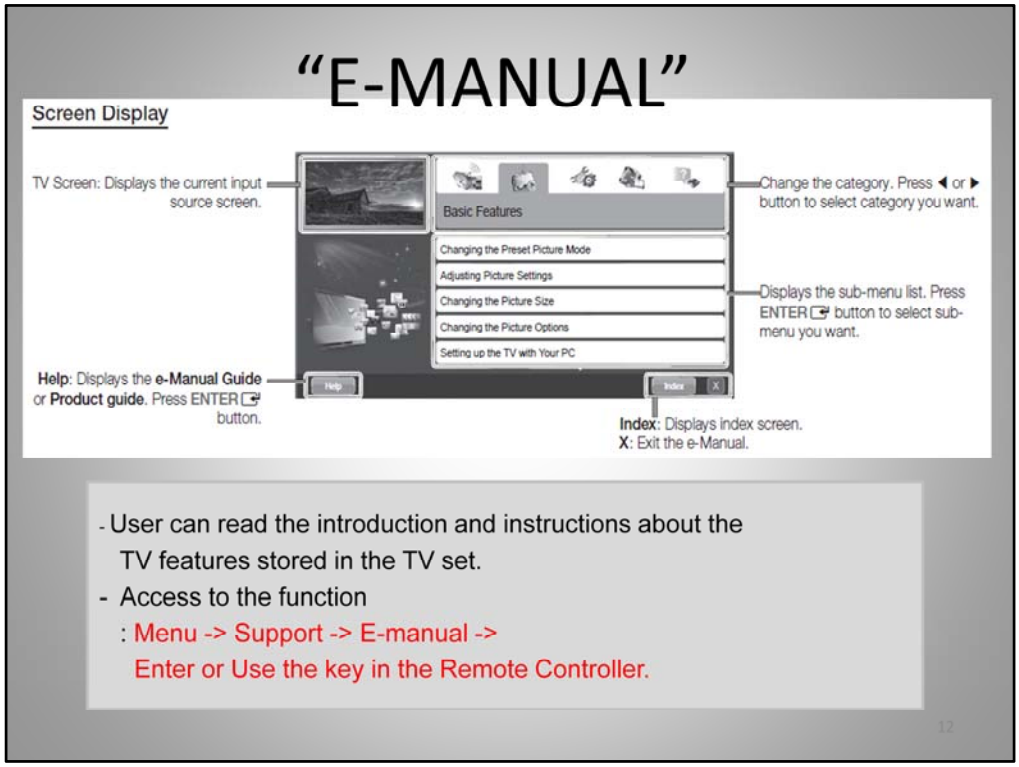
'2011TV Features

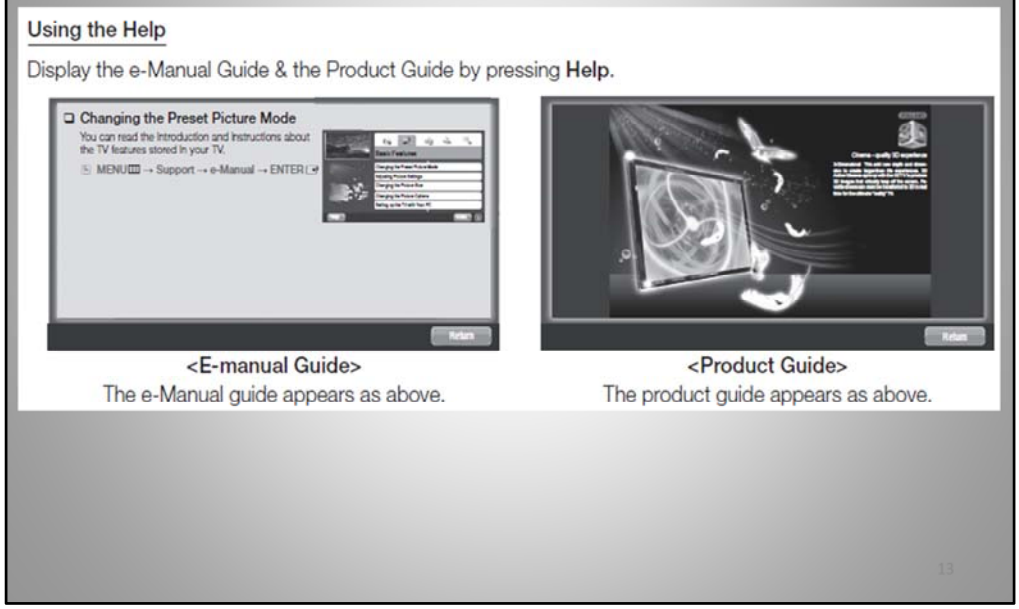


New "Booting Logo" example of PN59D8000, other Logos displayed vary with model type. This replaces the sound "Melody" start up.
Note: It's been reported that some 2011 models may have "Melody" as well as the new "Logo".



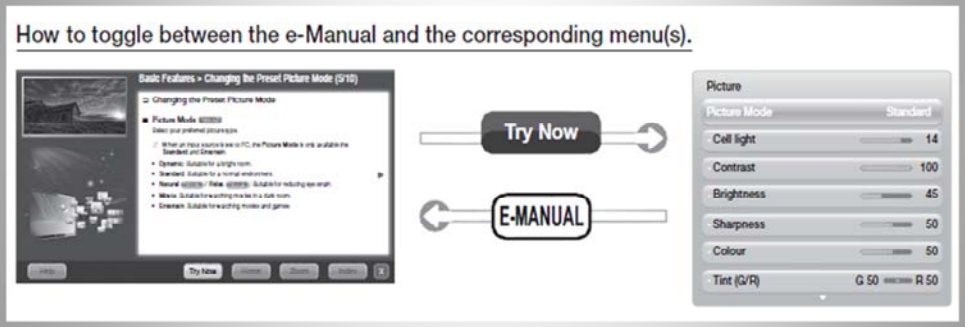
New on screen E-Manual that can be accessed by the customer for quick operation explanation. Software Upgrades will include E-Manual.

“E-MANUAL”

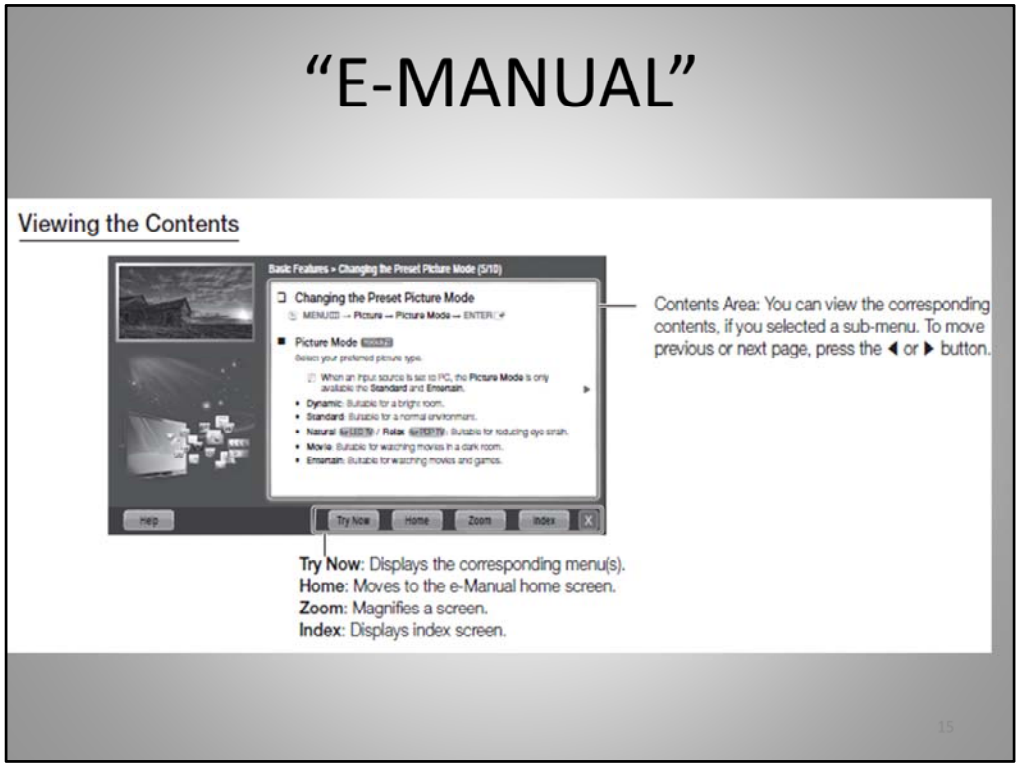


E-Manual Operation, quick access

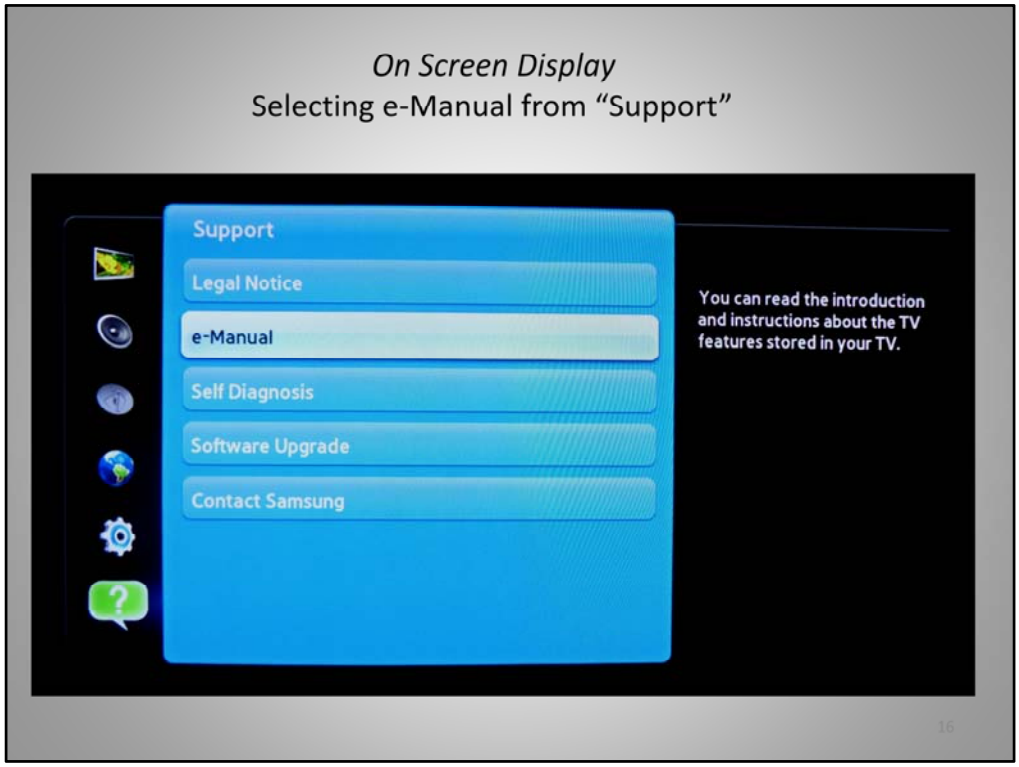
“E-MANUAL”



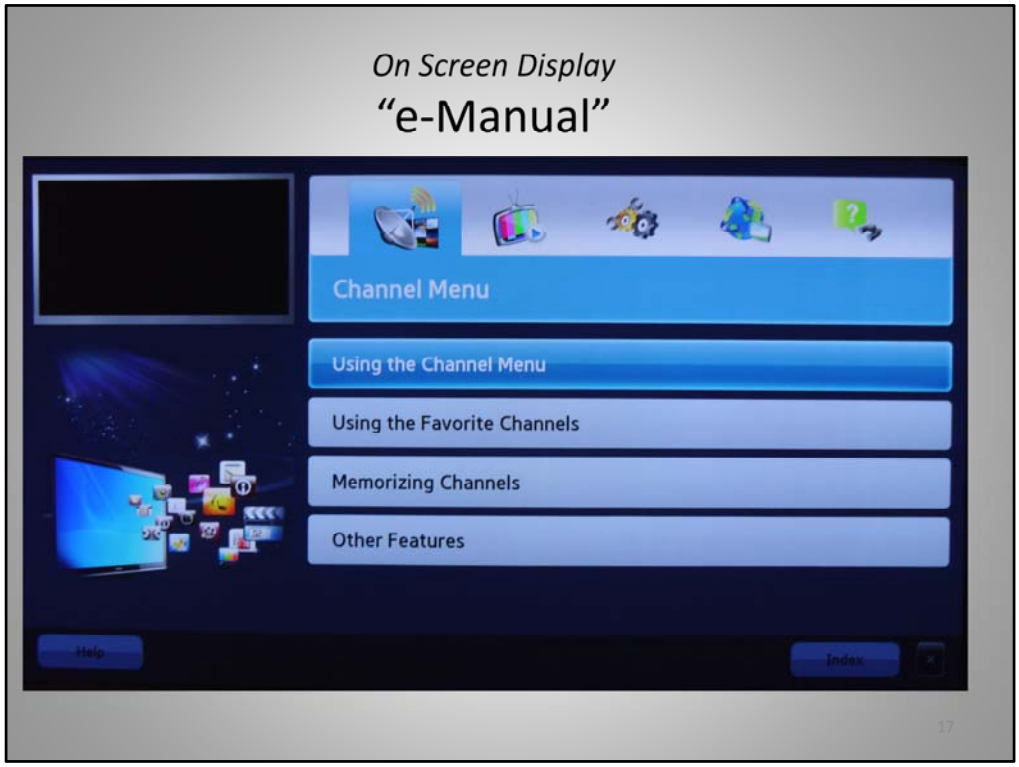
Toggling to/from E-Manual



E-Manual Contents



E-Manual snapshot of PN59D8000



E-Manual "Using Channel Menu"

E-Manual “Using Channel Menu”

Key Feature

Built in Wi-Fi

-Easy Set - up & Optimized
- -. One Foot Connection
- -. USB configuration

-Priority QoS(Quality of Service)

Detail

Easy Set-up & Optimized Solution for using Ethernet
- One Foot Connection : Establish a Wi-Fi connection to any compatible device placed within 9.84 inches distance (Samsung Patent pending)
- USB configuration : Insert on TV

Priority QoS(Quality of Service) Solution for using Ether

USB to router → Insert USB to Samsung TV
Configurations is safely stored on USB drive and restored **net**
- Prioritize streaming content to the TV
- Ensure the best streaming content and throughput speeds are given to the TV

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New Wi-Fi

New “Smart Hub” All contents now integrated on one screen

Smart Hub

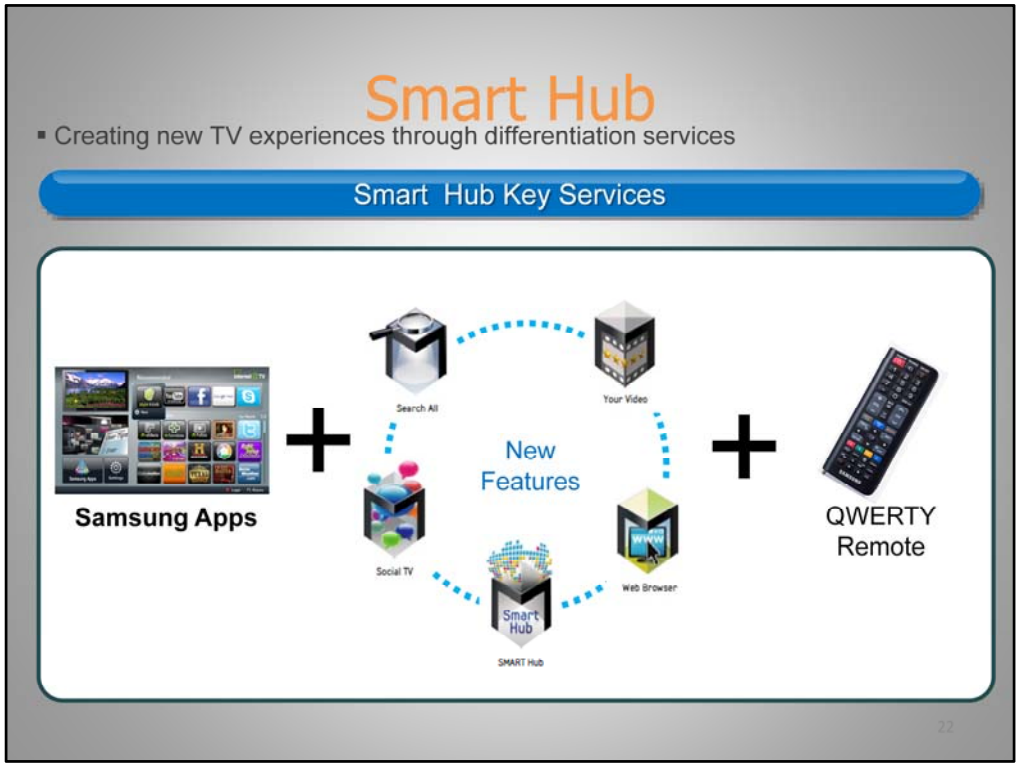
Gateway to access all type of diverse content

→ Integrated guide for easier and diverse entertainment choices

→ User friendly UI

→ Access to diverse Apps

→ Customize TV by Apps grouping & sorting



Smart Hub Key Services… Apps… New Features… Qwerty Remote (Model related)

Introduction for new feature

Full Browsing

The Application which makes users to use the web-browser in our TV-set in the same way with PC.

Refresh / Stop: Refreshes the current page or stops the current connection from loading.

Home: Goes to the URL you specified as your the home page.

Zoom: You can select a zoom level of **50%**, **75%**, **100%**, **125%**, **150%**, **200%**, **400%** and **Fit to Screen**.

Favourite: Displays the **Favourites List** screen. You can set the current page as a Favourite or select a Favourite page to visit from the Favourites page list.

History: Displays the **History** screen. You can select a web page to visit in the History list. You can also sort the History list by **Date**, **Name**, or **Frequency**. To sort, select the **Sort Criteria** button in the upper right corner of the **History** screen and then press **ENTER**.

When you highlight a page, the **Options** button appears on the right. Access the Options by selectng the Options button, and then pressing **ENTER**. In the Options pop-up you can **Delete** the selected page from the history list, **Delete All** pages from the History list, or **Add** the selected page to **Favourites**.

URL: Shows the URL of the current page. If you press the **ENTER** button, the URL pop-up appears. Press **ENTER** again and you can key in a new a URL directly. You can also select a page to visit on the displayed Page list.

In addition, you can sort the Page list by **Date**, **Name**, or **Frequency**. To sort, select the **Sort Criteria** button in the upper right corner of the **URL** pop-up and then press **ENTER**.

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New… Full Web Browsing

Introduction for new feature

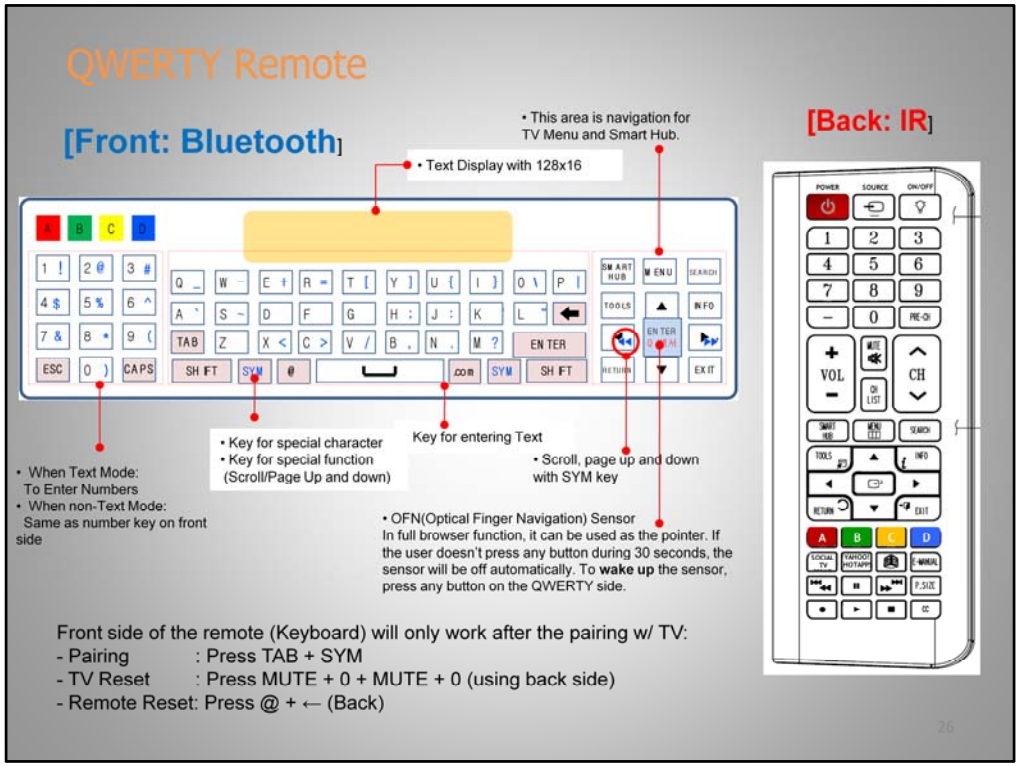
- Bluetooth

Categories	IR	RF
Reflection	X	O
Barrier Restriction	X	O
TV : Glasses = N : 1	No	Yes
Communication	1 way	2way

=> It means , when using IR emitter to view the 3D source , it's impossible for 1 glasses to be paired with a variety of TV sets , but it's possible in using B/T 11Y

New 3D Bluetooth

New Qwerty Remote Models 6900 & Up



Qwerty Remote: Front is Bluetooth (with new keyboard & Display), Back is standard IR

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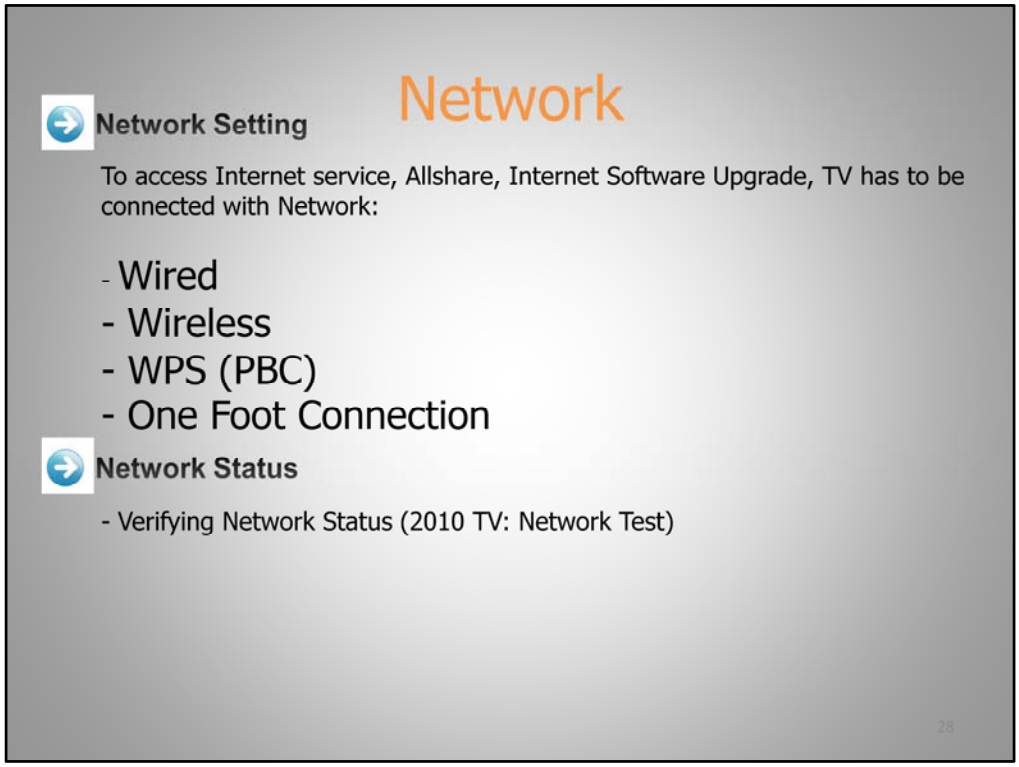
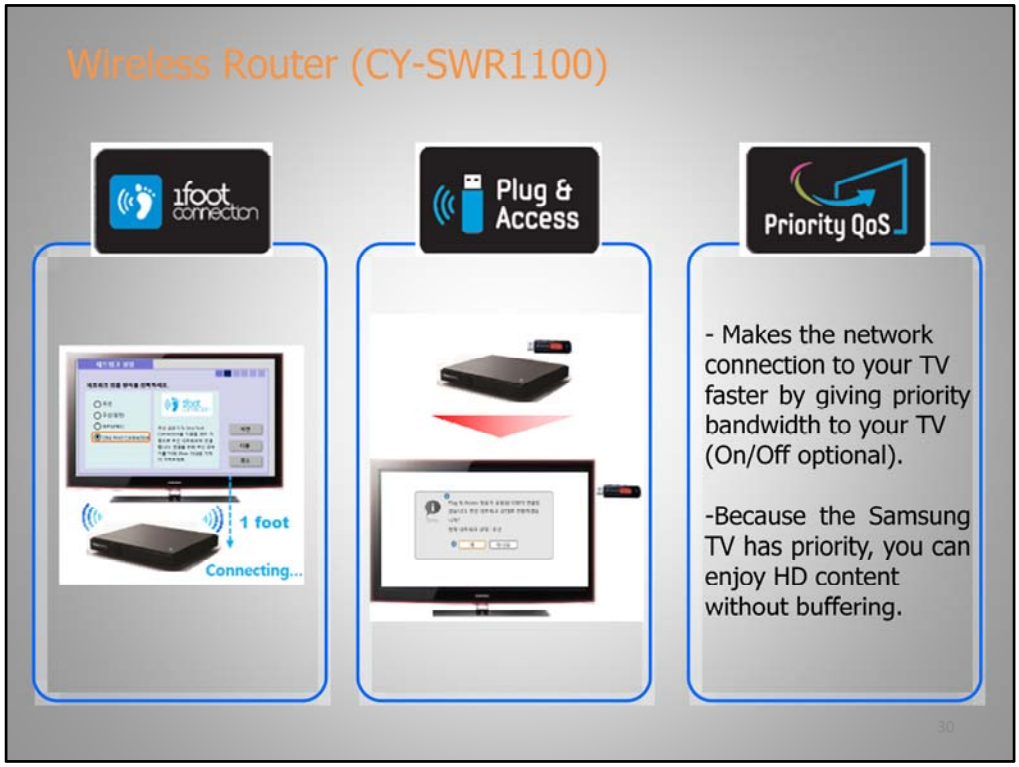
Network Operation & Troubleshooting



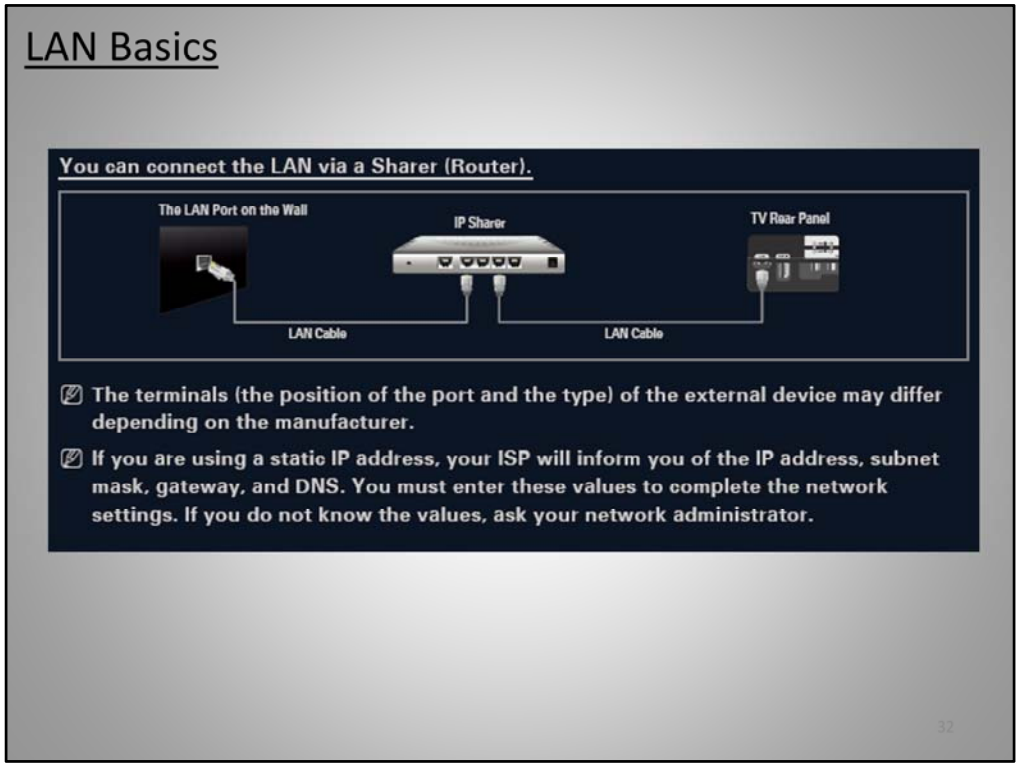
New 2011 Network Features & Operation
Setting:
-Wired
-Wireless
-WPS (PBC)
-One Foot Connection
-Network Status: New 2011 Status Screens

New Optional Samsung Wireless Router



Samsung Wireless Router & External Router connection options:
1-foot Connection (Bring router within 1foot for easier initialized connection)
Plug & Access
Priority Qos (Priority Bandwidth)

2010 – Multiple Screens to select Vs 2011 “Smart Hub” one screen



(If using static IP the settings can be found on the users PC by accessing the command prompt and typing 'ipconfig'.)
Connecting the LAN via the Router. (Wired is illustrated)
If you are using a static (closed secured system) IP address, Subnet Mask, Gateway, and DNS will have to be entered manually.

LAN Basics

❑ **Network Connection – Wireless**

You can connect to the network wirelessly through a wireless IP sharer.

1. Connect the 'Samsung Wireless LAN Adapter' into the USB1(HDD) or USB2 terminal of the TV.

Year	2009			2010		
Dongle	TV	BDP	BD-HTS	TV	BDP	BD-HTS
WIS09ABGN	O	O	O	O	O	O
WIS09ABGN2	X	O	O	O	O	O
WIS10ABGN	X	O	O	O	O	O

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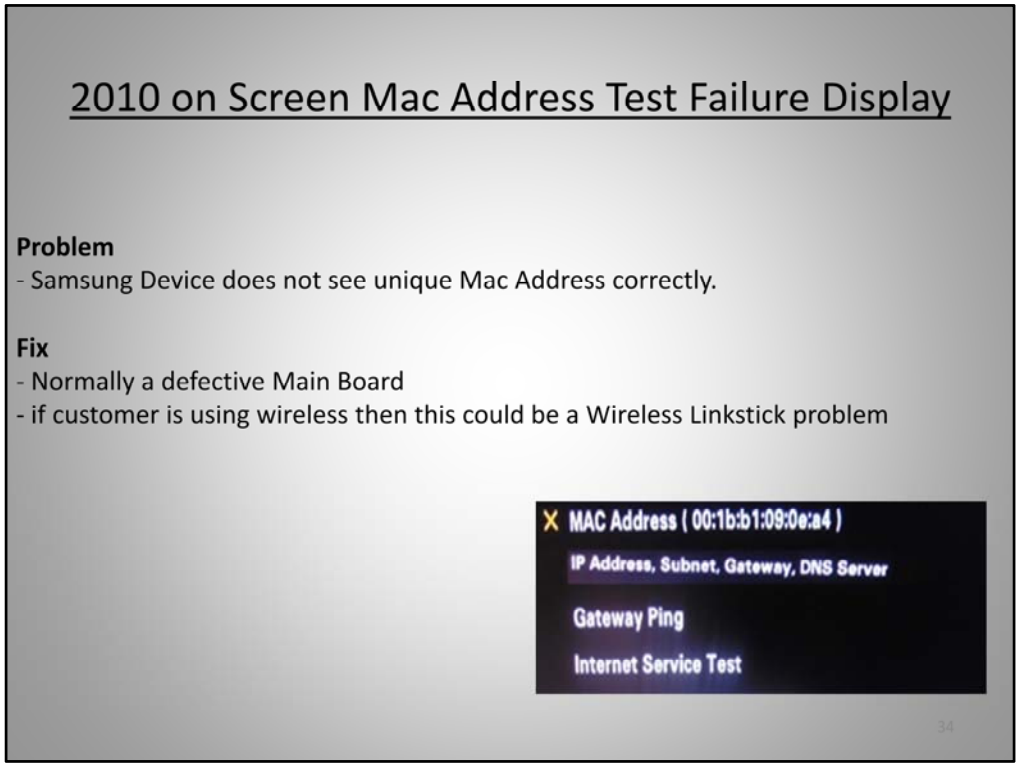
If you are using an external Dongle for wireless connections be sure that it is compatible with the TV and components. A quick reference chart is provided for previous years.

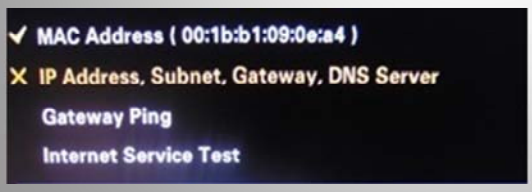


The 2010 Models on screen troubleshooting test display uses “X” errors and a check mark if it’s OK.
NOTE: On any Model year Mac Address should always appear. A good test is to have the customer remove all connections to the TV, then perform IP Settings test. If Mac Address is zeros or erroneous errors, there is likely a failure in the Main Board. You can first try performing SW upgrade and test again. If it still fails to show a correct Mac Address replace the Main Board.

2010 IP Address Test Failure Display

Problem
- If you see a 0.0.0.0 IP the TV does not see the Router
- If you see a "169" IP the TV sees the Router but there is a failure.
- If set to "Manual" IP mode check IP and DNS numbers.

Fix
- First Power Cycle the full system (Modem, Router, TV)
- Check Physical connections Cat5 cable could be unplugged with this error.
- Make sure IP/Gateway/DNS information is correctly entered if Manual



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The check mark next to Mac Address verifies that the test was OK
X next to the IP shows IP error. Fix items are listed, pay extra attention to first rebooting system by Power Cycling the Modem, Router, & TV (plus all external items in the system):

-First Power Cycle the full system (Modem, Router, TV)
- Check Physical connections Cat5 cable could be unplugged with this error.
- Make sure IP/Gateway/DNS information is correctly entered if Manual

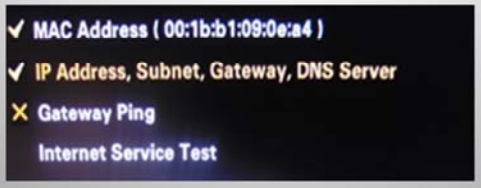
2010 Gateway Ping Test Failure Display

Problem

-Setup is correct but physical connection is not there
- If Wired this could be an unplugged cable
- If Wireless the Router could be turned OFF or out of range
- Network Traffic could be too high

Fix

- First Power Cycle the full system (Modem, Router, TV)
- Disconnect and reconnect all network cables to insure they are correct
- Check network traffic on other devices, limit bandwidth use on network



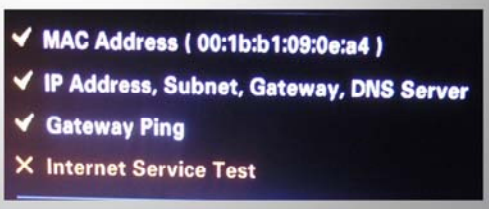
In this example the Mac Address is OK, IP Address is OK, but Gateway test has failed. Again it is recommended to first reboot the system, then check the other items listed:

-First Power Cycle the full system (Modem, Router, TV)
- Disconnect and reconnect all network cables to insure they are correct
- Check network traffic on other devices, limit bandwidth use on network

2010 Internet Service Test Test Failure Screen

Problem
- Typically due to limited or poor connectivity to the Modem/Router
- Firewall could be enabled interfering with connection

Fix
- First Power Cycle the full system (Modem, Router, TV)
- Check other devices, its rare only 1 device would have this problem
- Disable all firewalls on network, this could interfere
- Contact ISP to see if there is an outage in your area



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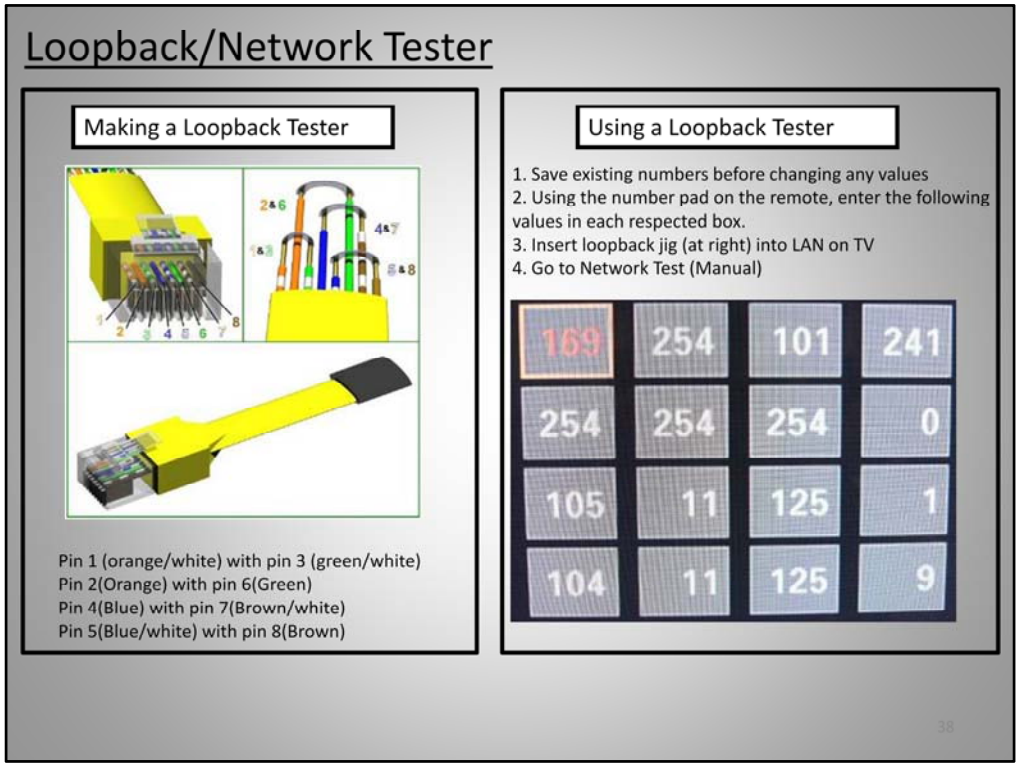
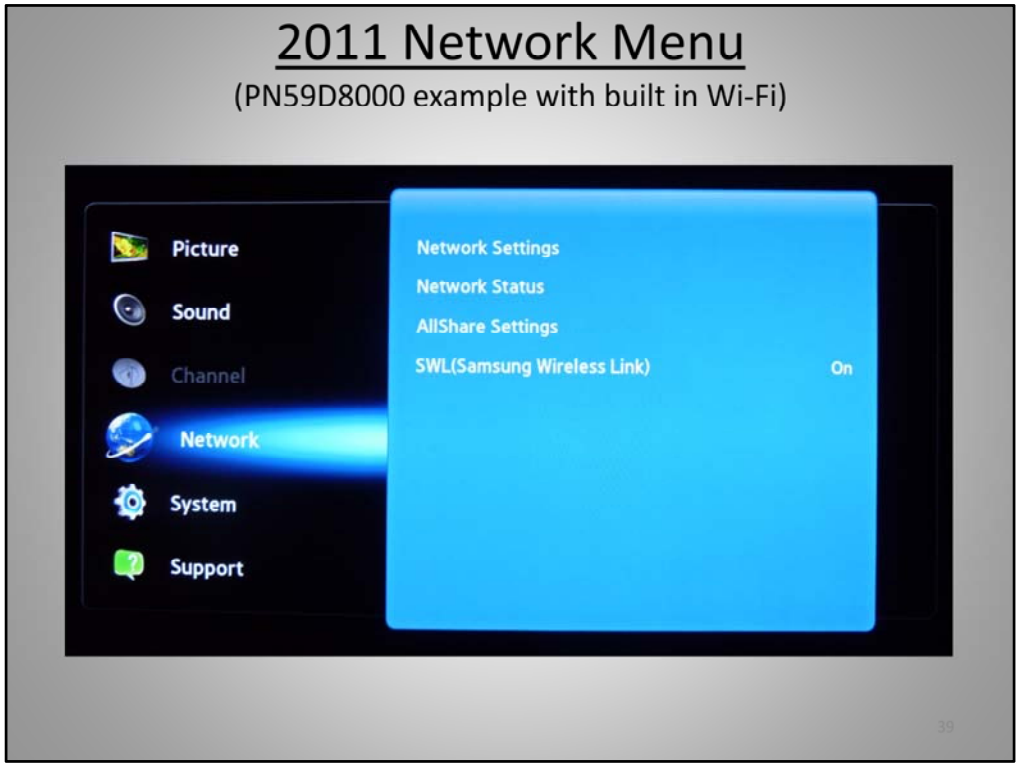
Mac's OK IP's OK Gateway's OK but Internet Service Test Failed
Again first Power Cycle the full system…
-First Power Cycle the full system (Modem, Router, TV)
- Check other devices, its rare only 1 device would have this problem
- Disable all firewalls on network, this could interfere
- Contact ISP to see if there is an outage in your area

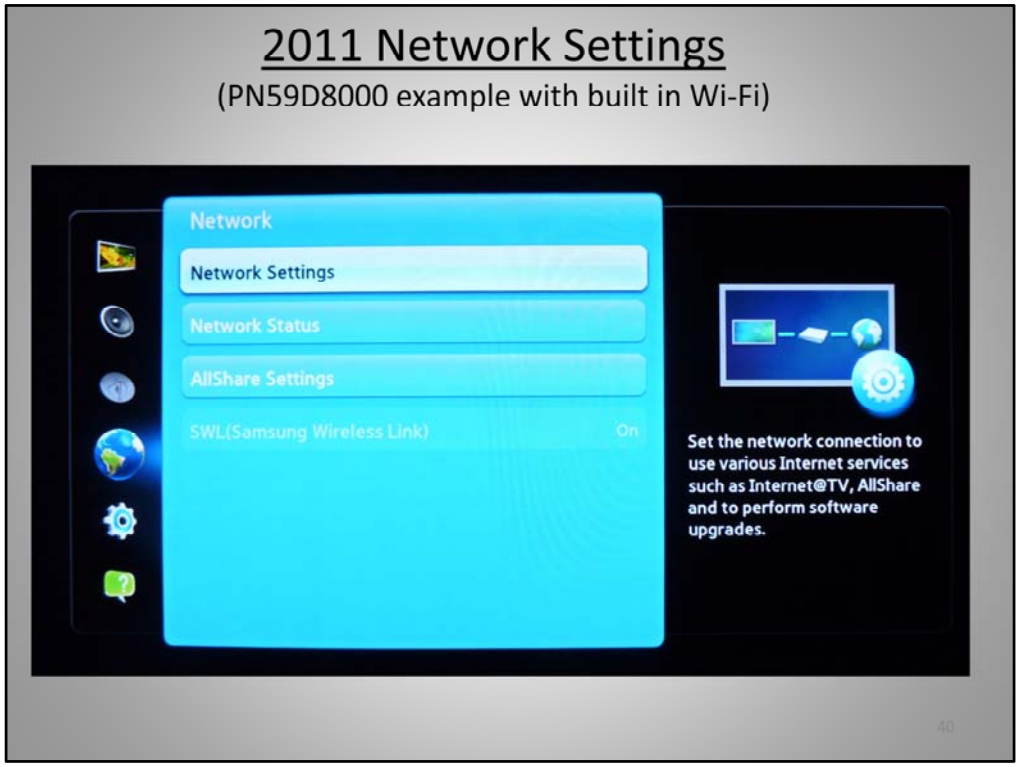


An important Network test can and should be performed when errors are experienced to help verify proper communication link to the Main Board.

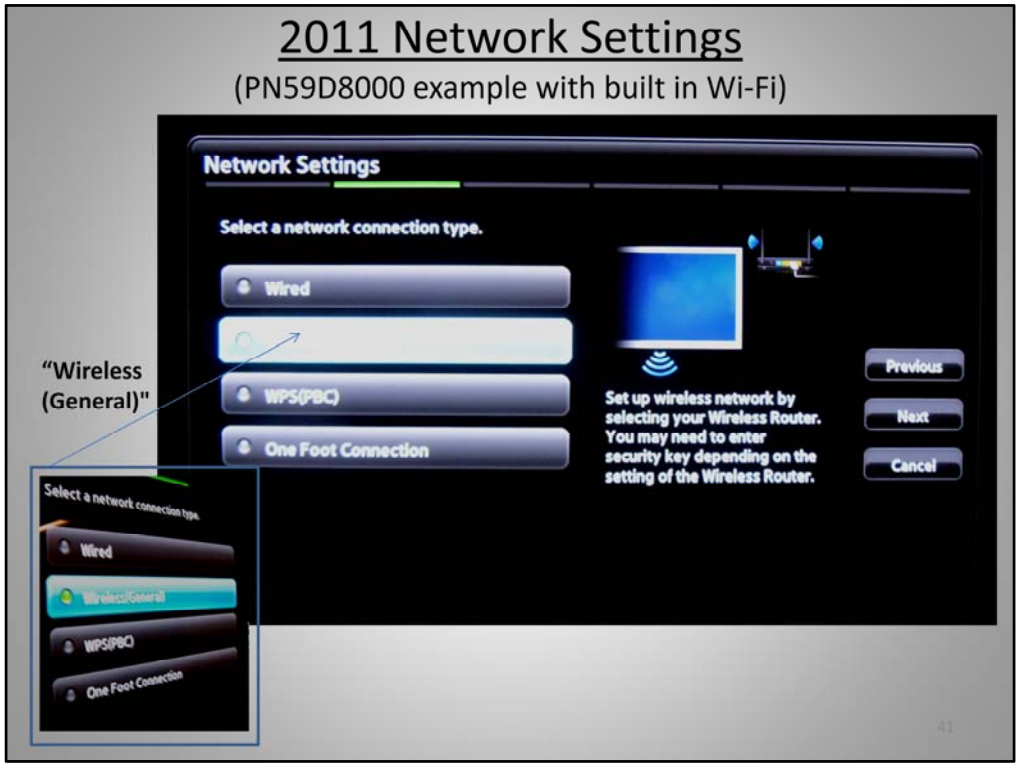
1. Save existing numbers before changing any values
2. Using the number pad on the remote, enter the following values in each respected box.
3. Insert loopback jig (at right) into LAN on TV
4. Go to Network Test (Manual)



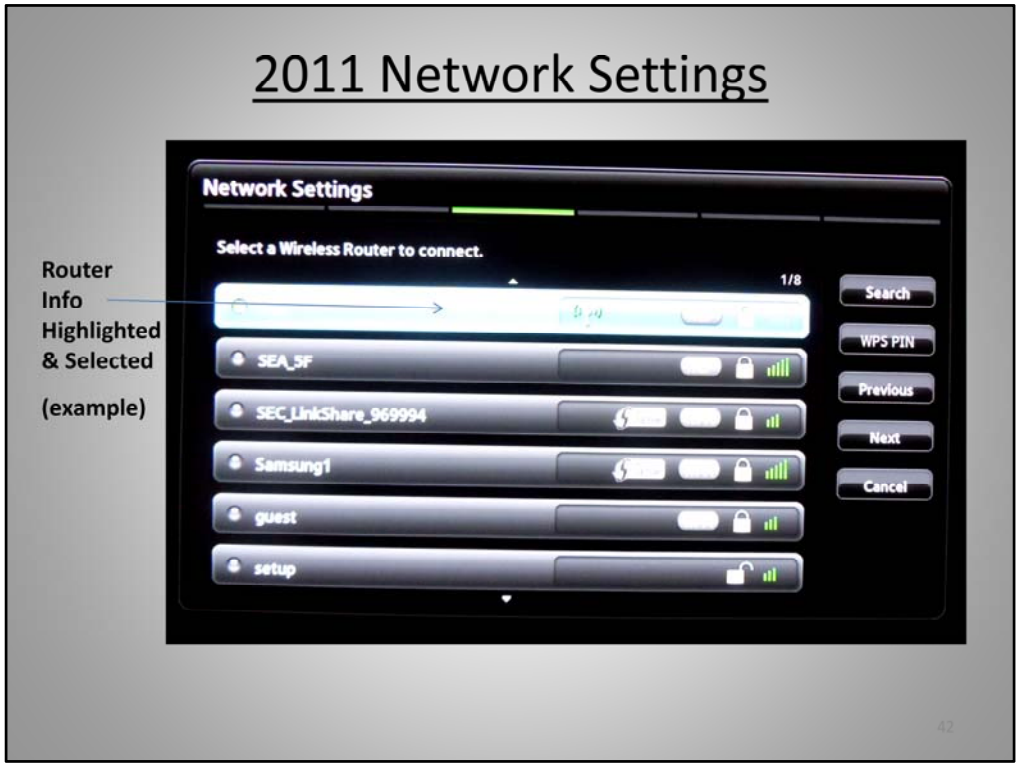
(PN59D8000 example with built in Wi-Fi)
The new 2011 Network Menu is displayed with selections:
-Network Settings
-Network Status
-AllShare Settings
-SWL (Samsung Wireless Link)



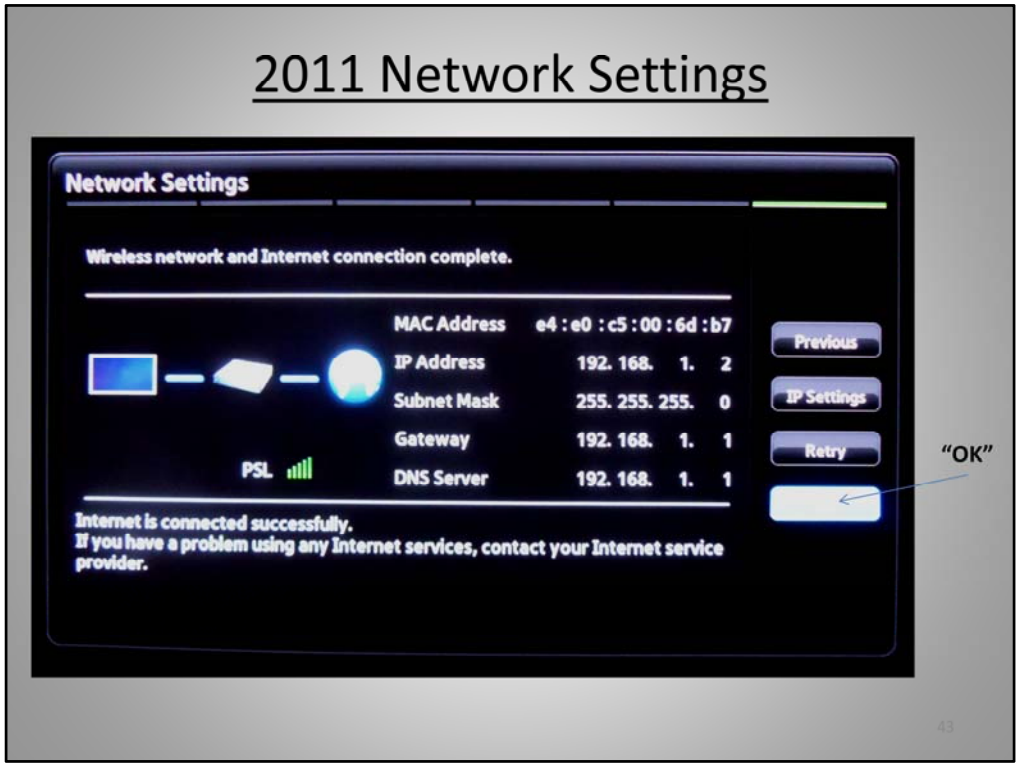
Example: Selecting Network Settings: 1st highlight & activate Network Settings



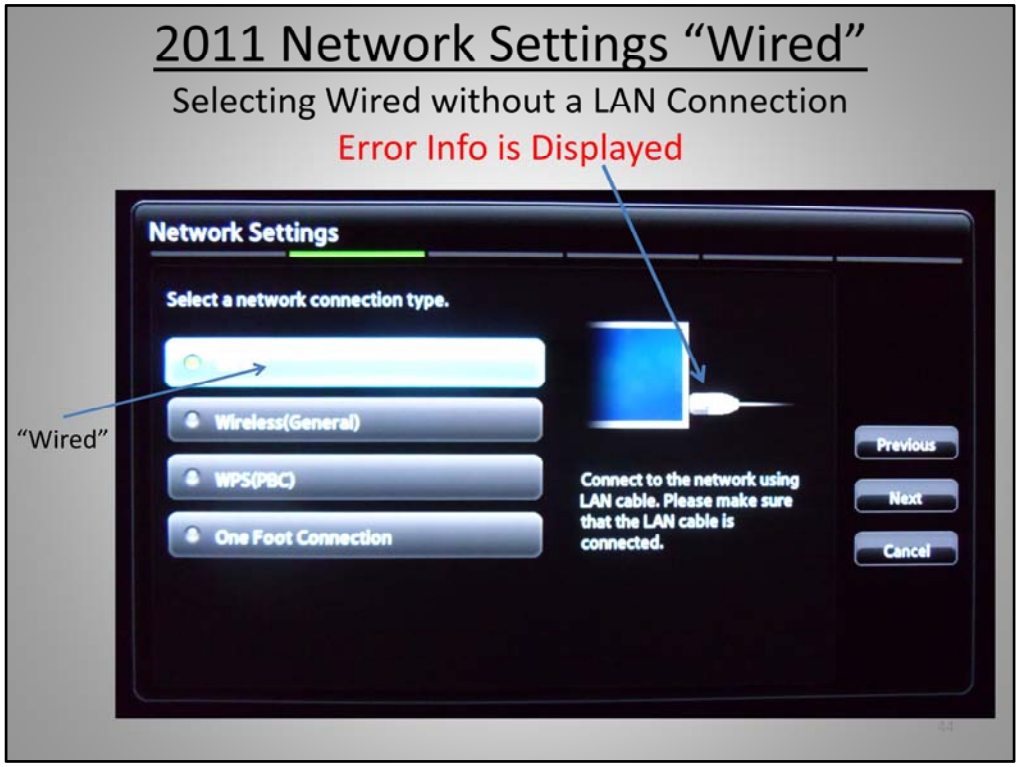
When a built in Wi-Fi model is displayed and the Wi-Fi Module is operational the “Wireless (General)” will be the default highlighted screen. … Now activate “Wireless”



Wireless Routers in the area are now displayed and ready for selection.
Simply arrow down and highlight the Router for operation and select “Next”

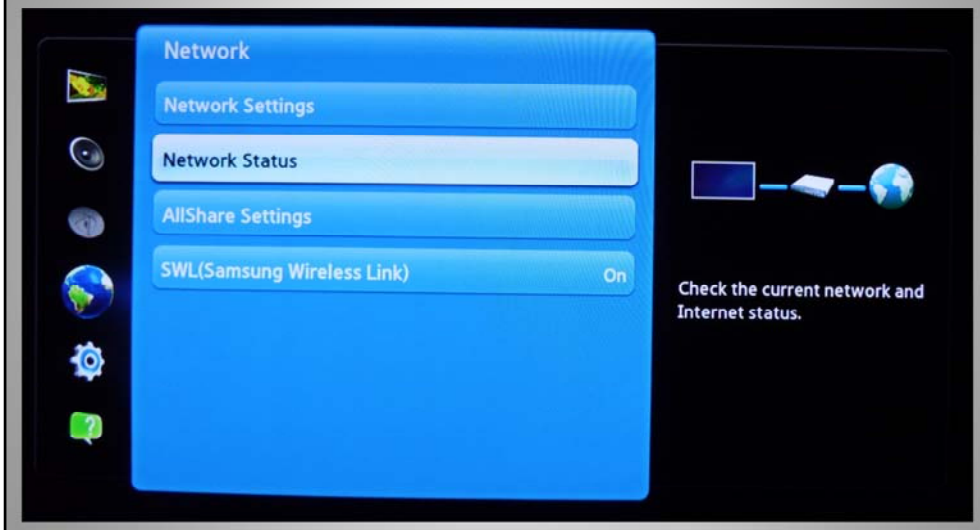


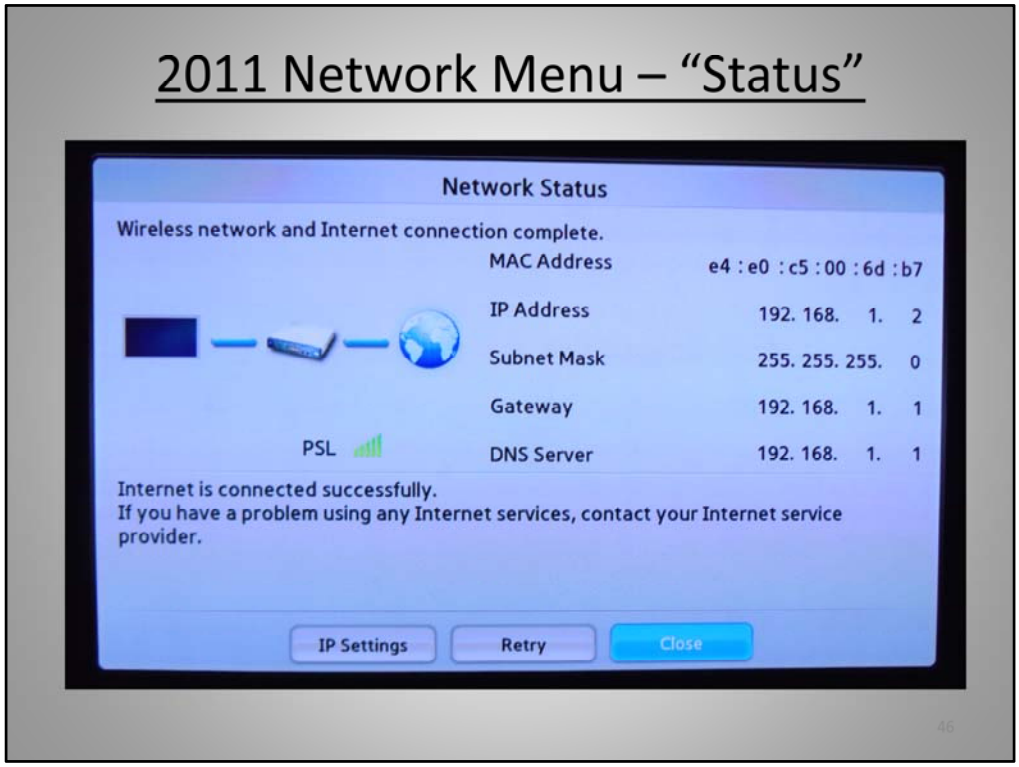
- The Network Settings and status of each line item are displayed:
MAC Address; IP Address; Subnet Mask; Gateway; DNS Server
-Active status of the connections are displayed with user friendly icons on the left side of the screen.
- A written status describing completion or error report is also provided. Should errors occur it will direct you
To the problem areas and check points.
- A “PSL” signal strength level meter is also provided.



This example shows “Wired” being selected when no LAN connection was made. Specific Error correction info and instruction is provided.

2011 Network Menu – “Status”





Finally check Network Status for operation accuracy and select “Close”

- Check GSPN to download the latest firmware before going on the service (especially of the main board is going to be replaced)

Firmware upgrades can be accomplished in different ways depending on the available features of the model of TV. The usual way is through a USB drive containing the upgrade file.

-Step 1 download from online (interrupting the process is not a problem)
-Step 2 download file from memory on TV (or memory on USB flash drive) to the main PCB to do the upgrade (if process is interrupted you may damage the main board)

- no "alternative" software available in 2010 models (used if data was corrupted)
- the customers setting will go back to default, so write them down to what the customer had before the repair.

Firmware Upgrades

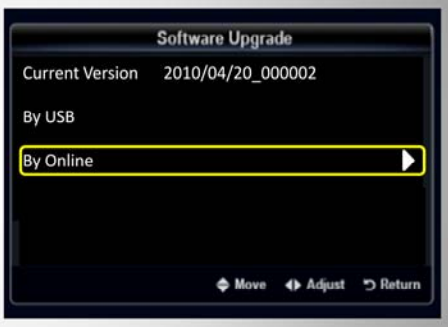
Over the Network (OTN Online)

Upgrading the software Online

If the TV is connected to a home network that has access to the internet, the customer can select "By Online" in the menu. The network must be working properly to download the file.

If the network is not working or keeps disconnecting from the internet, use the USB method as it will be more reliable. The TV will not upgrade the software unless the file is completely downloaded.

Interrupting the download process will not be harmful to the Main PCB however interrupting the installation will corrupt the data and may require the Main board to be replaced.



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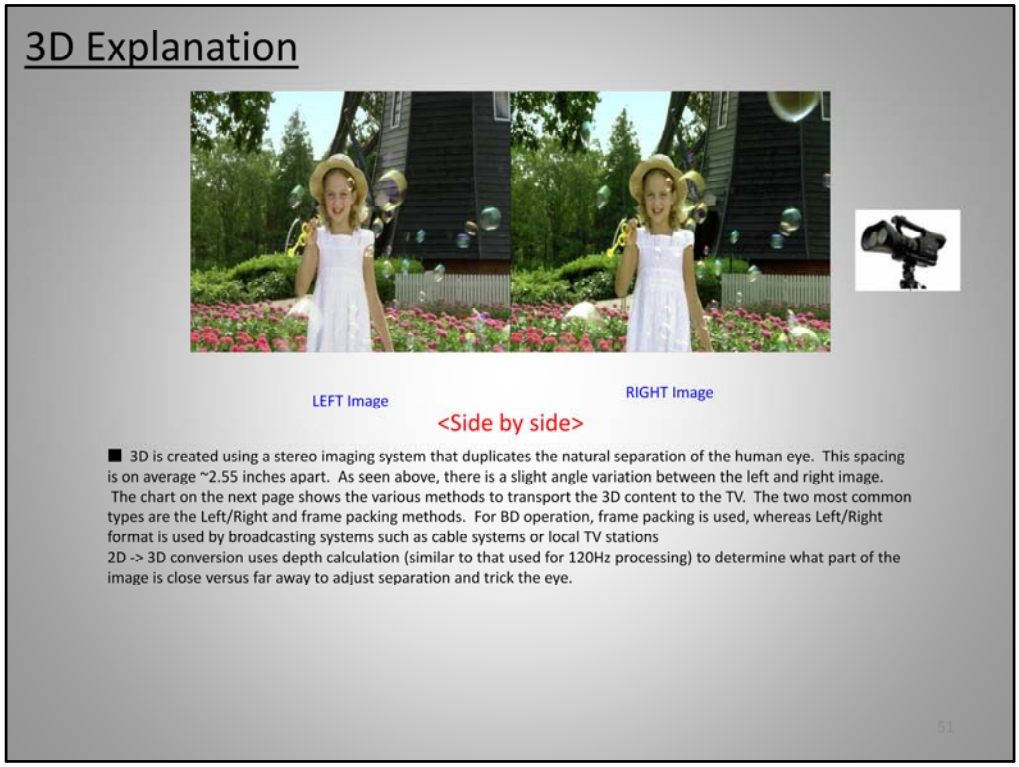
Over the Network (OTN) can inform the customer of available firmware versions. If the TV has the ability to connect to the internet through a home network, this is another method of upgrading the firmware. Alternative software version is no longer available on 2010 models

SAMSUNG

3D Operation & Troubleshooting

3-D TECHNOLOGY

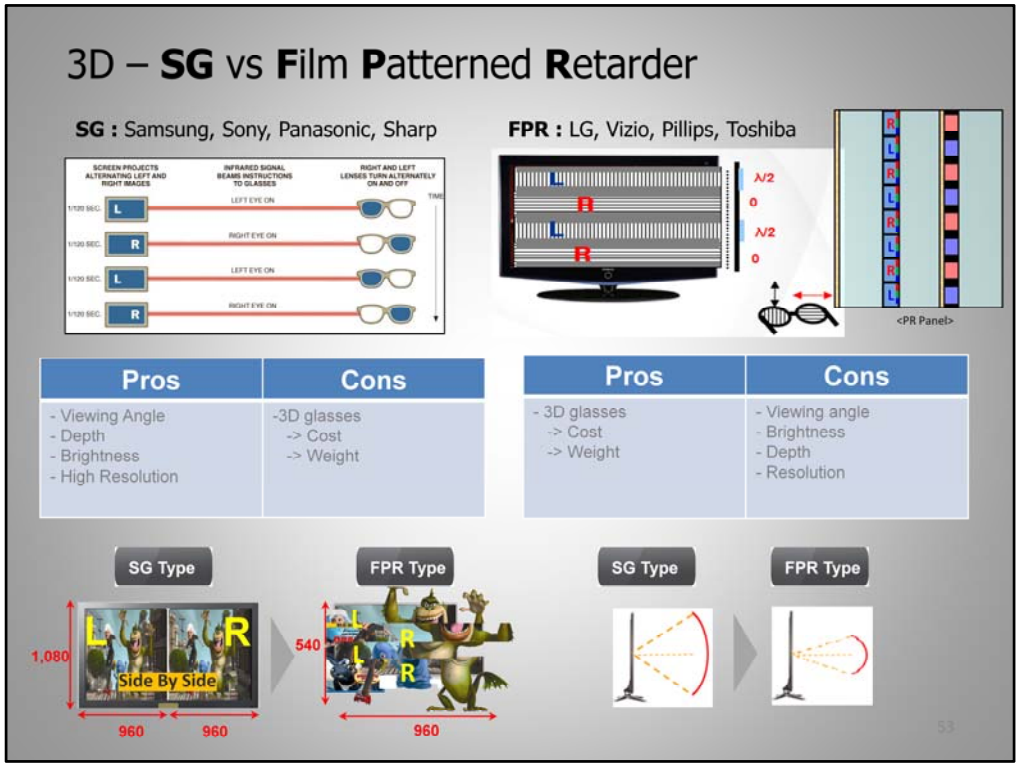


3D is created by recording the two Left and Right eye images that are observed 2.55 inches apart, as illustrated.
Note the position of the bubbles in the Left and Right images.
A Stereo optical device, as pictured, assists to capture the video.

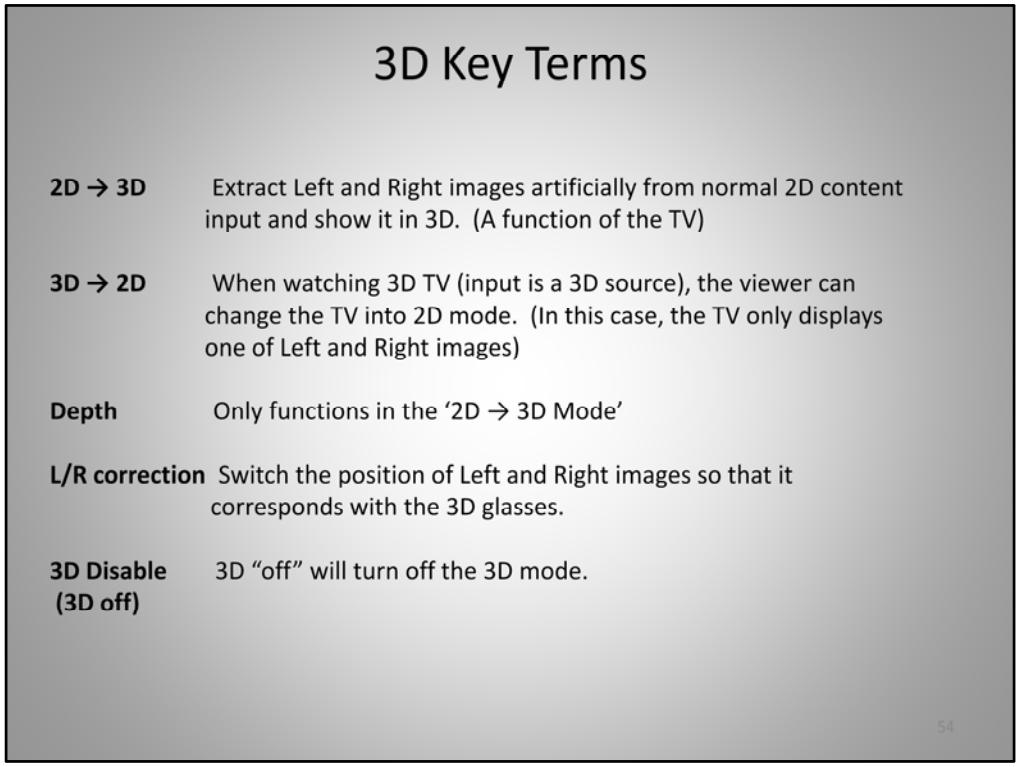
3D

Format	Input images	explanation	Input source	notes
Frame Packing		·Inserting Blink Active Space between Left and Right images. ·* Full resolution : 1920x1080x2(Left and Right each) + Blink = 1920x2205	HDMI 1.4	1. HDMI 1.4 standard format 2.Automatically activating (Not in the menu or UI) 3. BD format
Top & Bottom		·In 1 frame , Left image on the upper half , Right image on the bottom half . * Vertically half resolution	HDMI, USB, DTV(VOD), PC	3D Broadcasting Format
Side by Side		* In 1 frame , Left image on the left half , Right image on the right half. * Horizontally half resolution	HDMI, USB, DTV(VOD), PC	3D Broadcasting Format
Line by Line		· In 1 frame , every horizontal line, Left and Right image in turn. * Vertically half resolution	PC	1. MPEG encoding impossible 2. Only in PC
Vertical Stripe		* In 1 frame , every vertical line, Left and Right image in turn. * Horizontally half resolution	PC	1. MPEG encoding impossible 2. Only in PC
Checker Board		* In 1 frame , every pixel , Left and Right image in turn. * Half resolution both vertically and horizontally	PC	1. MPEG encoding impossible 2. Only in PC
Frame Sequential		· Left And Right image in turn in every frame · Full resolution spatially but Half resolution timely.	PC	

- Samsung uses frame packing method (left over right with a blinking period or shutter) Full resolution is maintained and results in 1920 Horizontal Lines X 1080 (full HD) X 2 plus Blinking (45 lines) = 2205 Vertical Lines.
- 3D HDMI format is 1.4
- Top and bottom or side by side is broadcast 3D (NOT FULL HD) Vertical or Horizontal Resolution is cut in half.



Samsung 3D technology is compared with other manufacturers. It's important to remember that manufacturers differ in technique and Glasses are not compatible.

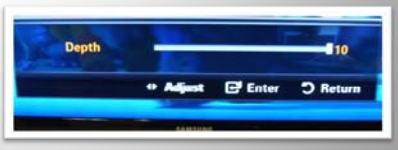


Samsung 3D terms.
A special Samsung feature is 2D to 3D mode. Any 2D video source can be converted to 3D.

3D Troubleshooting

- The 3D functionality may be checked by varying the depth in the user menu
- This function is controlled by the Main PCB and is only available in the “2D -3D Mode)
- The lowest depth setting (0) will not display a “double” image
- The highest setting (10) will display the maximum 3D effect

Maximum 3D Effect



Depth Variation

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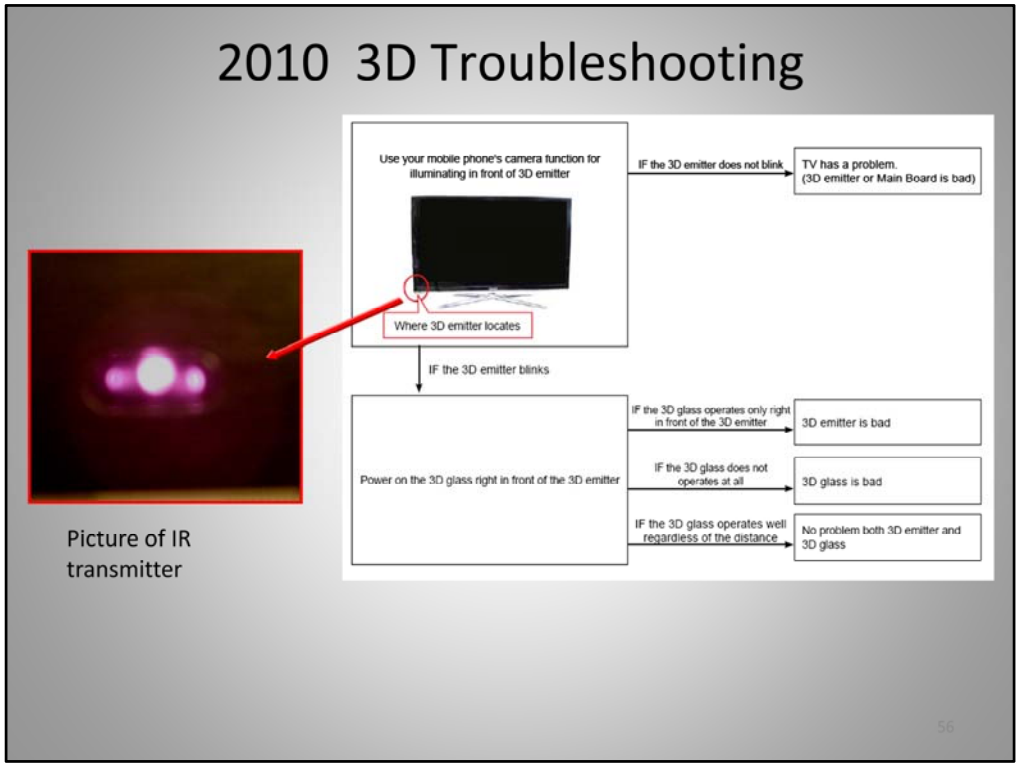
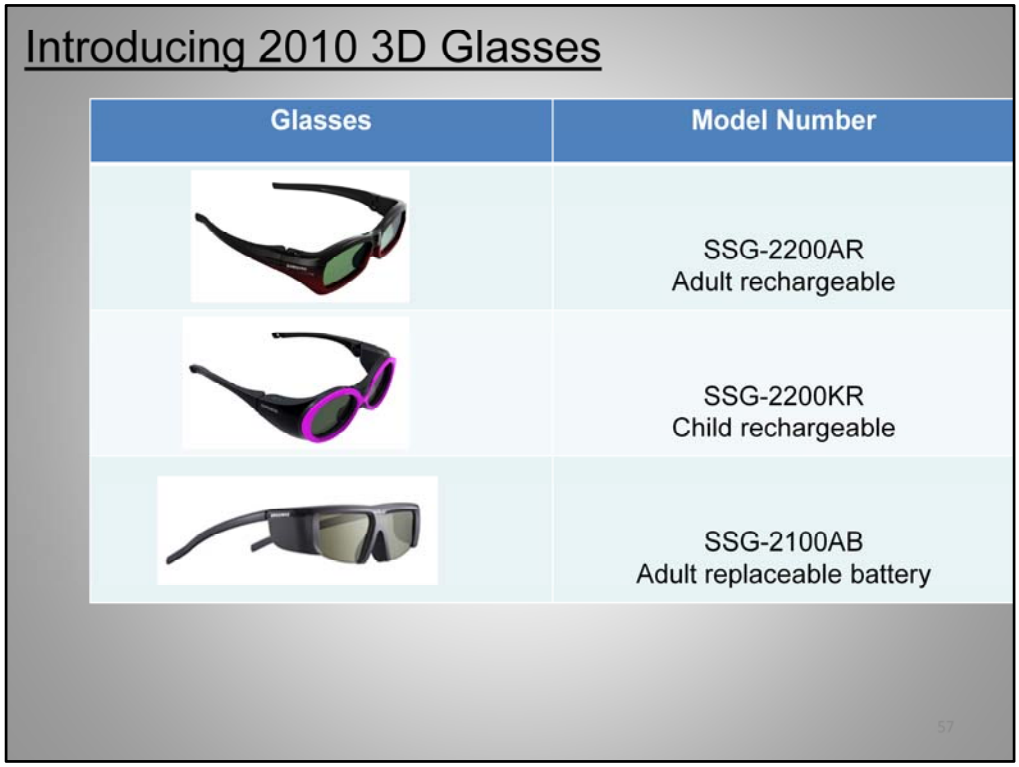
Check functionality of 3D circuit on Main PCB.
- 0: No double image
- 10: Maximum 3D effect



- Blinking is shuttering your glasses.
-Plasma emitter is much stronger (3 emitters instead of one used for LED TVs) because plasma generates high IR interference.
-Test the 3D emitter output using a camera. Special Note: Some cameras use a UV Filter that makes it difficult to observe the IR.
- 3D emitter will be OFF if the TV is not in 3D mode.



2010 Glasses Models are shown. Special Note: they are not compatible with 2011 3D Bluetooth technology.

2010 3D Glasses Power Indicator

# of blinks	Glass Function
0	The battery is dead, either replace or recharge accordingly
1	The glasses powered on normally
3	The glasses have powered off normally
Continuously	The battery is close to being dead, either replace the battery or recharge accordingly.

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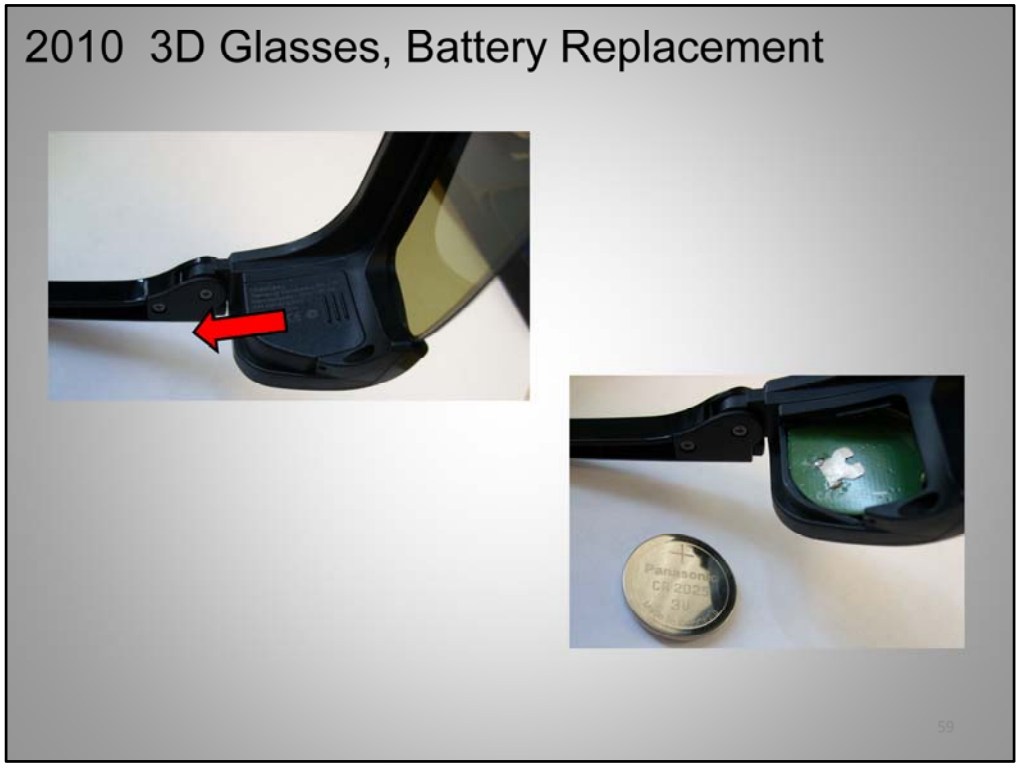
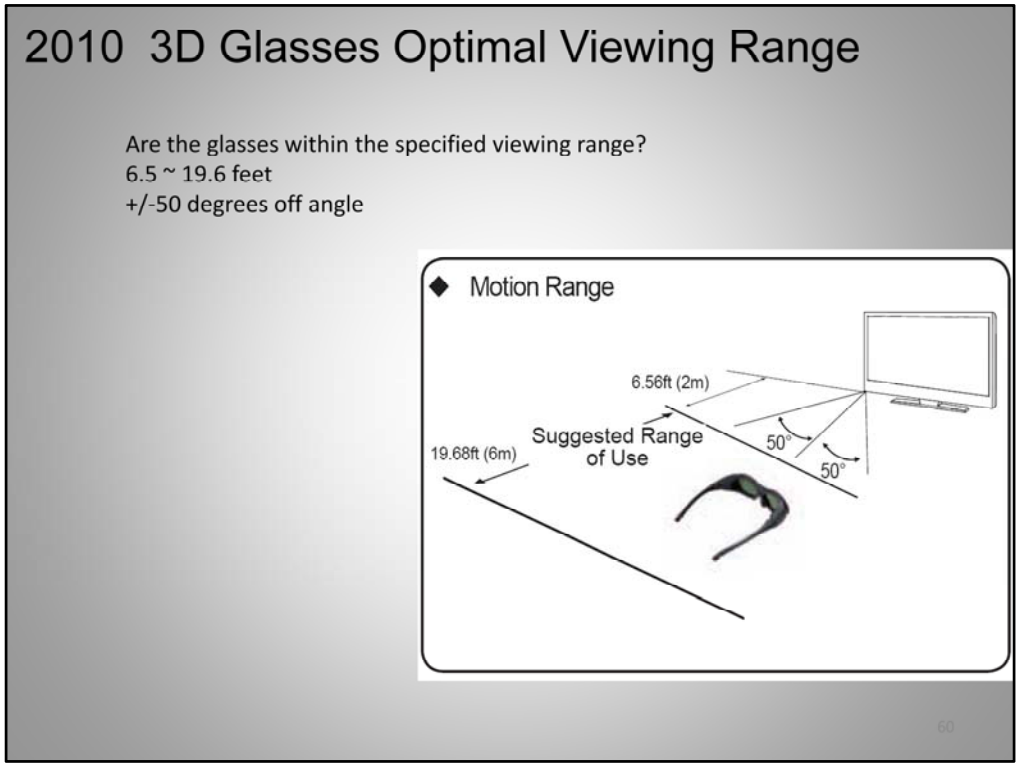
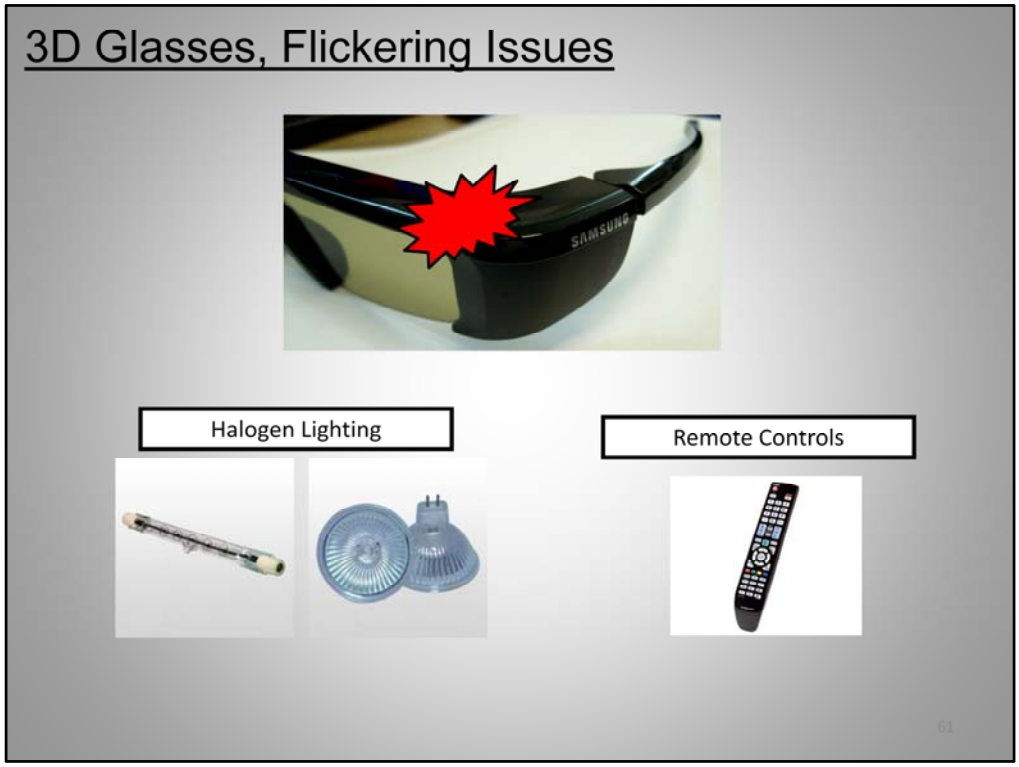
Check glass operation by the power indicator condition & associated number of Blinks.



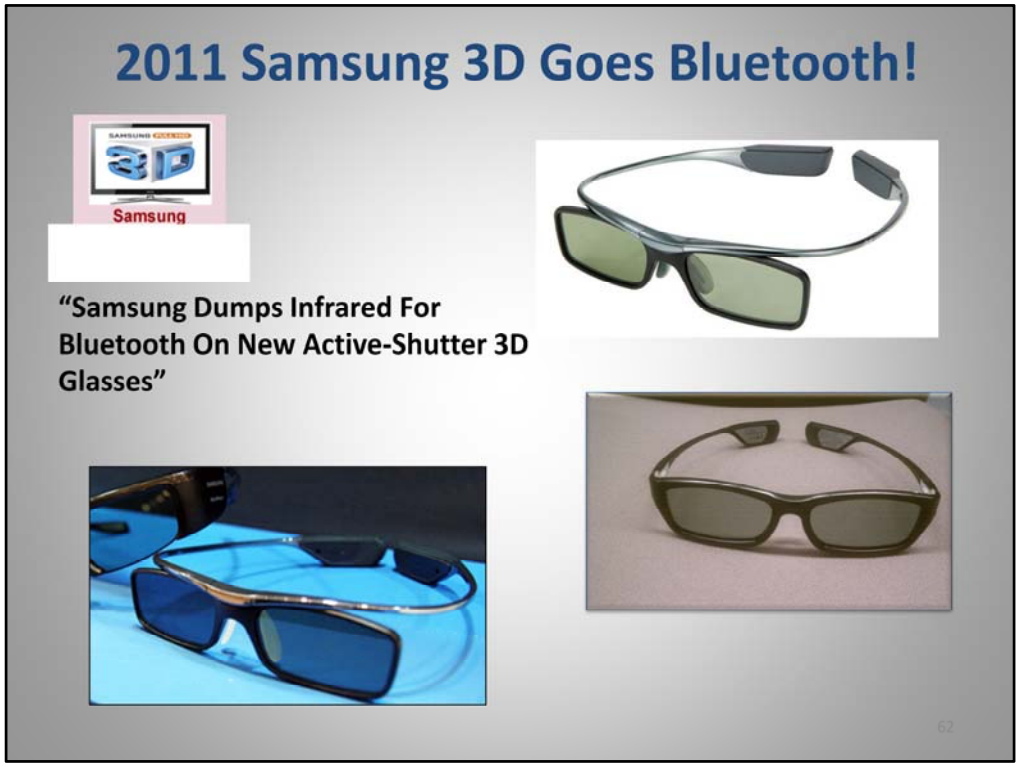
4. Battery replacement 3.3 V Lithium NiCad type



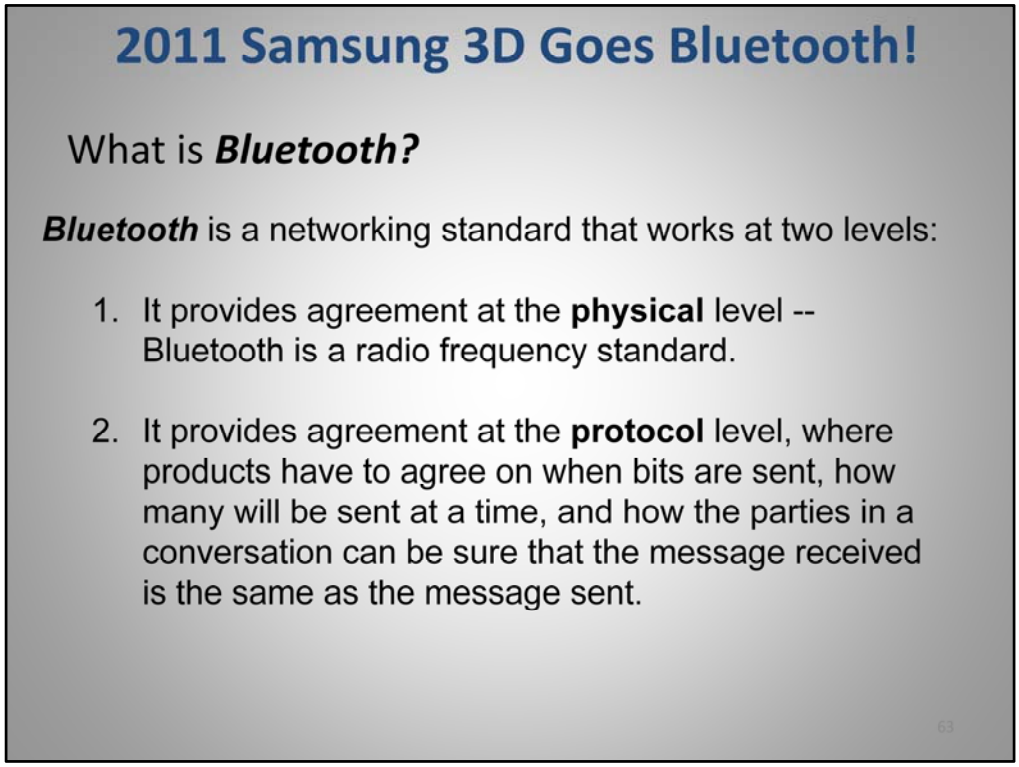
Range of 3D IR Glasses is 6.5 to 19.6 Feet with plus or minus 50 degrees from IR location.



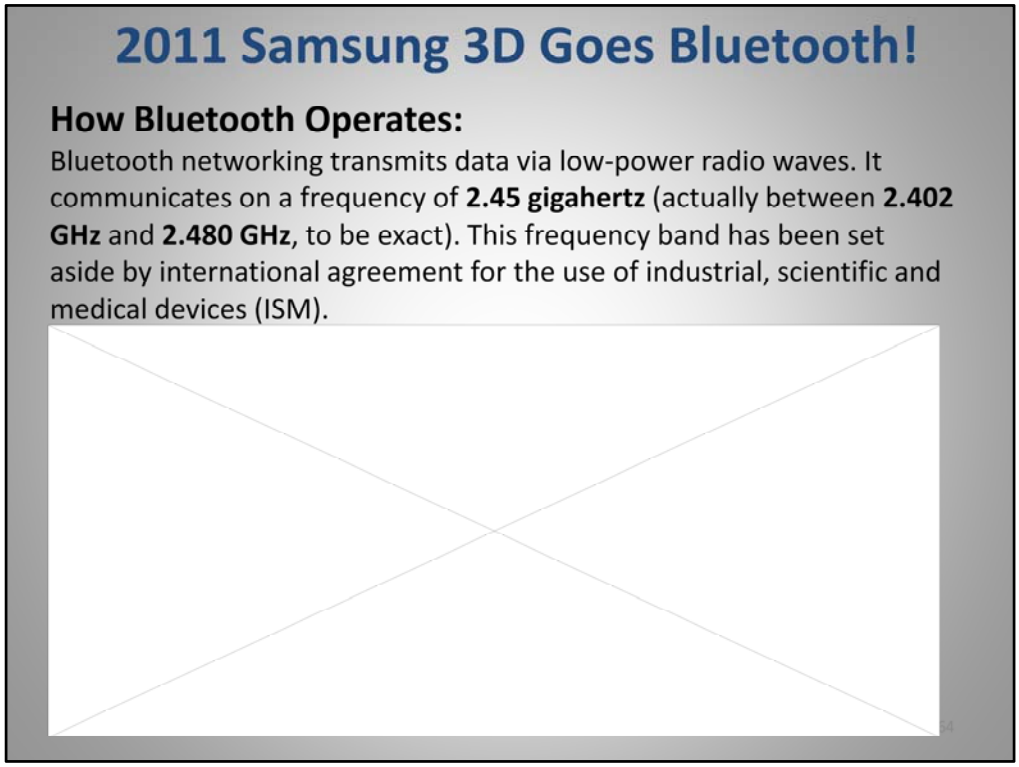
- IR sensitive interference can be caused by Halogen Lighting or other remote control signals creating 3D errors.
- Turning on your side the glasses will go dark on LCD because the LCD has polarized lenses.
- Plasma does not use a polarized lens.



2011 Samsung introduces Bluetooth active shutter 3D Glasses.



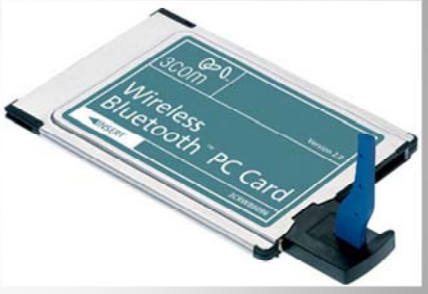
Bluetooth is explained. A two way communication device.



Bluetooth Operation

2011 Samsung 3D Goes Bluetooth!

- Bluetooth can connect up to **8 devices** simultaneously
- Bluetooth devices need to be "***paired***" before two-way communication is established
- Bluetooth uses a technique called **spread-spectrum frequency hopping** to reduce the likely hood of interference from other devices



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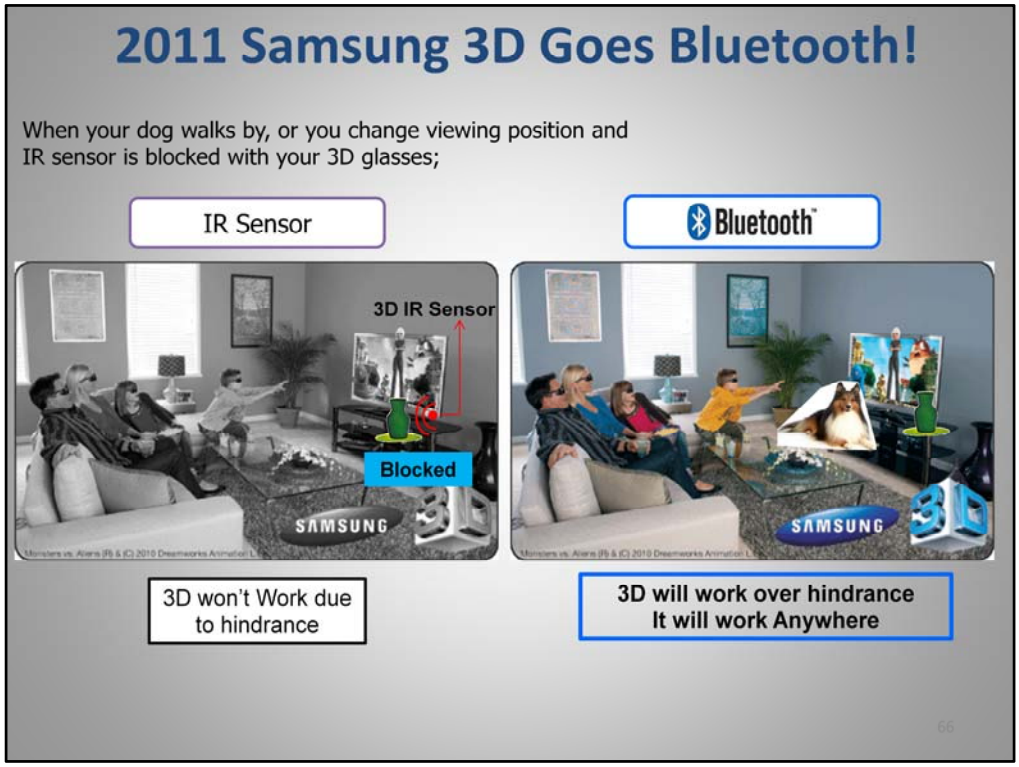
Bluetooth Specs (Note: Samsung Glass specifications may differ in the number of glasses operational per TV)



IR Blocked interference Vs no Bluetooth line of sight interference.

2011 3D Bluetooth has higher operational accuracy and 2011 TVs add new 3D Sound, "Sense" to the 3D experience.

2011 Samsung 3D Goes Bluetooth!

Category		Battery	Bluetooth Models: Rechargeable			
		SSG-3100GB	SSG-3700CR	SSG-3300CR	SSG-3300GR	SSG-S3000GR
Image						
Weigh		33.1g	28.5g	33g	35g	143g
Wight Ratio		8:2	5:5	5:5	5:5	-
LCD	Transmittance	35.5%	37%	37%	37%	37%
	Contrast	300:1	1200:1	1200:1	1200:1	1200:1
	Resp. Time (Tr+Tf)	3.4ms	2.1ms	2.1ms	2.1ms	2.1ms
Operating Hour		70hr	40hr	40hr	40hr	16hr
Charging Time		X	2hr	2hr	2hr	3hr
Rx Lens		X	O	O	X	X
Auto Power ON/OFF		X	O	O	O	X
Wireless Charging		X	O	O	O	X
Audio		X	X	X	X	O
Home/Shop		Home	Home	Home	Home	For Shop

- Rx Lens: Optimized prescription lens which is provided by Hoya

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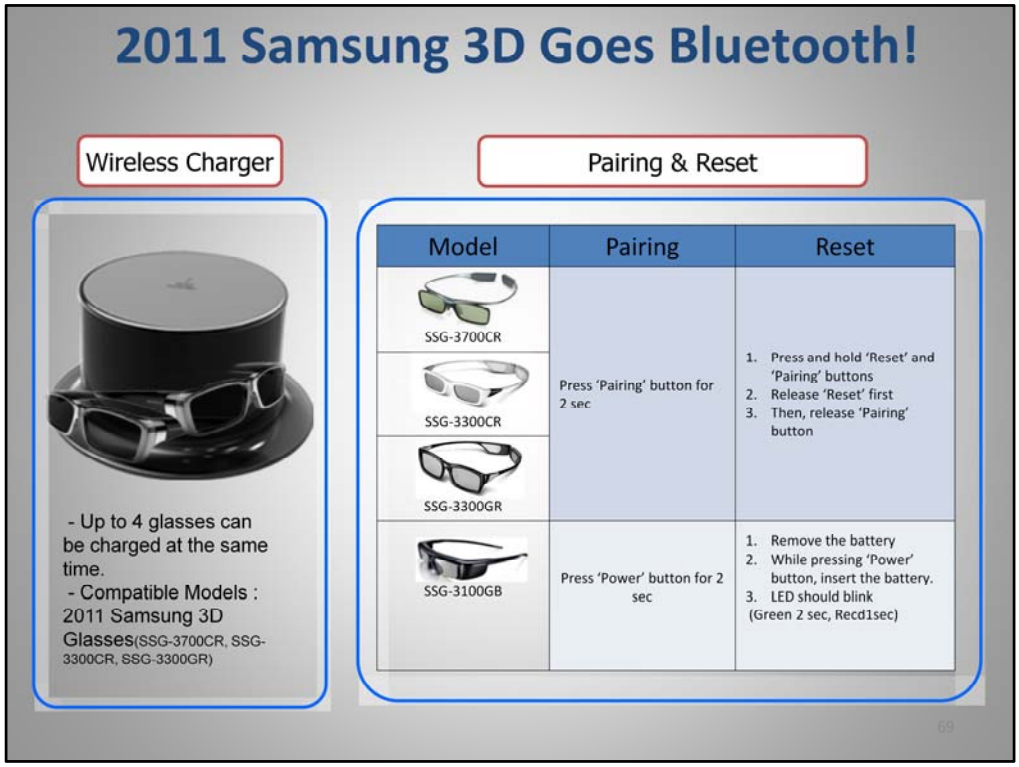
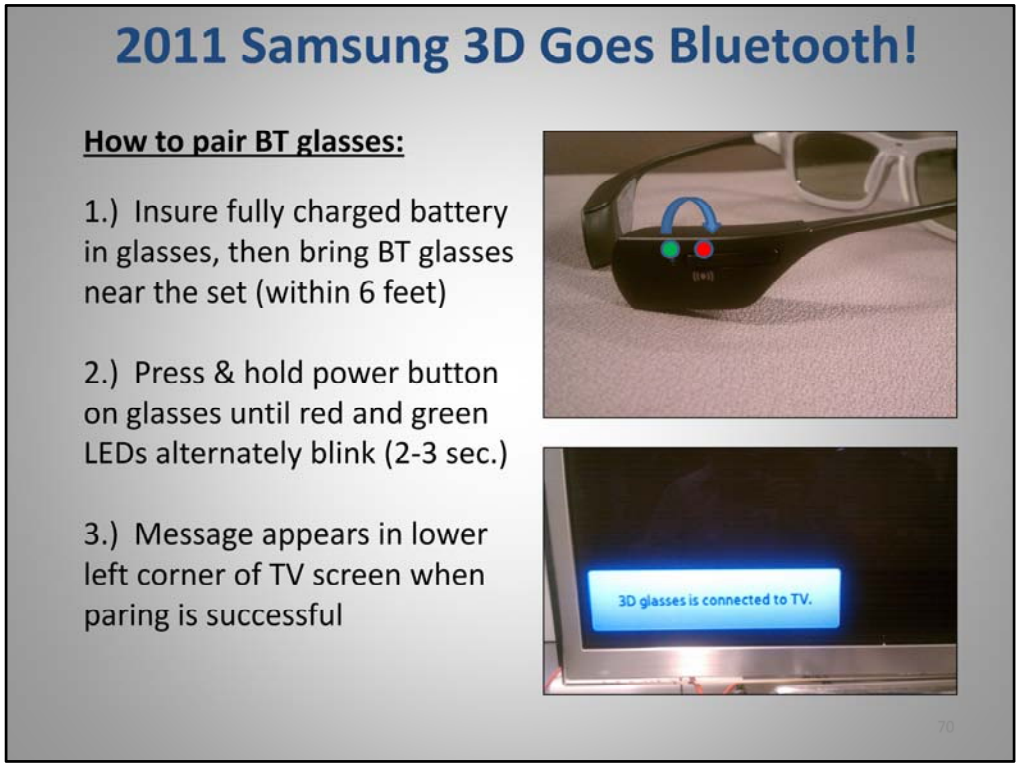
Various 3D model Glasses available including special order prescription lens,



New Wireless optional charger.

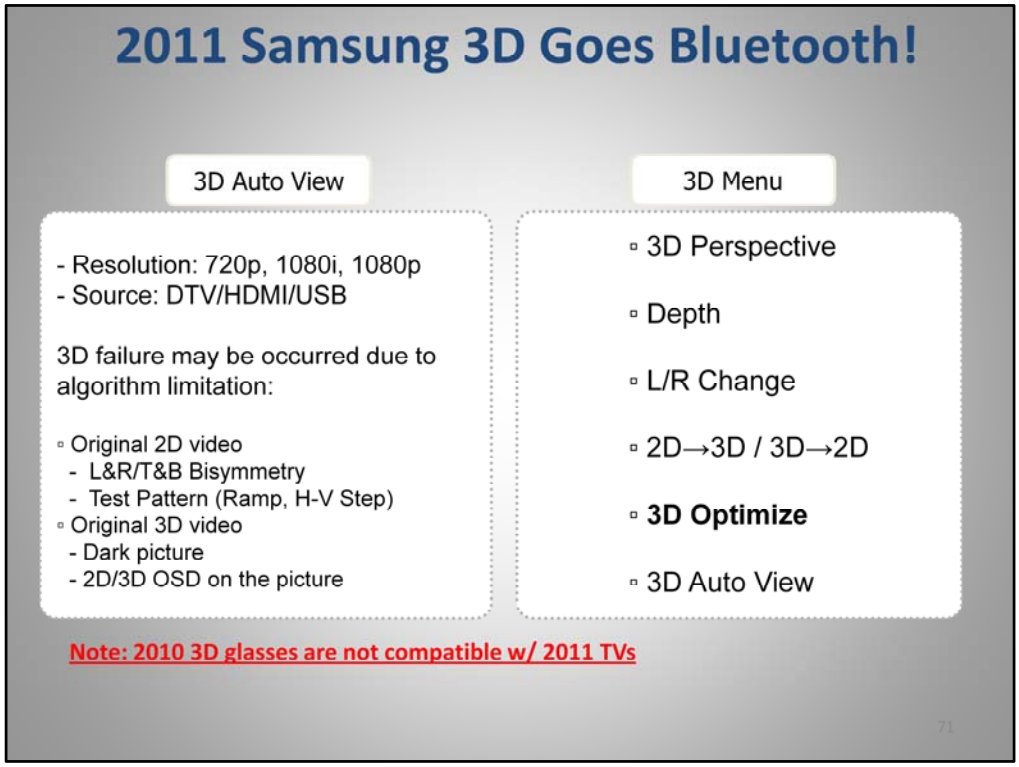


Pairing Bluetooth Glasses to TV

1.) Insure fully charged battery in glasses, then bring BT glasses near the set (within 6 feet)

2.) Press & hold power button on glasses until red and green LEDs alternately blink (2-3 sec.)

3.) Message appears in lower left corner of TV screen when paring is successful



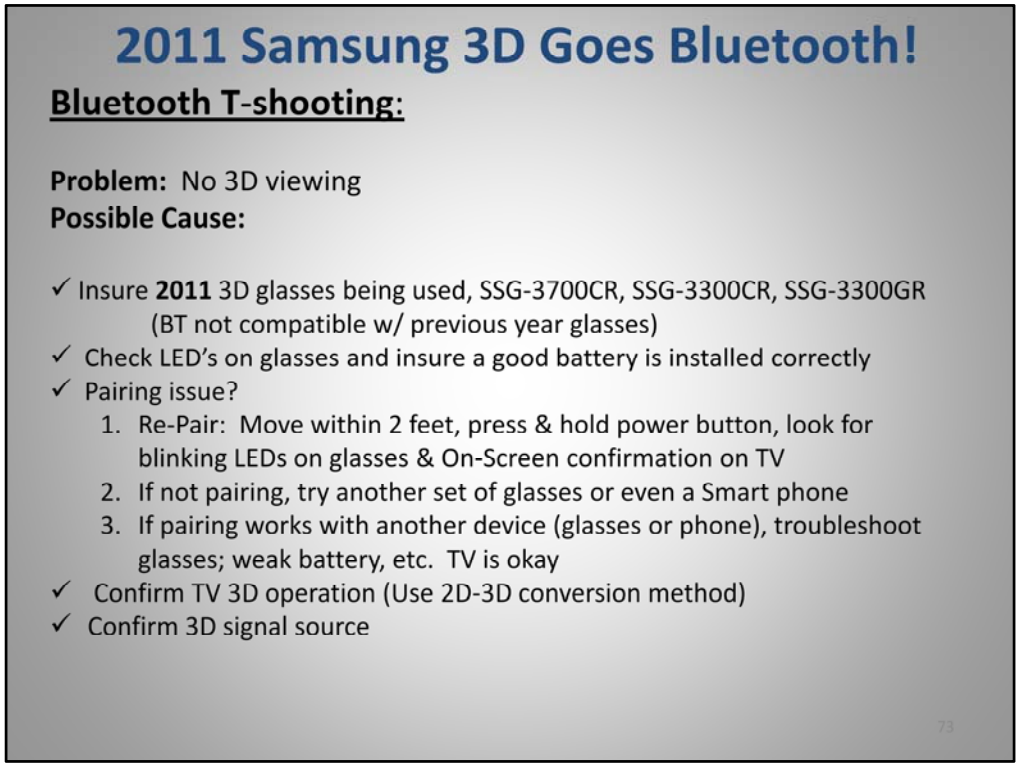
Operation Menu Options

2011 Samsung 3D Goes Bluetooth!

Coupon Image

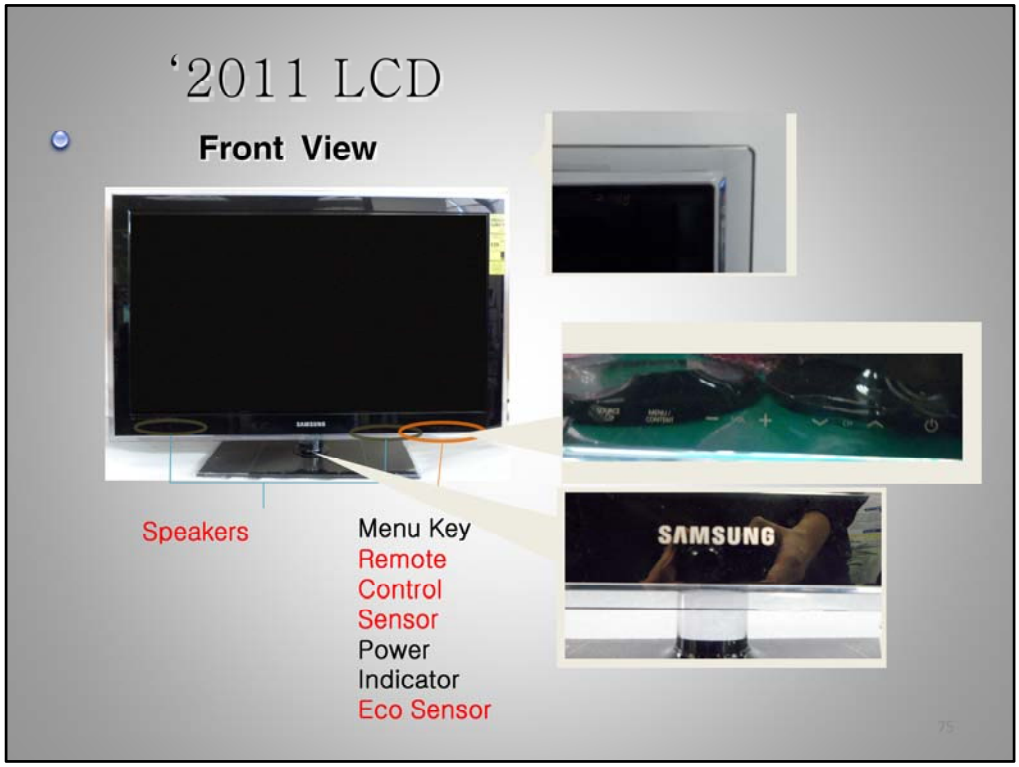
- LED D8000 produced at the beginning has one coupon for two 3D glasses (SSG-3300GR)
- Customer can choose redemption options(Mail, Online) to get QWRTY remote

Coupon



Troubleshooting Bluetooth follow steps listed … remember 2010 3D "IR" Glasses are not compatible with 2011 3D Bluetooth


SAMSUNG
LCD '2010 & '2011



2011 LCD Front View: Menu Keyboard Assy, Remote Sensor, Eco Sensor, Power Indicator, and Speakers

2011 LCD Rear View Connections: HDMI, USB, LAN, PC, PC Audio, Composite & Component with Audio, Ex Link, Audio Out, Optical Audio Out.


Preparation
for Service
SAMSUNG
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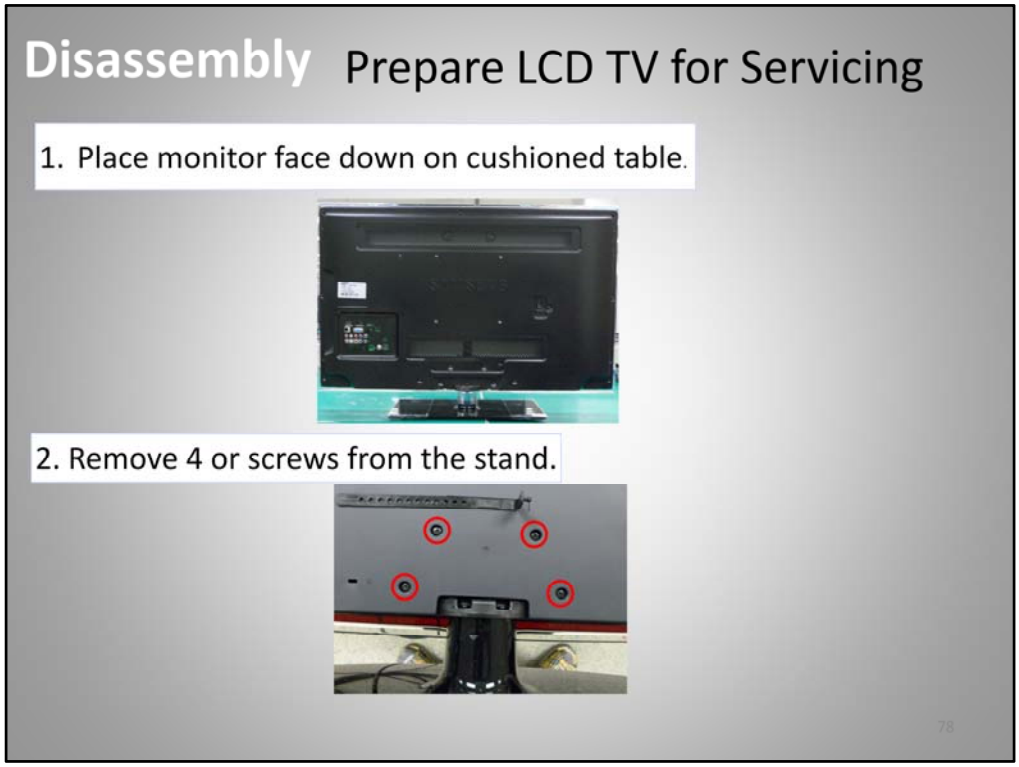
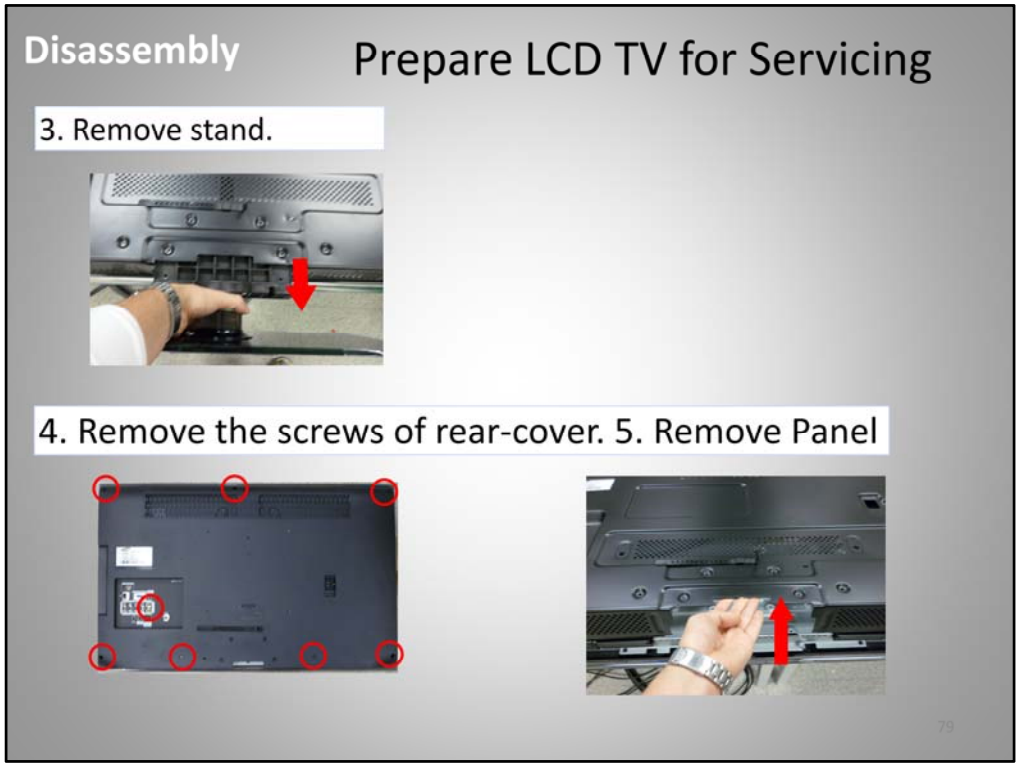
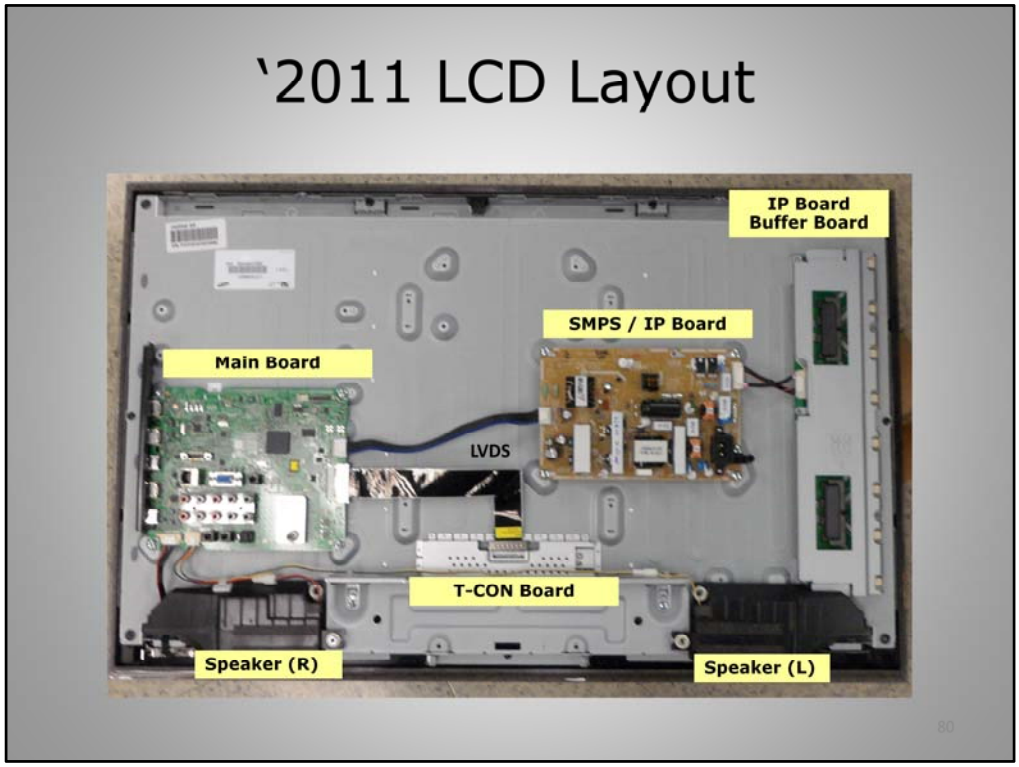


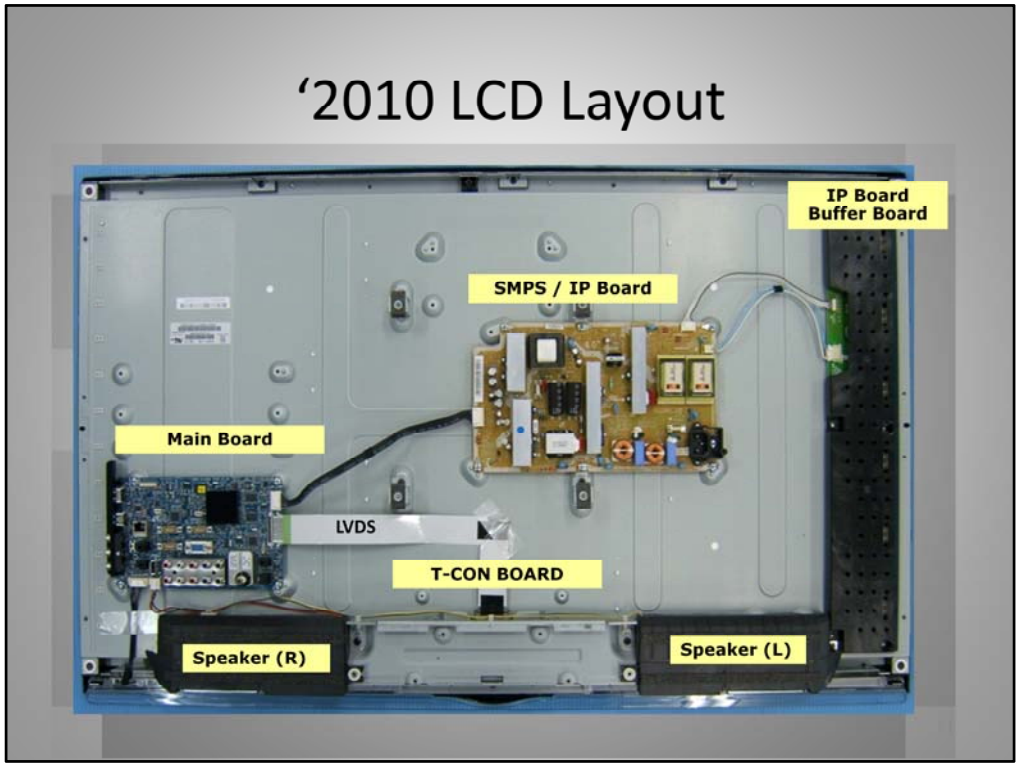
Although many servicers repair the TV in the upright position for servicing, it is still recommended to place the TV face down on a protected table. If you do service in the upright operating position, be sure to secure the stand screws.



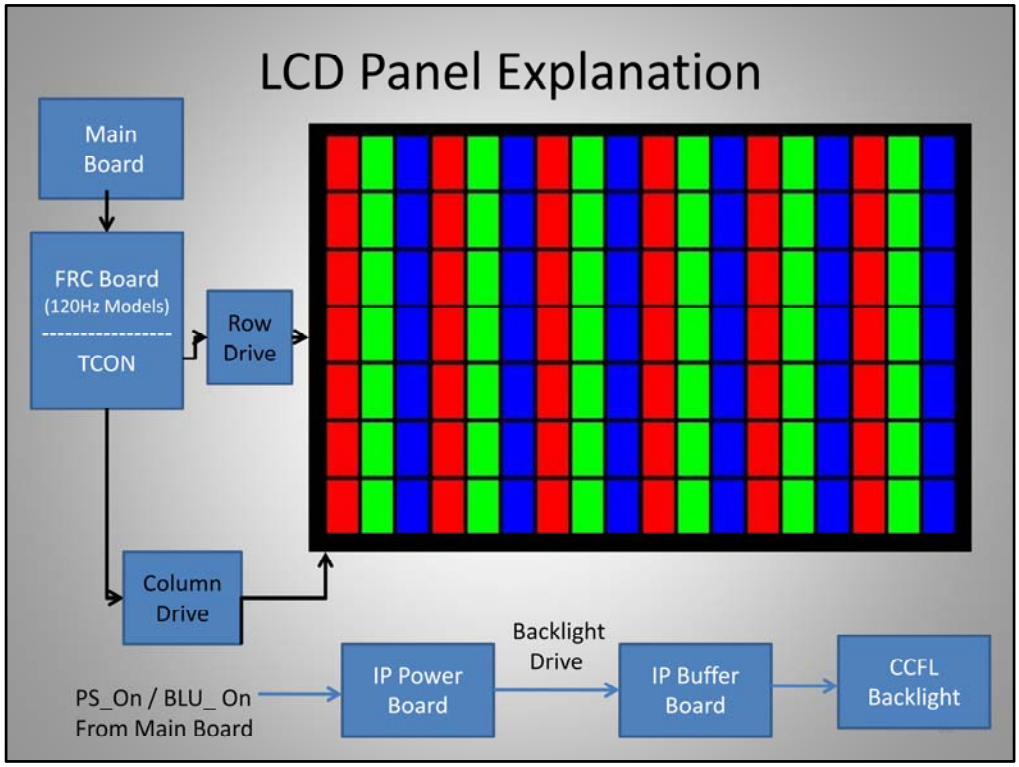
NOTE: Make sure to use the correct stand screws. The stand screws are longer for most models. Failure to use the correct screws can result in a dangerous operating condition.



New 2011 LCD Layout includes: Main Board; SMPS (Switching Mode Power Supply) Board/IP (Inverter Power) Board; IP Buffer Board; T-Con Board; L&R Speakers



The 2010 LCD Model Layout is very similar.



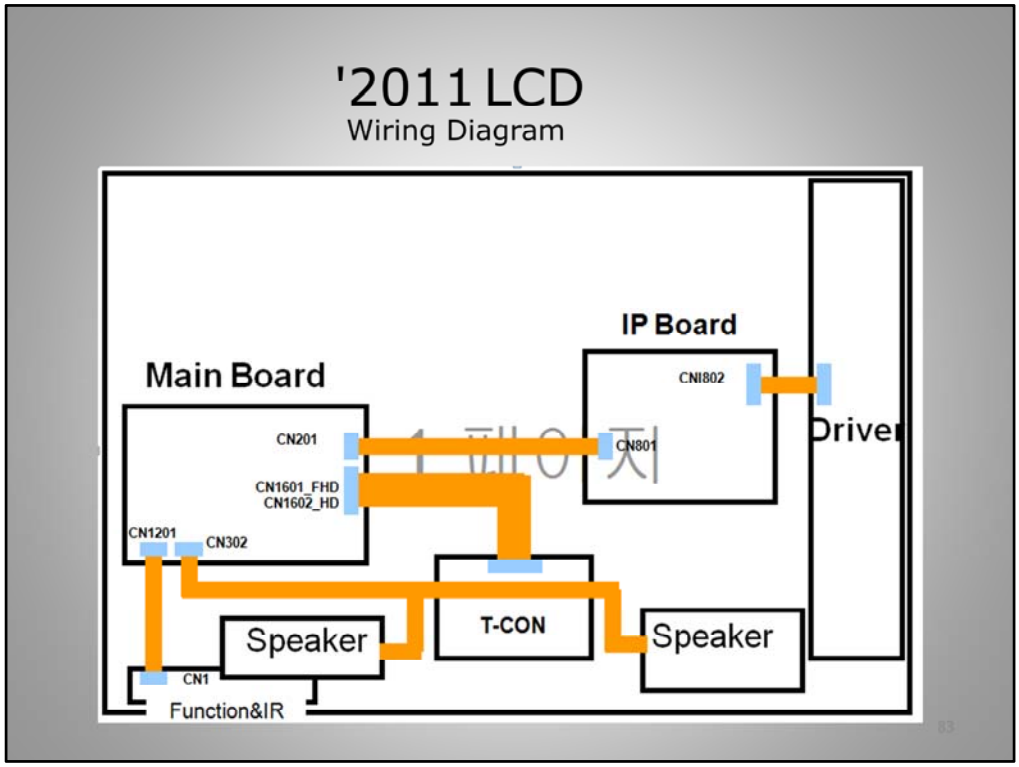
LCD panels are made up of rows and columns of red green and blue sub pixels. The TCON board selects the specific sub pixel (each LCD) and controls the amount of light produced from that area.

-The panel resolution determines the number of pixels. For example a 720P panel has 1280 horizontal pixels and 768 vertical rows. A 1080P panel has 1920 horizontal pixels and 1080 rows. Obviously the higher resolution requires that many more control lines.

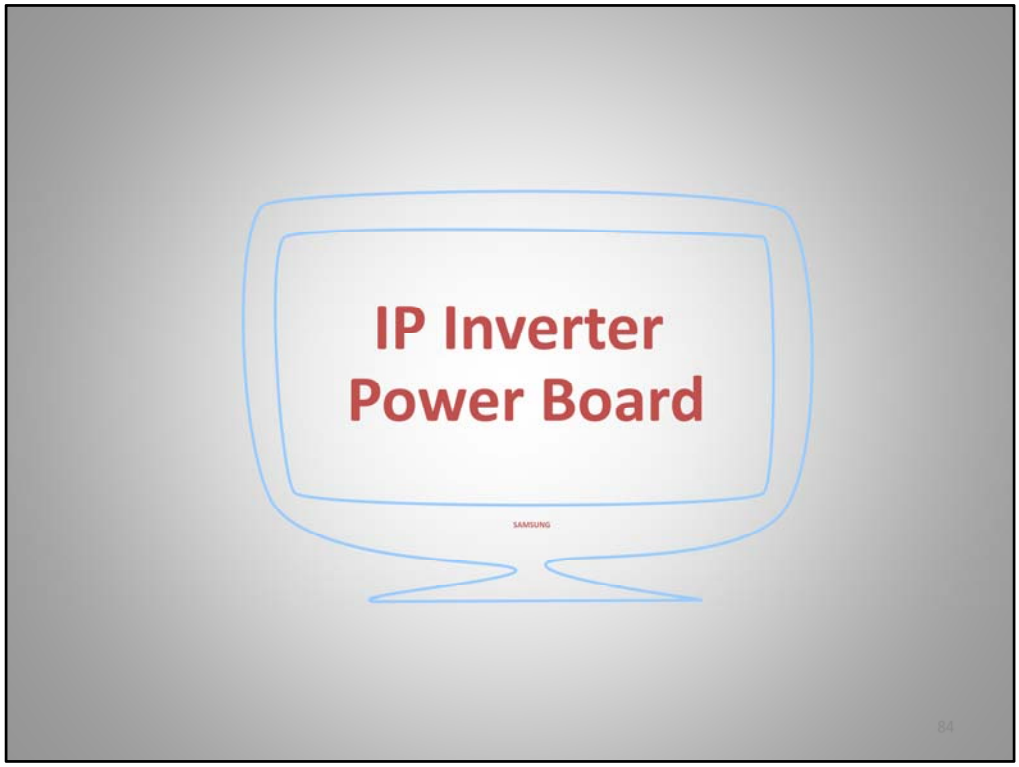
-The video data signal outputs from the Main Board thru an LVDS Cable to the FRC/TCON Board.

- The TCON Board provides the Row and Column Drive to the LCDs in time with the Scan Signal.

- The Main Board supplies PS ON & BL ON signals to the IP Board which turns on the CCFL Backlight while providing supply voltages to the other Board Assemblies.



Typical wiring Diagram of the 2011 LCD Models is shown. Different from previous models is the single Backlight drive cable from the IP Board to the IP Buffer Board (Driver). CN 802 in the example. The remainder of the wiring diagram is similar to previous models.


IP Inverter
Power Board
SAMSUNG
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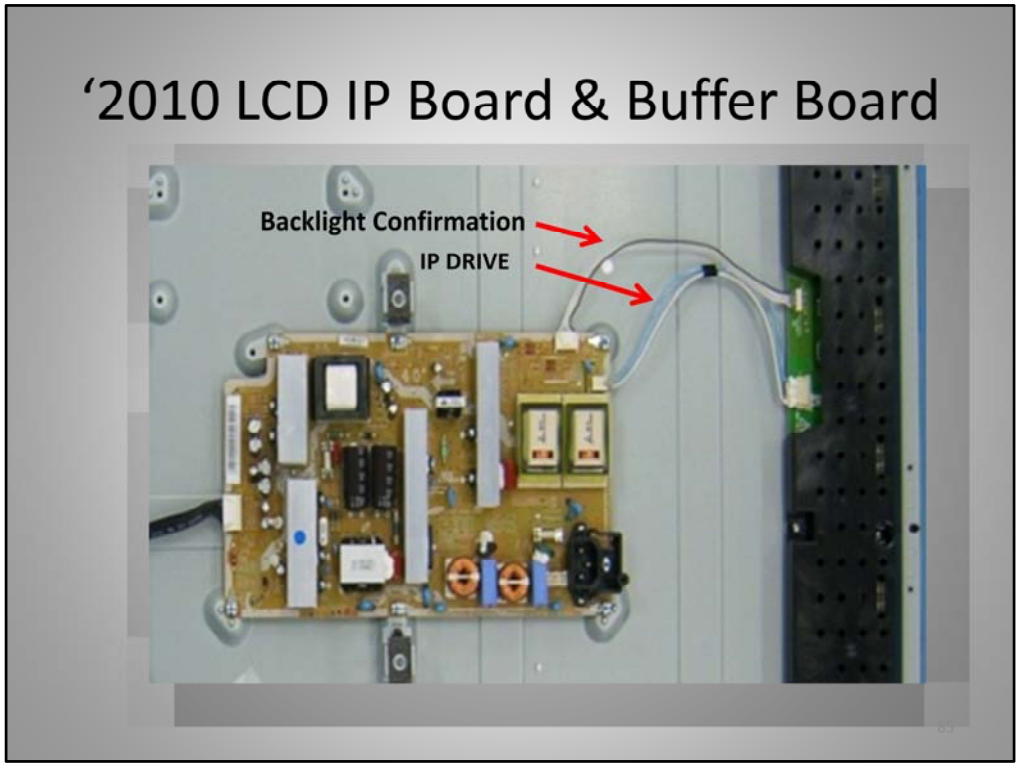
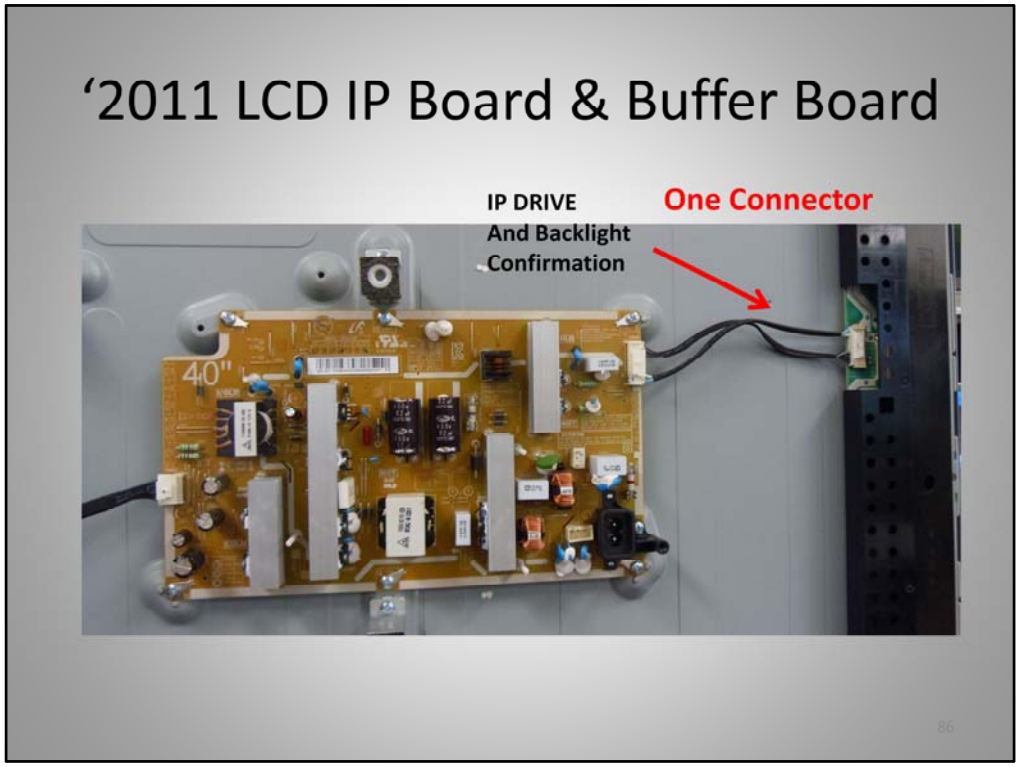
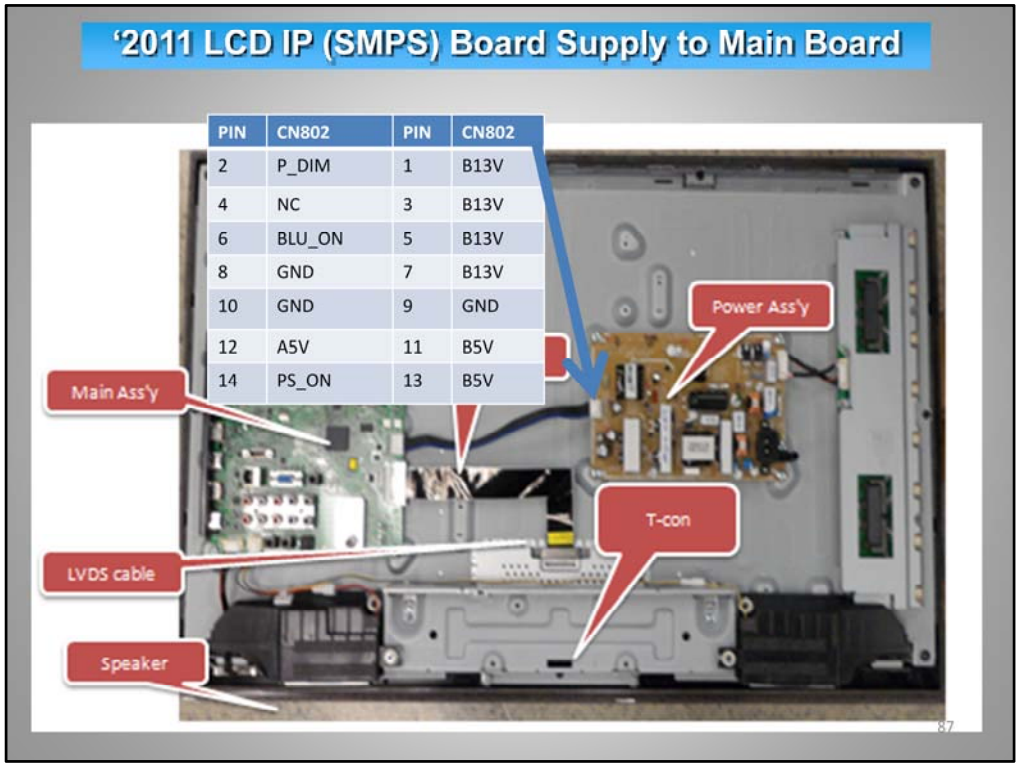


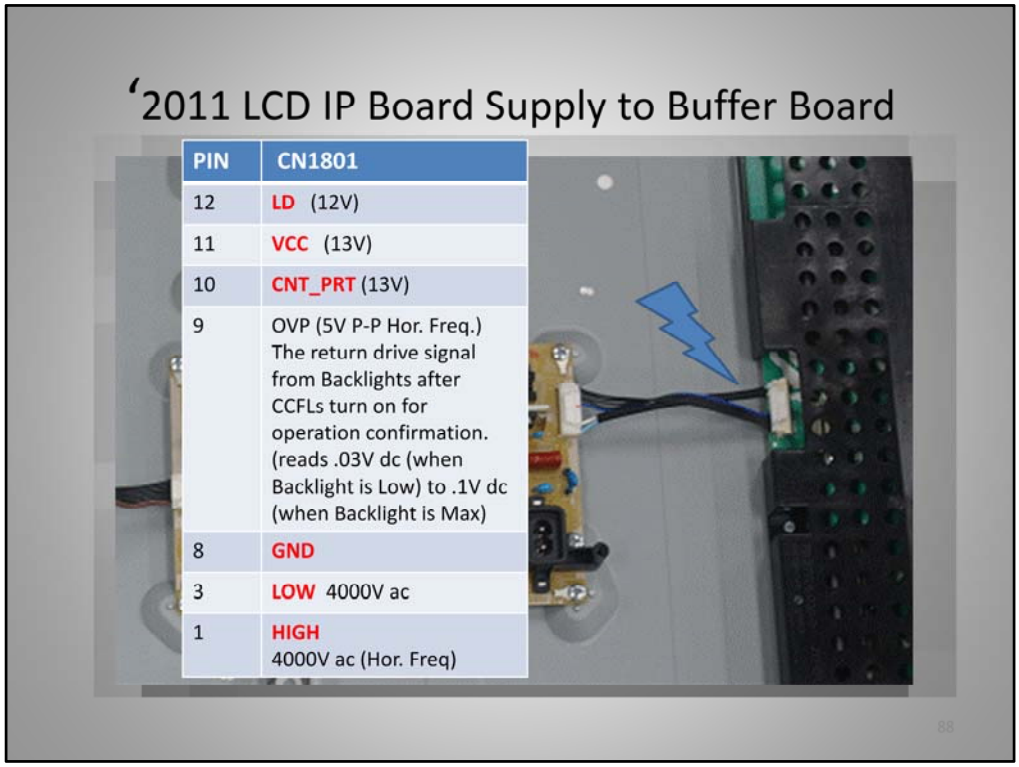
Note 2 Cables to Inverter Buffer Boards as compared to 2011 (next slide)



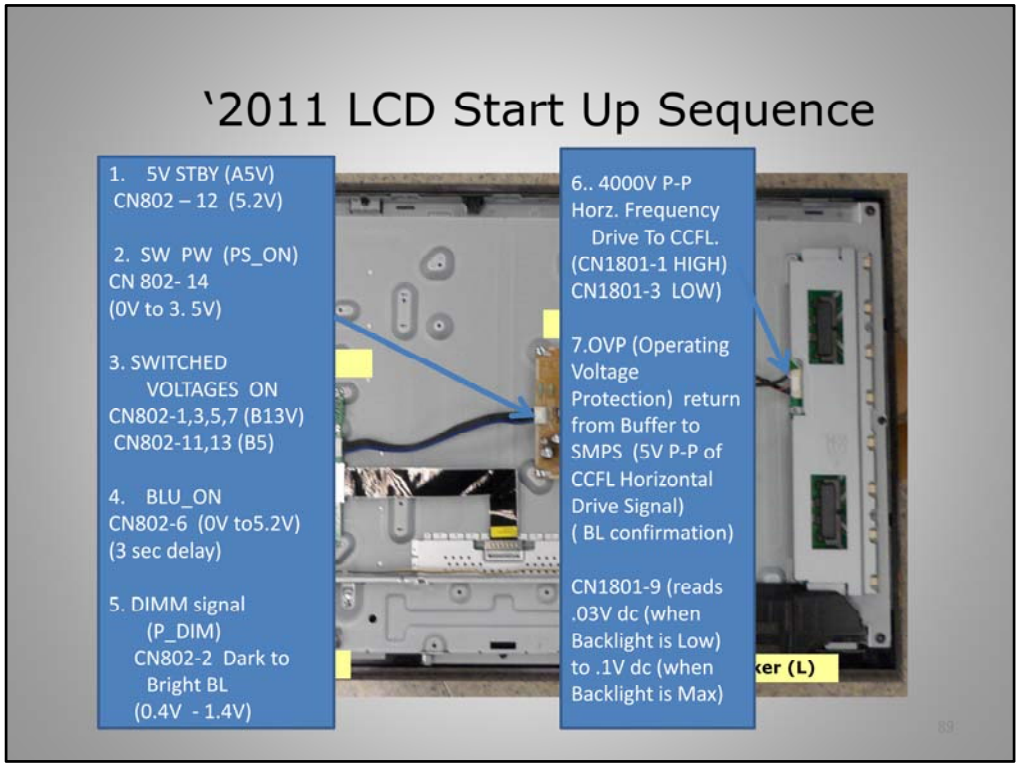
New to 2011 Models is the single IP Drive Cable and connector.



Typical 2011 LCD IP (SMPS) 14 Pin Connection to/fro the Main Board. The 5V standby can be seen on pin 12 “A5V”;
PS_On pin 14; BLU_ON pin 6; P_Dim pin 2 and switched voltages “B5V” pins 11,12 ; “B13V” pins 1,3,5, & 7



Typical 2011 LCD IP Board 12 Pin Connection to IP Buffer “Driver” Board:
-“High” Pin 1 4000V P-P Hor. Freq. (+) Drive Signal to CCFLs
-“Low” Pin 3 4000V P-P Hor. Freq. (-) Drive Signal to CCFLs
- “OVP” Pin 9 Return Drive Signal
- “VCC” Pin 11 13V
- CNT_PRT Pin 10 13V
- LD Pin 12 12V



Power On and Operating Sequence:
1. 5V STBY (A5V)
CN802 – 12 (5.2V)

2. SW PW (PS_ON)
CN 802- 14
(0V to 3. 5V)

3. SWITCHED VOLTAGES ON
CN802-1,3,5,7 (B13V)
CN802-11,13 (B5)

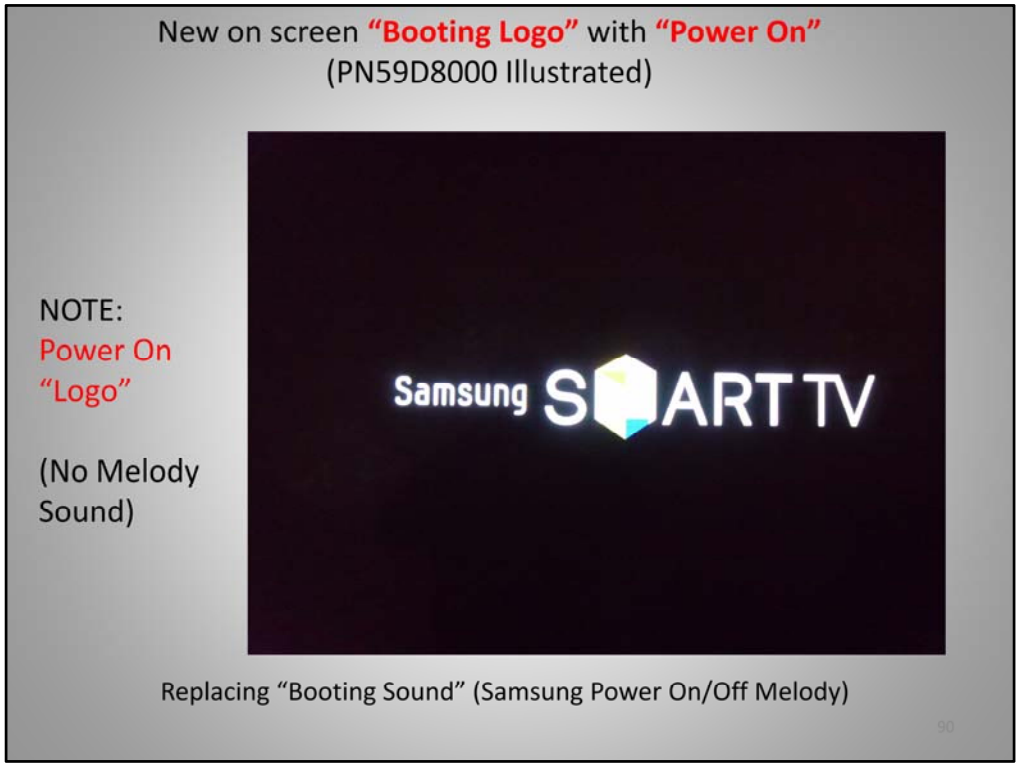
4. BLU_ON
CN802-6 (0V to5.2V)
(3 sec delay)

5. DIMM signal (P_DIM)
CN802-2 Dark to Bright BL
(0.4V - 1.4V)

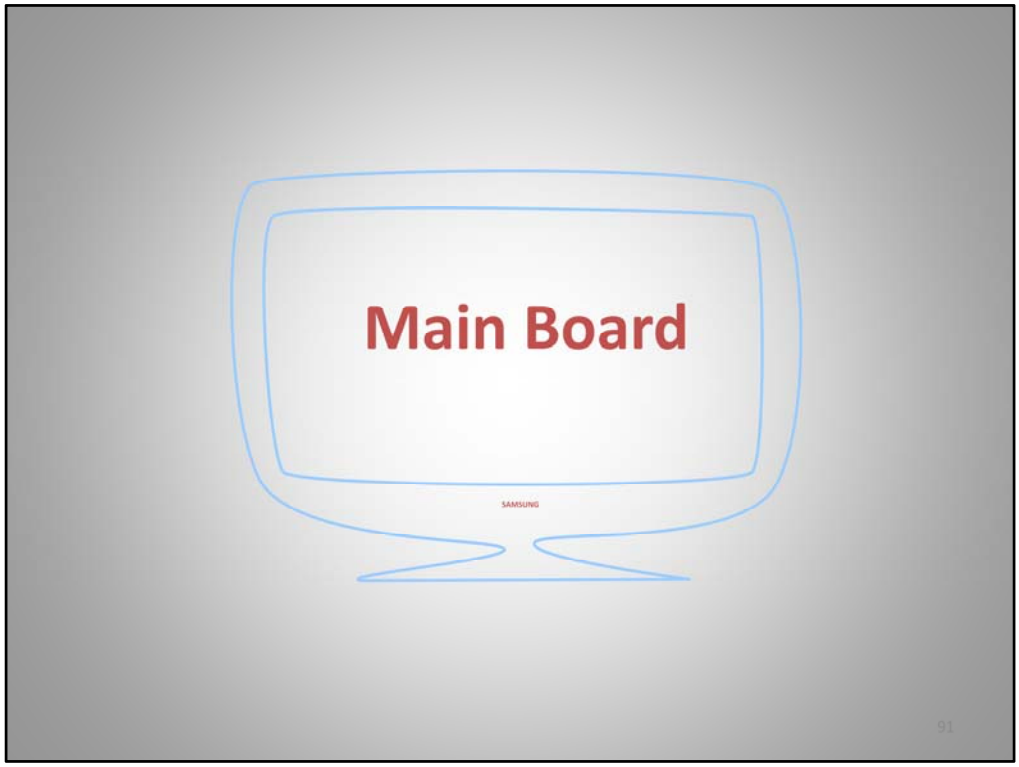
6.. 4000V P-P Horz. Frequency
Drive To CCFL.
(CN1801-1 HIGH)
CN1801-3 LOW)

7.OVP (Operating Voltage Protection) return from Buffer to SMPS (5V P-P of CCFL Horizontal Drive Signal)
(BL confirmation)

CN1801-9 (reads .03V dc (when Backlight is Low) to .1V dc (when Backlight is Max)



New Power ON Booting Logo. The Booting "Melody" Sounds has been replaced with the new on screen Booting Logo. The Booting Logo for LCD is simplified to "Samsung" but will appear. The Booting Logo will vary for different Models.


Main Board
SAMSUNG
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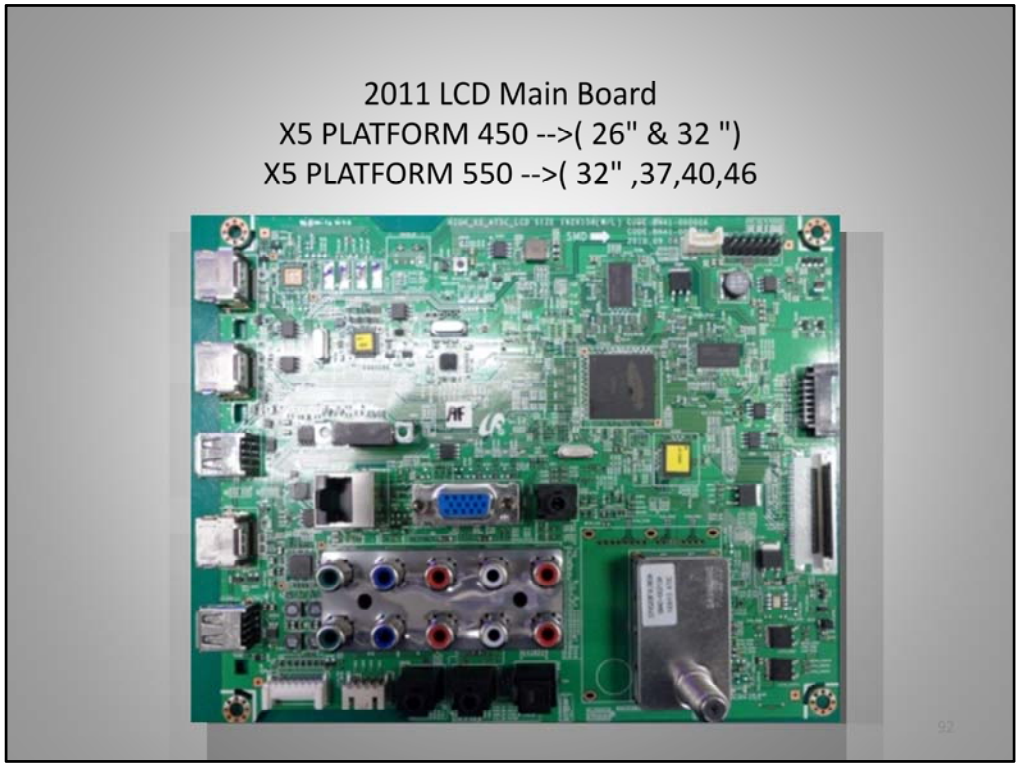
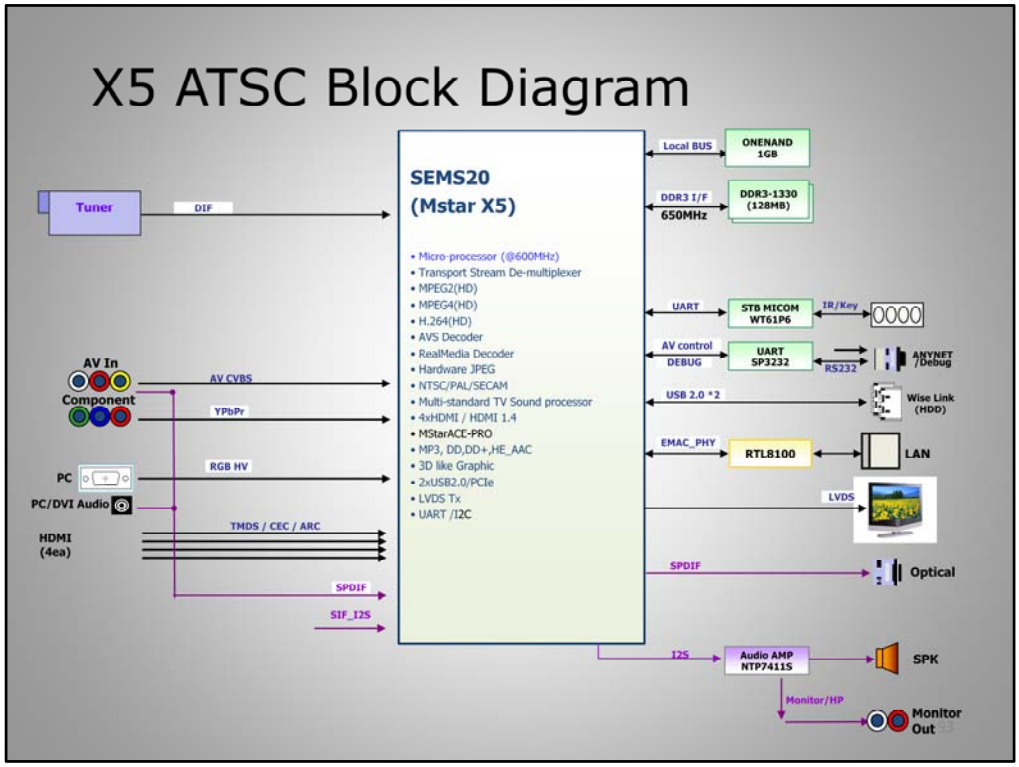
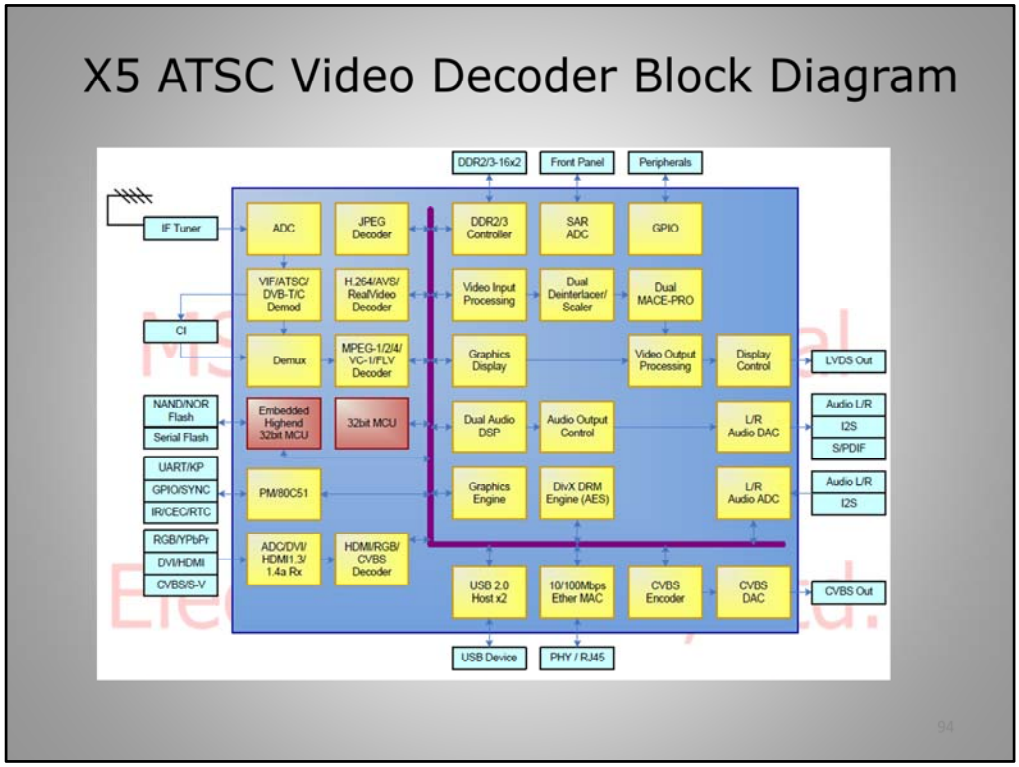


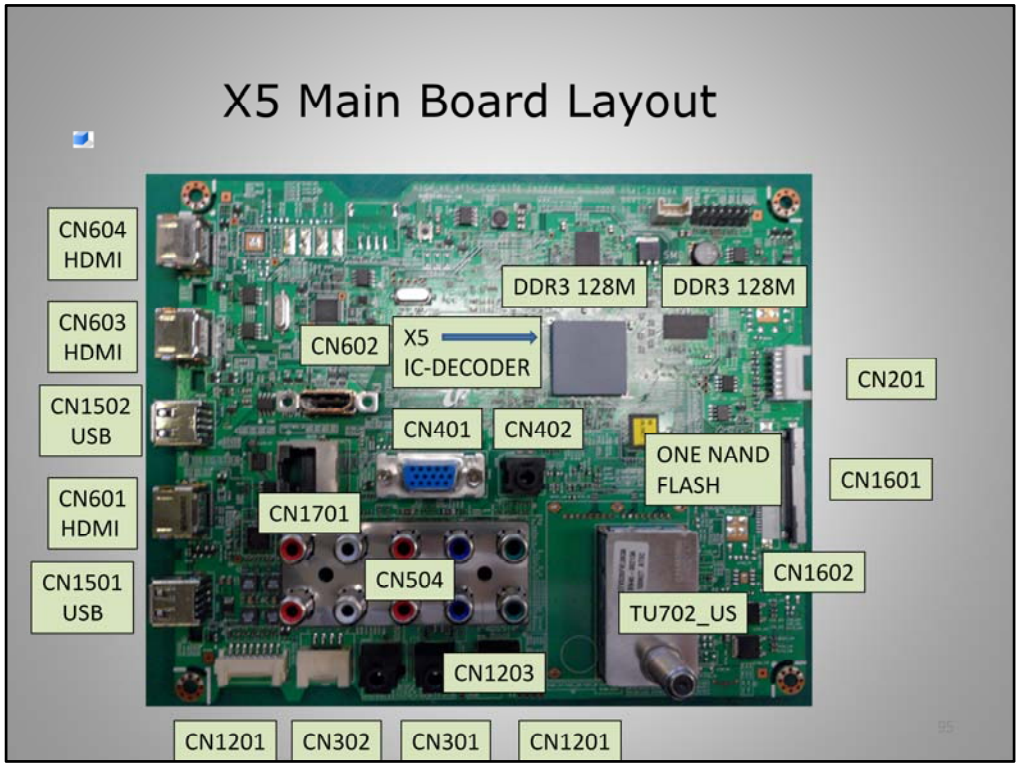
The 2011 LCD Main Board is shown. The new X5 processor is utilized.



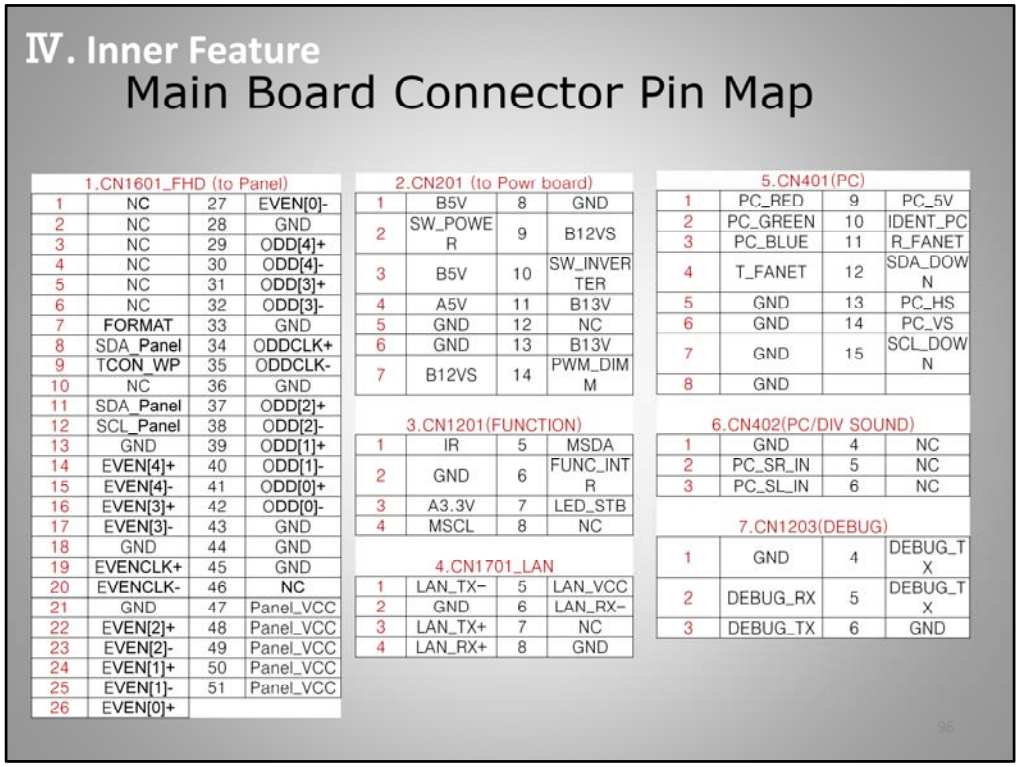
Main Board Diagram includes the new SEMS20 Mstar X5 Processor. A one chip design, it receives and processes the Tuner, Component & Composite Signals plus Audio, as well as HDMI, PC & PC/DVI Audio. It also receives IR, Eco Sensor, Keyboard and other info for processing and control and outputs the final 10Bit Video Data Signal to the FRC/T-CON Board which in turn controls the Panel LCDs.



The internal workings of the X5 can be observed. Note the Decoder section on the left for the various inputs.
(IF Tuner, DVI/HDMI, CVBS (Composite), RGB/YPbPr (Component), IR, etc);
“Graphic Display” in center area
“Video and Audio Processing” also in center and remaining blocks as well as final Encoding of signals.
“Display Control” feeds “LVDS Out”
“Audio DAC & ADC” feed Audio Signals
“CVBS DAC” feeds “CVBS Out” (Composite out)



Main Board Reference Connector Diagram. The detailed signal Pin outs for each connector are illustrated on the next two slides.



Ⅳ. Inner Feature

Main Board Connector Pin Map

1.CN1601_FHD (to Panel)

1	NC	27	EVEN[0]-
2	NC	28	GND
3	NC	29	ODD[4]+
4	NC	30	ODD[4]-
5	NC	31	ODD[3]+
6	NC	32	ODD[3]-
7	FORMAT	33	GND
8	SDA_Panel	34	ODDCLK+
9	TCON_WP	35	ODDCLK-
10	NC	36	GND
11	SDA_Panel	37	ODD[2]+
12	SCL_Panel	38	ODD[2]-
13	GND	39	ODD[1]+
14	EVEN[4]+	40	ODD[1]-
15	EVEN[4]-	41	ODD[0]+
16	EVEN[3]+	42	ODD[0]-
17	EVEN[3]-	43	GND
18	GND	44	GND
19	EVENCLK+	45	GND
20	EVENCLK-	46	NC
21	GND	47	Panel_VCC
22	EVEN[2]+	48	Panel_VCC
23	EVEN[2]-	49	Panel_VCC
24	EVEN[1]+	50	Panel_VCC
25	EVEN[1]-	51	Panel_VCC
26	EVEN[0]+		

2.CN201 (to Powr board)

1	B5V	8	GND
2	SW_POWER	9	B12VS
3	B5V	10	SW_INVERTER
4	A5V	11	B13V
5	GND	12	NC
6	GND	13	B13V
7	B12VS	14	PWM_DIMM

3.CN1201(FUNCTION)

1	IR	5	MSDA
2	GND	6	FUNC_INTR
3	A3.3V	7	LED_STB
4	MSCL	8	NC

4.CN1701_LAN

1	LAN_TX-	5	LAN_VCC
2	GND	6	LAN_RX-
3	LAN_TX+	7	NC
4	LAN_RX+	8	GND

5.CN401(PC)

1	PC_RED	9	PC_5V
2	PC_GREEN	10	IDENT_PC
3	PC_BLUE	11	R_FANET
4	T_FANET	12	SDA_DOWN
5	GND	13	PC_HS
6	GND	14	PC_VS
7	GND	15	SCL_DOWN
8	GND		

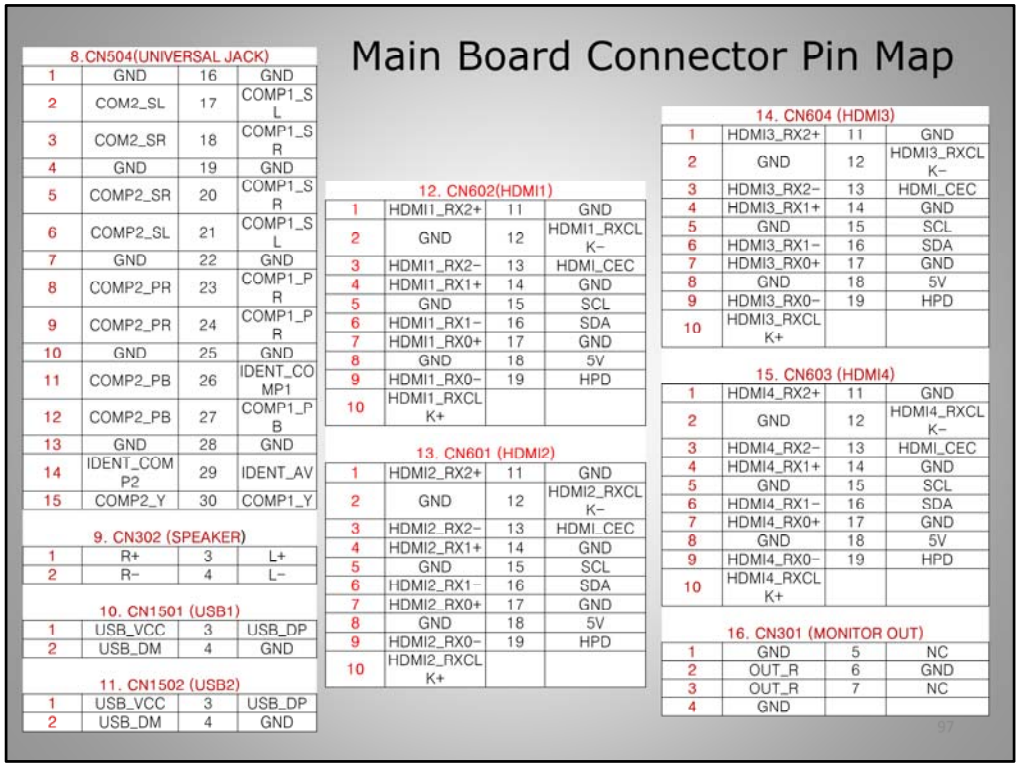
6.CN402(PC/DIV SOUND)

1	GND	4	NC
2	PC_SR_IN	5	NC
3	PC_SL_IN	6	NC

7.CN1203(DEBUG)

1	GND	4	DEBUG_TX
2	DEBUG_RX	5	DEBUG_TX
3	DEBUG_TX	6	GND

-CN1601_FHD to Panel
-CN201 to Power Board
-CN1201 Function Board
-CN1701 LAN
-CN401 PC
-CN402 PC/DVI Sound
-CN1203 DEBUG



Main Board Connector Pin Map

8.CN504(UNIVERSAL JACK)

1	GND	16	GND
2	COM2_SL	17	COMP1_SL
3	COM2_SR	18	COMP1_SR
4	GND	19	GND
5	COMP2_SR	20	COMP1_SR
6	COMP2_SL	21	COMP1_SL
7	GND	22	GND
8	COMP2_PR	23	COMP1_PR
9	COMP2_PR	24	COMP1_PR
10	GND	25	GND
11	COMP2_PB	26	IDENT_COMP1
12	COMP2_PB	27	COMP1_PB
13	GND	28	GND
14	IDENT_COMP2	29	IDENT_AV
15	COMP2_Y	30	COMP1_Y

9. CN302 (SPEAKER)

1	R+	3	L+
2	R-	4	L-

10. CN1501 (USB1)

1	USB_VCC	3	USB_DP
2	USB_DM	4	GND

11. CN1502 (USB2)

1	USB_VCC	3	USB_DP
2	USB_DM	4	GND

12. CN602(HDMI1)

1	HDMI1_RX2+	11	GND
2	GND	12	HDMI1_RXCLK-
3	HDMI1_RX2-	13	HDMI_CEC
4	HDMI1_RX1+	14	GND
5	GND	15	SCL
6	HDMI1_RX1-	16	SDA
7	HDMI1_RX0+	17	GND
8	GND	18	5V
9	HDMI1_RX0-	19	HPD
10	HDMI1_RXCLK+		

13. CN601 (HDMI2)

1	HDMI2_RX2+	11	GND
2	GND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	HDMI_CEC
4	HDMI2_RX1+	14	GND
5	GND	15	SCL
6	HDMI2_RX1-	16	SDA
7	HDMI2_RX0+	17	GND
8	GND	18	5V
9	HDMI2_RX0-	19	HPD
10	HDMI2_RXCLK+		

14. CN604 (HDMI3)

1	HDMI3_RX2+	11	GND
2	GND	12	HDMI3_RXCLK-
3	HDMI3_RX2-	13	HDMI_CEC
4	HDMI3_RX1+	14	GND
5	GND	15	SCL
6	HDMI3_RX1-	16	SDA
7	HDMI3_RX0+	17	GND
8	GND	18	5V
9	HDMI3_RX0-	19	HPD
10	HDMI3_RXCLK+		

15. CN603 (HDMI4)

1	HDMI4_RX2+	11	GND
2	GND	12	HDMI4_RXCLK-
3	HDMI4_RX2-	13	HDMI_CEC
4	HDMI4_RX1+	14	GND
5	GND	15	SCL
6	HDMI4_RX1-	16	SDA
7	HDMI4_RX0+	17	GND
8	GND	18	5V
9	HDMI4_RX0-	19	HPD
10	HDMI4_RXCLK+		

16. CN301 (MONITOR OUT)

1	GND	5	NC
2	OUT_R	6	GND
3	OUT_R	7	NC
4	GND		

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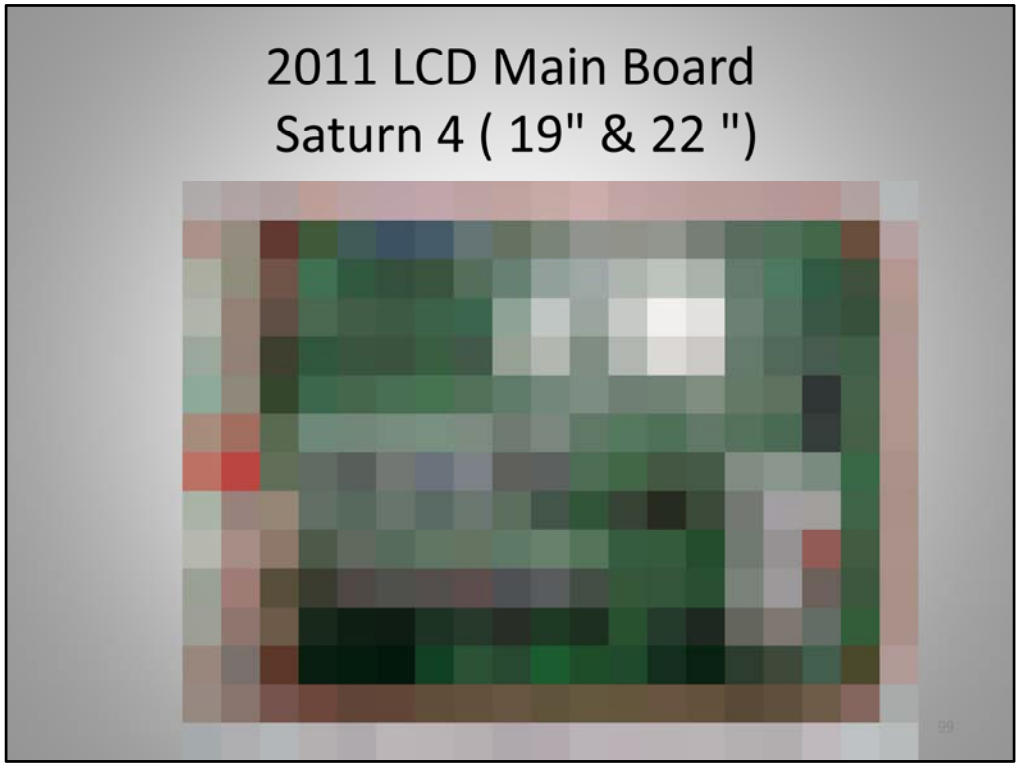
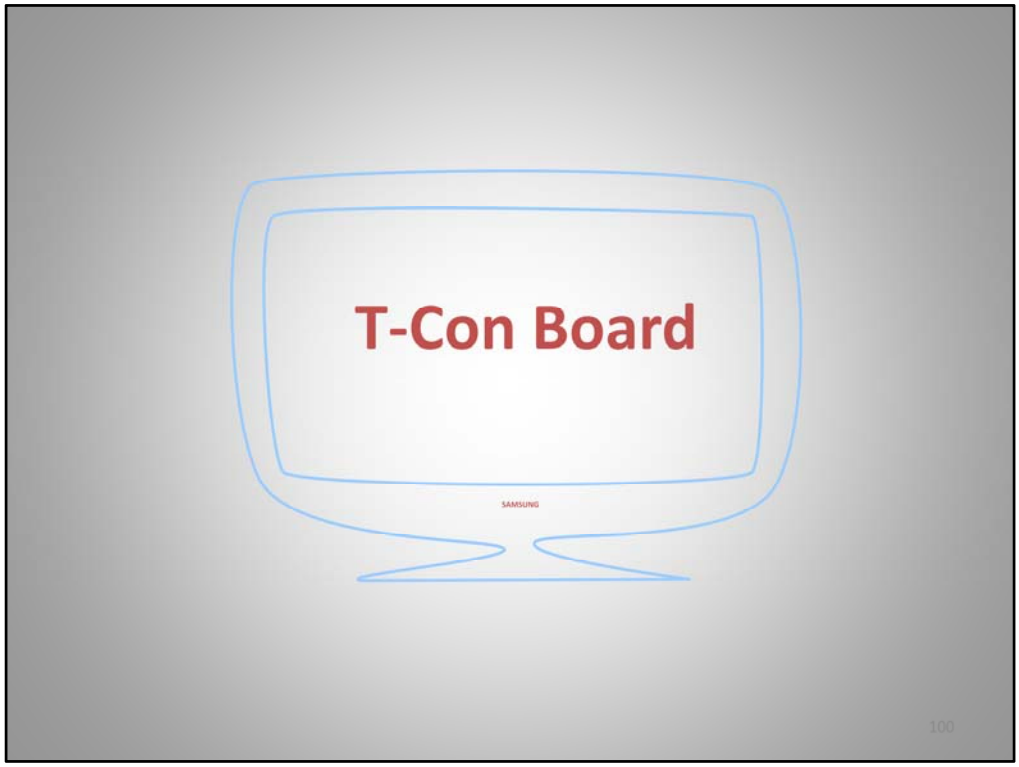
- CN504 Universal Jack
- CN502 Speaker
-CN1501 USB1 CN1502 USB2
-CN602 HDMI 1 CN601 HDMI 1 CN604 HDMI 3 CN603 HDMI 4
-CN 501 Monitor Out

Some other 2011 LCD Main Boards for 19” thru 32” use “Lola 4” Processors



Some other 2011 LCD Main Boards use “Saturn 4” Processors for 19” and 22 inch Models


T-Con Board
SAMSUNG
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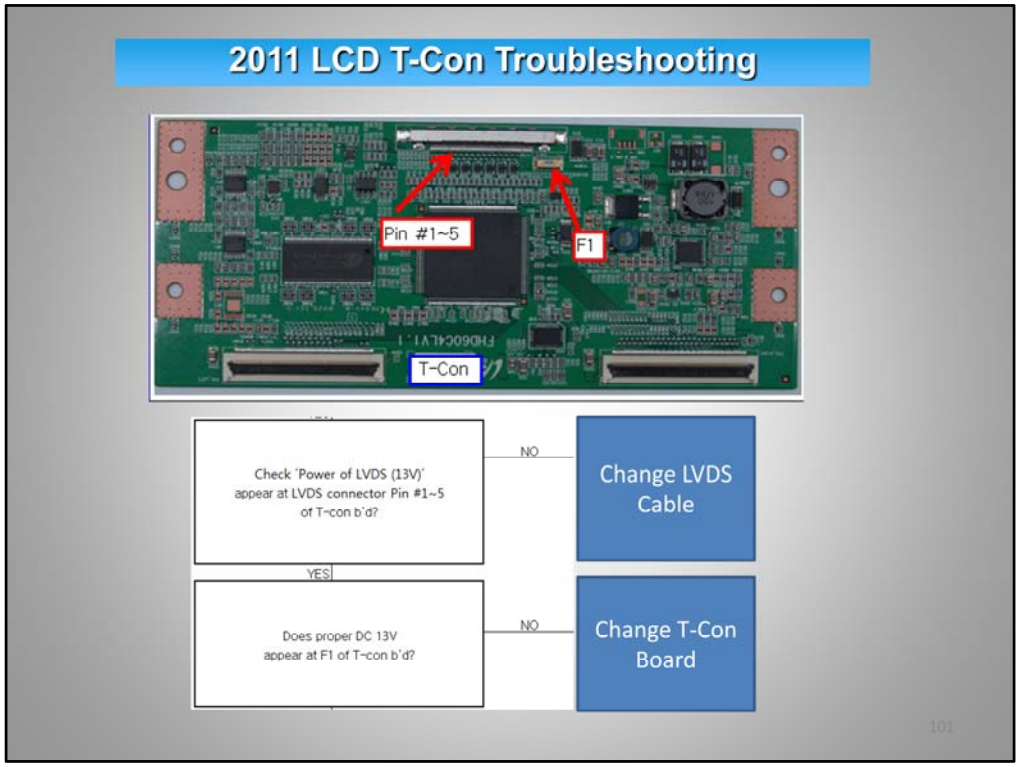
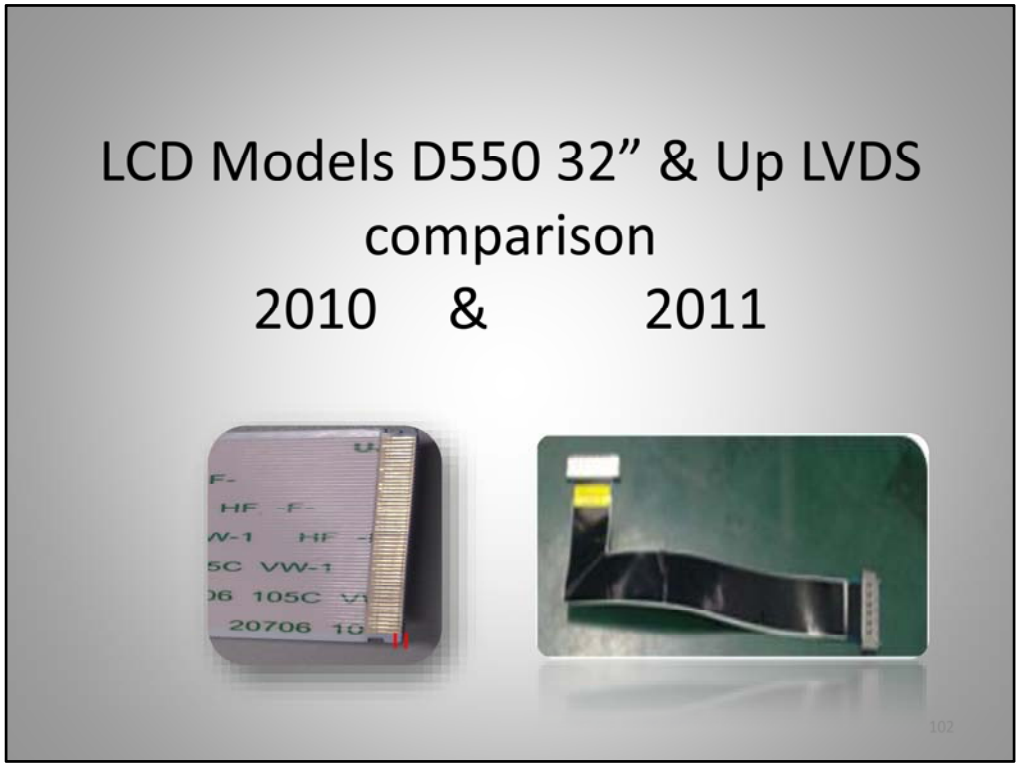
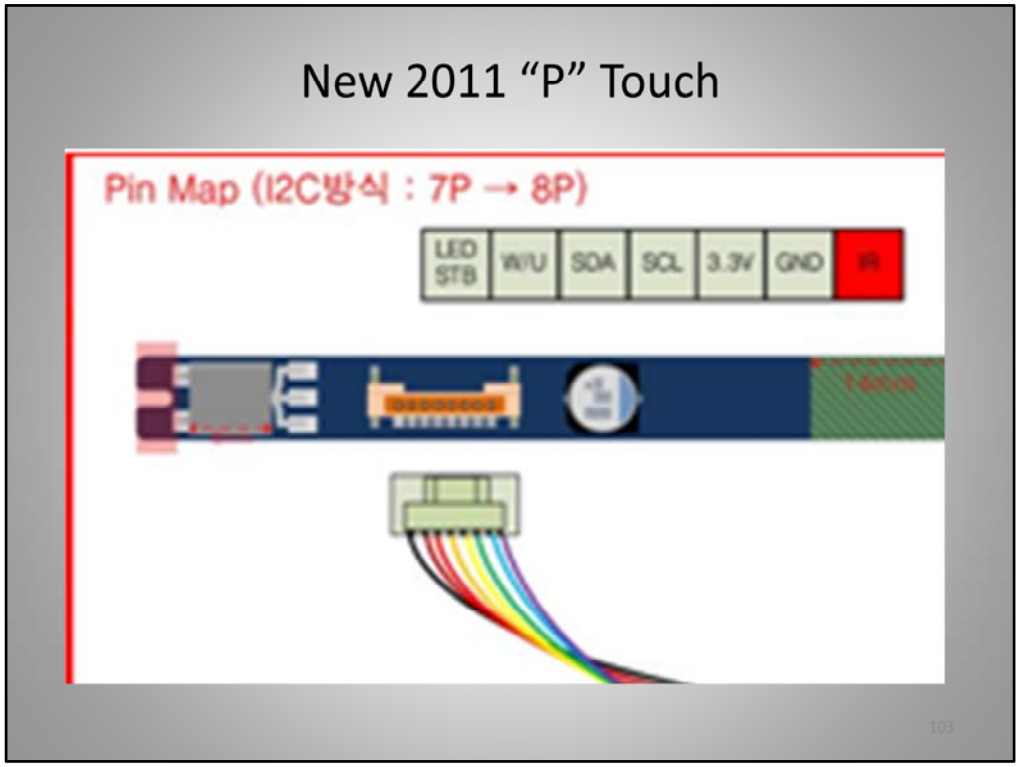


Troubleshooting T-Con can begin by measuring the operating voltage in from the Main Board LVDS Cable at both sides of F1 (Fuse 1).
-If the 13V supply appears on both sides (with meter reference to chassis ground) of the fuse correct supply is given and used by the T-Con.
-If the 13V only appears at the LVDS Cable End of the Fuse. The fuse is open and T-Con needs to be replaced.
-If the 13V does not appear on either end of the fuse, the LVDS Cable and Main Board fees need to be checked and LVDS Cable or Main board replaced. ALSO: check the 13V supply feed from SMPS to Main board is present, if not, replace the SMPS Board.

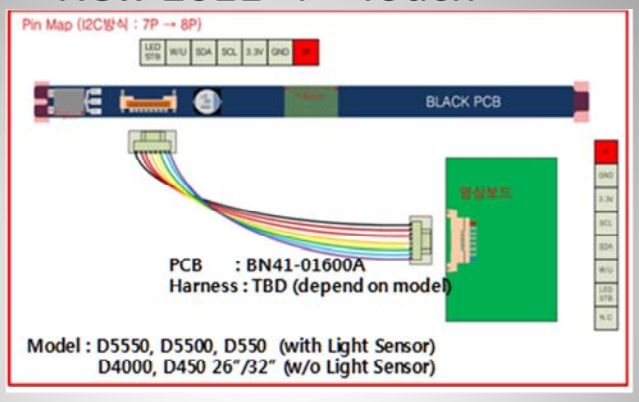


New type LVDS Cables have been added to the 2011 Models. Care on handling should be observed.



New 2011 P Touch Control. (next slide)

New 2011 “P” Touch



Models 26"~32 "(D450) , 32"~46" (D550) platform X5 will change the Communication protocol will use I2C.
Lola & Saturn 4 Models will use ADC for P-Touch communication protocol .

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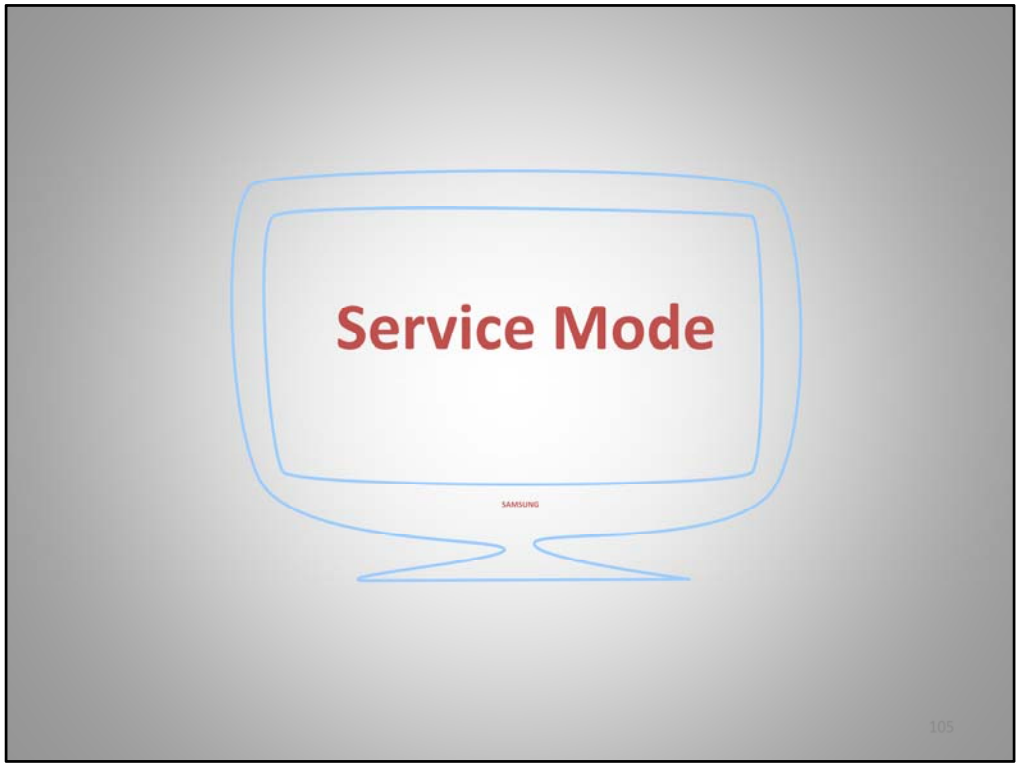
New P-Touch protocol on models using the X5 Processor. This may include a new initial Power On with any Keyboard Command, followed by normal individual Key Operation after Power is introduced.


Service Mode
SAMSUNG
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Activating the 2011 Service Mode is the same from previous models and years.

If you do not have a Factory remote – control:

Power OFF the TV

MUTE 1 8 2 then Power ON

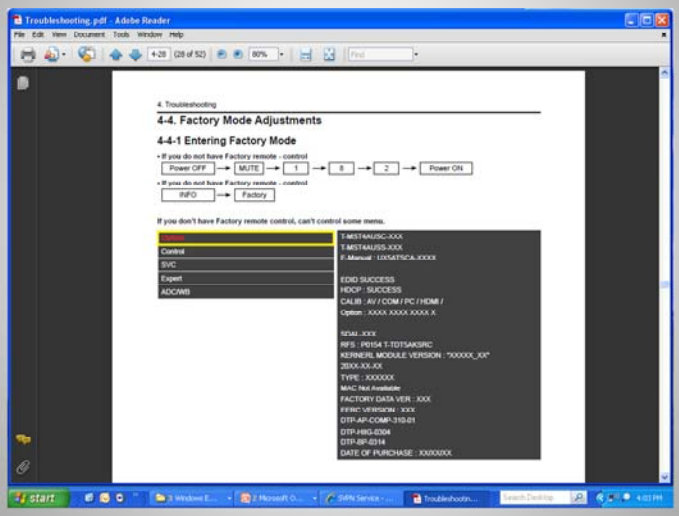
If you have Factory remote – control:

Power the TV ON

Press INFO then FACTORY commands

If you don't have Factory remote control, you can't control some parts of the menu or parts of the menu may not appear.

2011 LCD Service Mode



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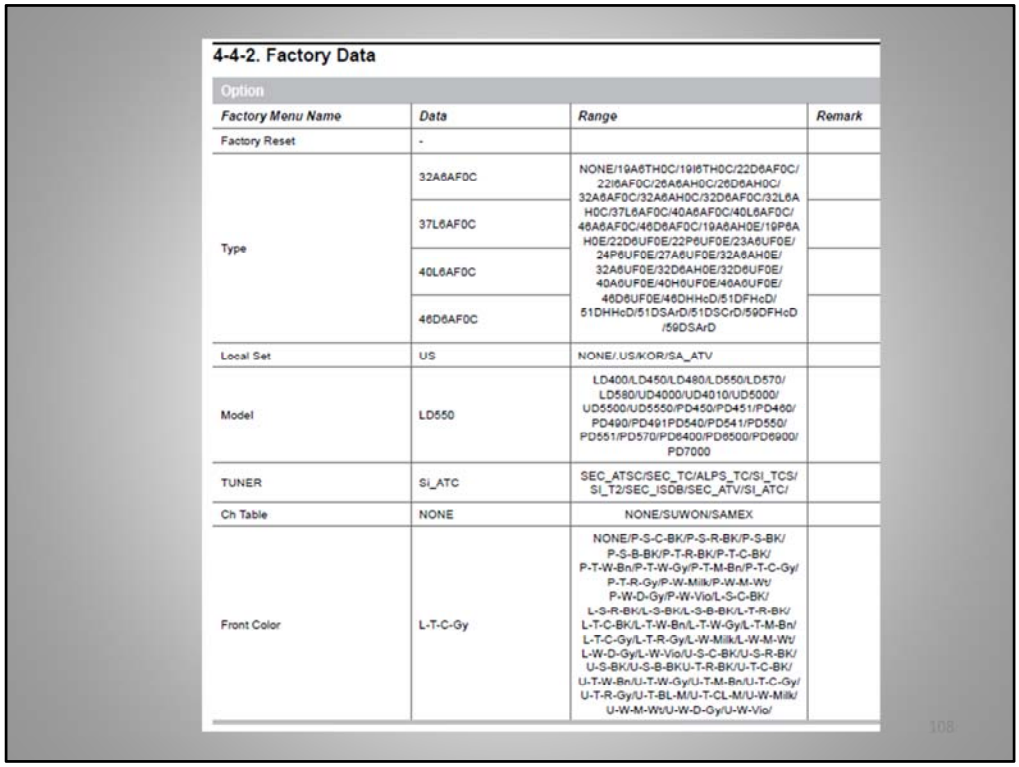
The new 2011 Service Mode Screen includes similar operation to previous years. Entering test mode has not changed.



4-4-2. Factory Data

Option

Factory Menu Name	*Data*	*Range*	*Remark*
Factory Reset	-		
Type	32A6AF0C	NONE/19A6TH0C/19I6TH0C/22D6AF0C/22I6AF0C/26A6AH0C/26D6AH0C/32A6AF0C/32A6AH0C/32D6AF0C/32L6AH0C/37L6AF0C/40A6AF0C/40L6AF0C/46A6AF0C/46D6AF0C/19A6AH0E/19P6AH0E/22D6UF0E/22P6UF0E/23A6UF0E/24P6UF0E/27A6UF0E/32A6AH0E/32A6UF0E/32D6AH0E/32D6UF0E/40A6UF0E/40H6UF0E/46A0UF0E/46D6UF0E/46DHHcD/51DFHcD/51DHHcD/51DSArD/51DSCrD/59DFHcD/59DSArD	
	37L6AF0C		
	40L6AF0C		
	46D6AF0C		
Local Set	US	NONE/.US/KOR/SA_ATV	
Model	LD550	LD400/LD450/LD480/LD550/LD570/LD580/UD4000/UD4010/UD5000/UD5500/UD5550/PD450/PD451/PD460/PD490/PD491PD540/PD541/PD550/PD551/PD570/PD6400/PD6500/PD6900/PD7000	
TUNER	Si_ATC	SEC_ATSC/SEC_TC/ALPS_TC/SI_TCS/SI_T2/SEC_ISDB/SEC_ATV/SI_ATC/	
Ch Table	NONE	NONE/SUWON/SAMEX	
Front Color	L-T-C-Gy	NONE/P-S-C-BK/P-S-R-BK/P-S-BK/P-S-B-BK/P-T-R-BK/P-T-C-BK/P-T-W-Bn/P-T-W-Gy/P-T-M-Bn/P-T-C-Gy/P-T-R-Gy/P-W-Milk/P-W-M-Wt/P-W-D-Gy/P-W-Vio/L-S-C-BK/L-S-R-BK/L-S-BK/L-S-B-BK/L-T-R-BK/L-T-C-BK/L-T-W-Bn/L-T-W-Gy/L-T-M-Bn/L-T-C-Gy/L-T-R-Gy/L-W-Milk/L-W-M-Wt/L-W-D-Gy/L-W-Vio/U-S-C-BK/U-S-R-BK/U-S-BK/U-S-B-BKU-T-R-BK/U-T-C-BK/U-T-W-Bn/U-T-W-Gy/U-T-M-Bn/U-T-C-Gy/U-T-R-Gy/U-T-BL-M/U-T-CL-M/U-W-Milk/U-W-M-Wt/U-W-D-Gy/U-W-Vio/	

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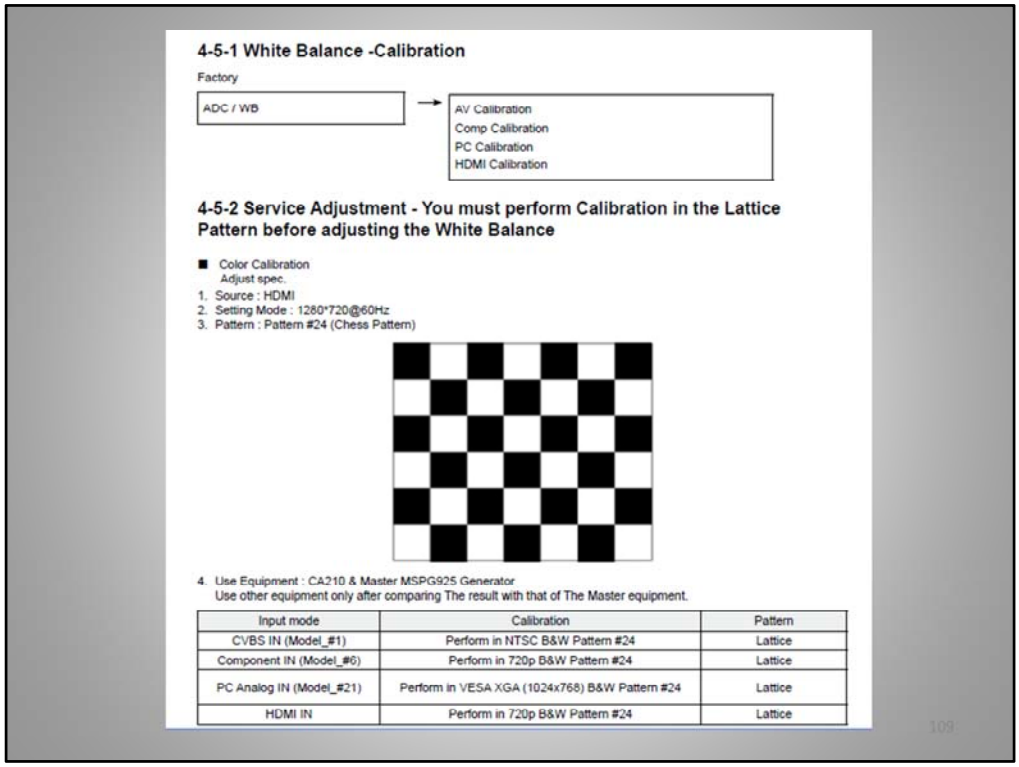
It's important to check "Option Bytes" in the Service Manual fro the specific Model you are repairing. These Option Bytes including Type, Model, Tuner, Front Color, must be recorded and transferred to the TV whenever a MAIN BOARD is replaced. Failure to do so can result in user miss-operation, incorrect color and white balance, and video noise and other various issues.



4-5-1 White Balance -Calibration

Factory

ADC / WB → AV Calibration, Comp Calibration, PC Calibration, HDMI Calibration

4-5-2 Service Adjustment - You must perform Calibration in the Lattice Pattern before adjusting the White Balance

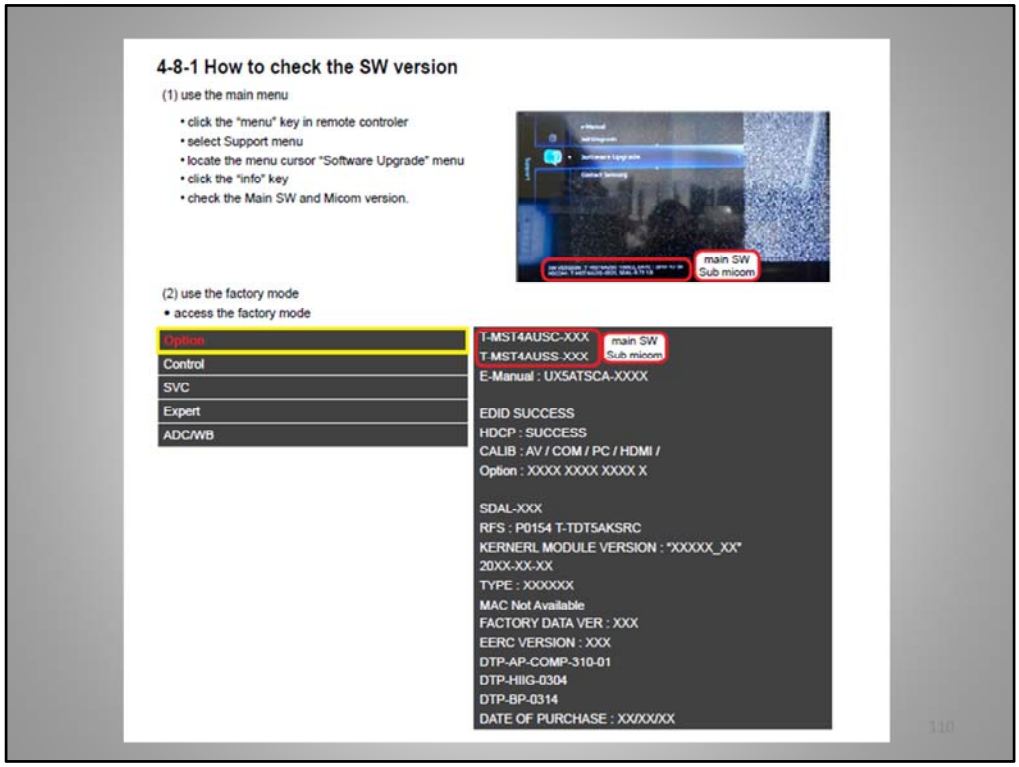
■ Color Calibration
Adjust spec.

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 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

CAUTION: White Balance and other “Auto Settings” cannot be performed or activated without the correct video pattern inputted with an external generator. Severe Errors in the Video will occur. Caution must be taken when performing these adjustments. NOTE: Performing “Reset” only effects and restores the customer settings to factory and will not effect or restore any changes made in factory mode.



Every service should include a software check and upgrade performed.
-The Main SW (SoftWare) version is listed at the top right of the first Service Mode Screen.
-The NEW Sub Micom version is listed second item down on the right hand side of the first Service Mode Screen.

4-8-2. How to Upgade SW and Micom

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 When software is upgraded, video and audio settings you have you write down your settings so that you can easily reset them after the upgrade.

(1) Main SW upgrade

- store the sw program named "T-MST4AUSC" in USB memory stick
- connect the USB

- or connect TV and online line

- click the "menu" key in remote controler
- select Support menu
- locate the menu cursor "Software Upgrade" menu

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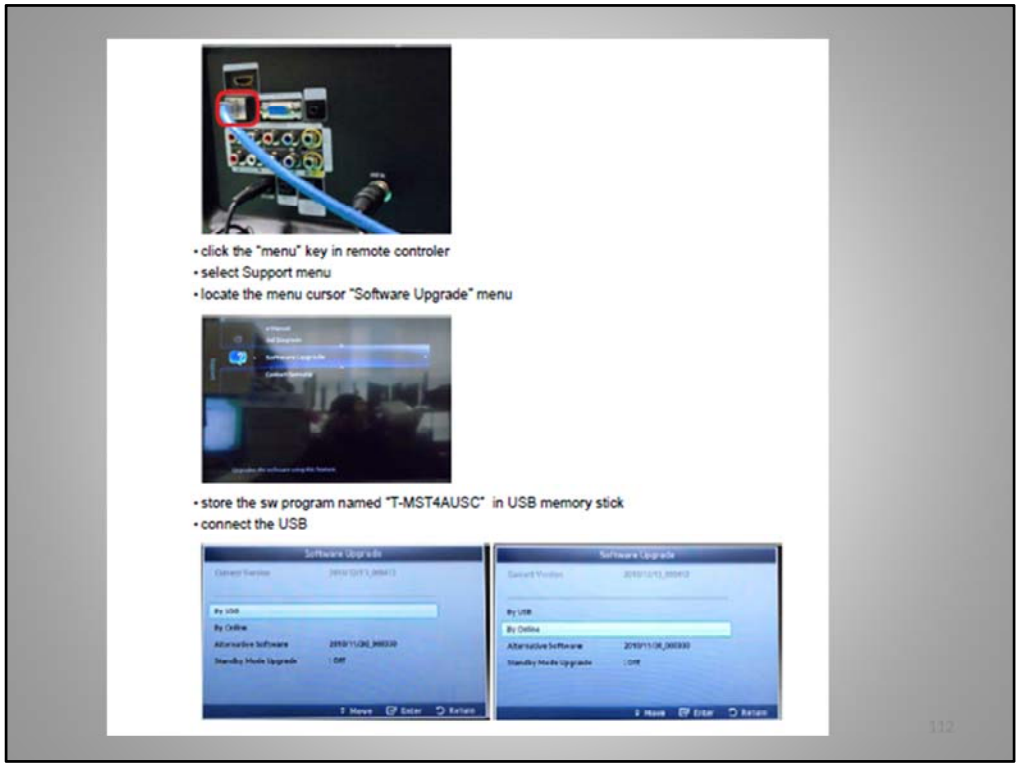
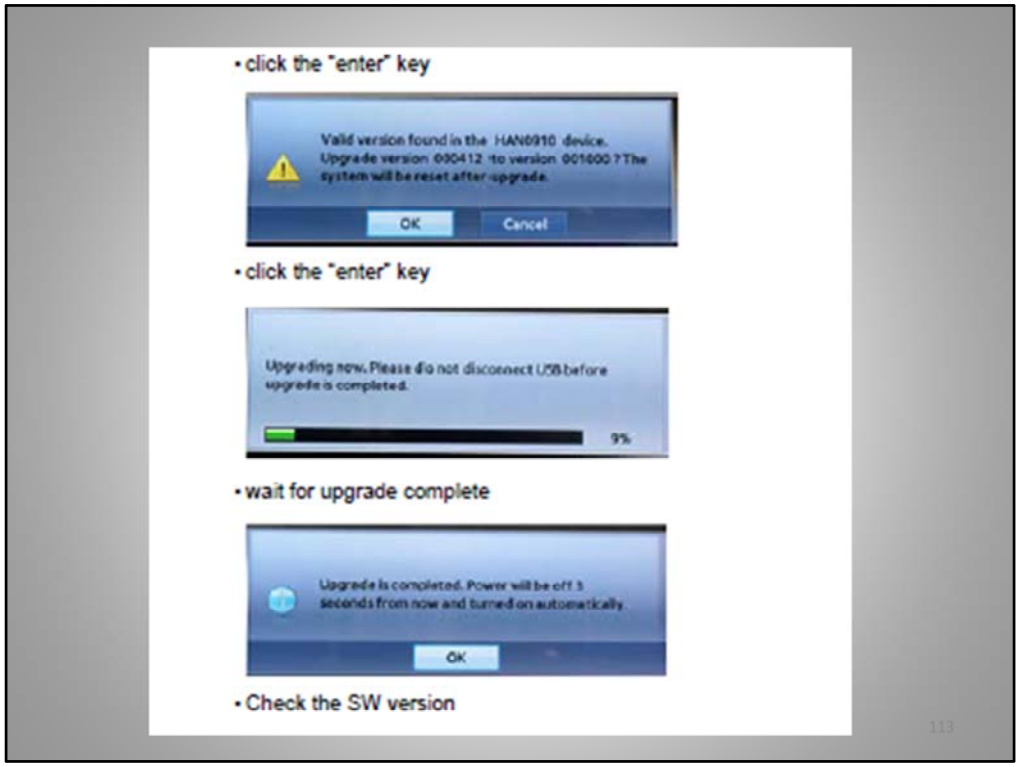
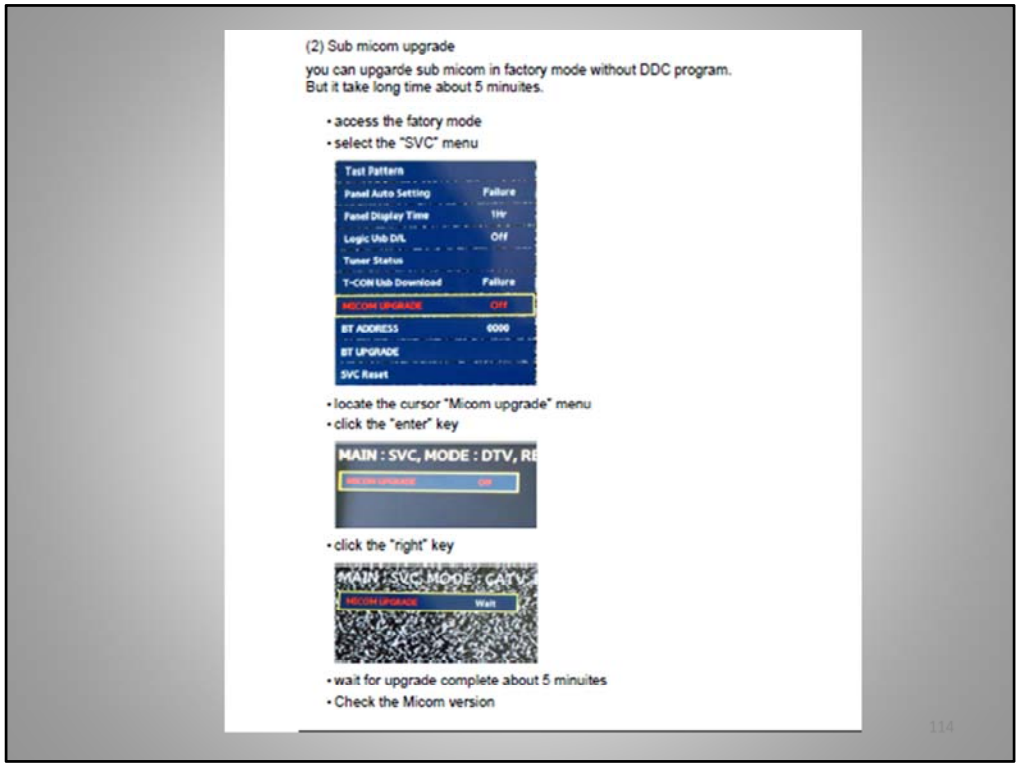
The Main Software can be upgraded by USB as before, however, the new Sub Micom can also be upgraded. Follow the procedures carefully in the next slides.



The 2011 Main SoftWare upgrade remains the same procedure as previous model years using USB.
As in 2010 it can also be upgraded by ON Line. Either can and should be performed by the customer as well.

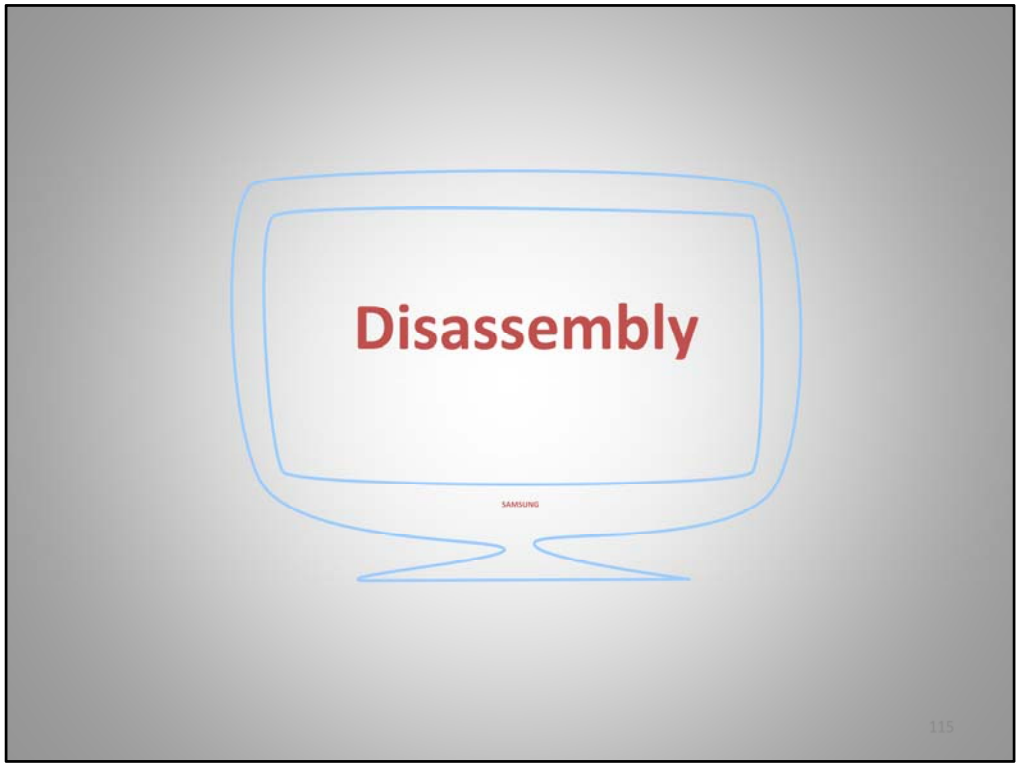


Follow the standard procedure to perform the Main Micom upgrade.



NEW to 2011 is the Sub Micom Upgrade
-First Insert USB with Sub Micom Upgrade
-Go to into Factory Mode
-Select SVC Menu
-Select Micom Upgrade Off
-Activate Micom off to On
-Wait for upgrade to completed (may take up to 5 minutes)
-**CAUTION: Do Not interrupt the download or the Main Board will fail and require replacing.**

-


Disassembly
SAMSUNG
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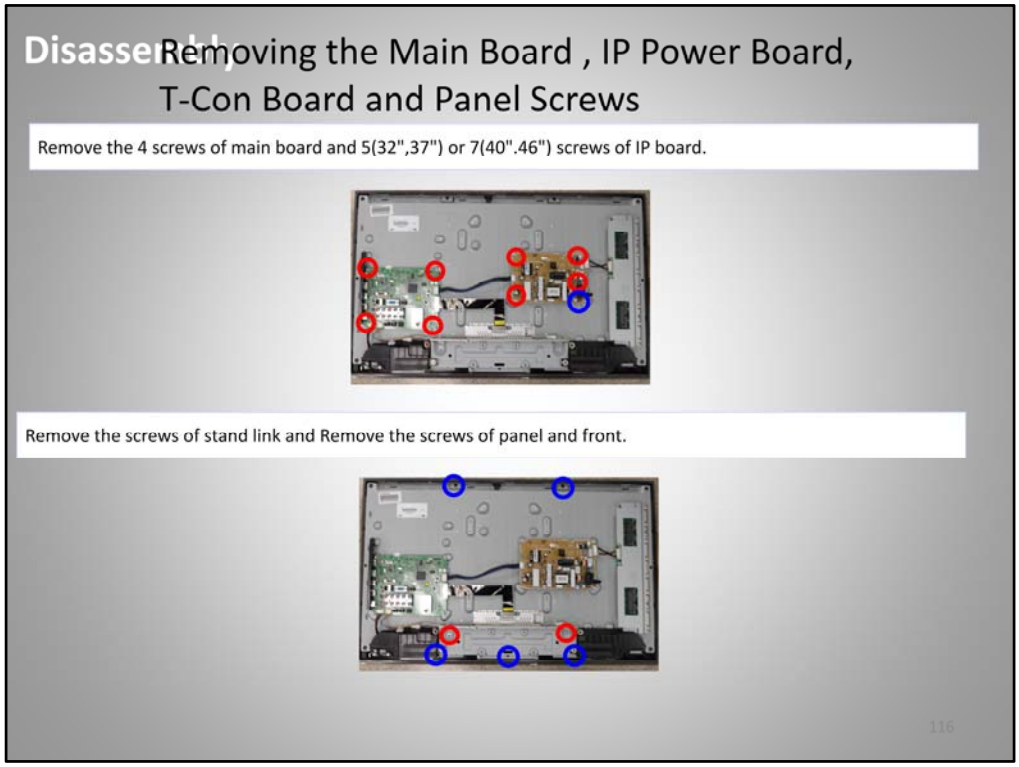
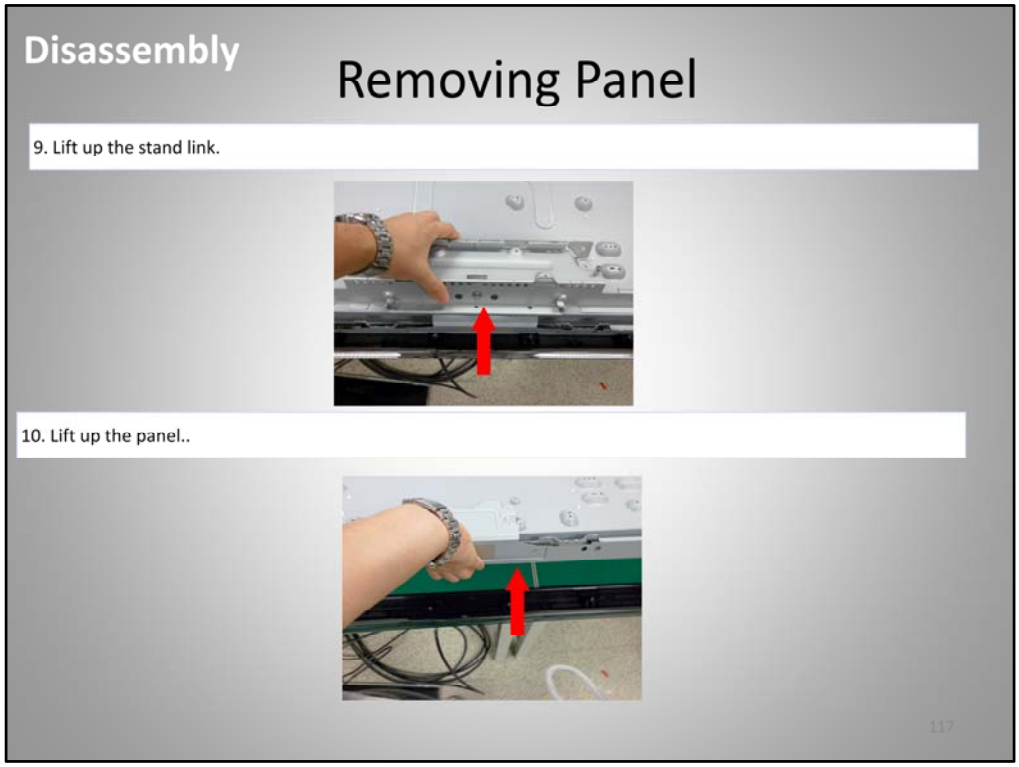


Disassembly procedure illustrated for removing the Main Board, IP Board, T-Con Board and Panel Screws.



Removing Panel


SAMSUNG
'2011 LED TV

UD8Y Overview

Spec Comparison to the Old Models

Model		D8000	C8000
Design			
Display type		LED TV	LED TV
LCD panel		TFT LCD PANEL 240Hz	TFT LCD PANEL 240Hz
Dimensions (W x H x D)	46"	40.99 x10.89 x26.75 inches_with stand 40.99 x 1.17 x 23.6 inches_without stand	42.94x11.93x28.50 inches_with stand 42.94x0.94x26.09 inches_without stand
	55"	48.53 x 12.18 x 30.99 inches_with stand 48.53 x 1.17 x 27.84 inches_without stand	50.47x11.93x32.78 inches_with stand 50.47x0.94x30.39 inches_without stand
Weight		46" : 27.34lbs_without stand 31.52lbs_with stand 55" : 35.71lbs_without stand 41lbs_with stand	46" : 37.03lbs_without stand 42.1lbs_with stand 55" : 48.94lbs_without stand 54.01lbs_with stand
Contrast Ratio		Mega CR	Mega CR
AUTO MOTION PLUS 240HZ		O (Napoli)	O (Reading)
Speaker out		46" : 10W +10W/ 55" :15W+15W	46" : 10W +10W/ 55" :15W+15W
Surround Sound		SRS Theater Sound	SRS Theater Sound
Function		3D,MOIP,Media Bridge, AllShare,Internet TV, Built-in WiFi, Full Browser,Bluetooth	3D,MOIP,Media Bridge, AllShare,Internet TV

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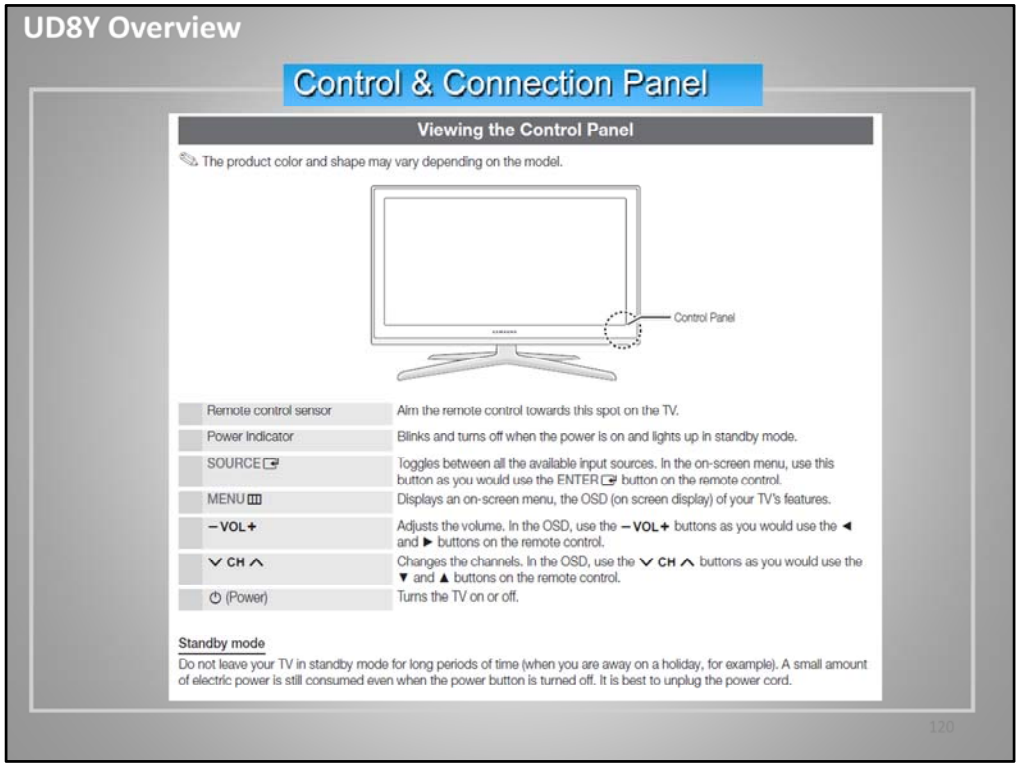
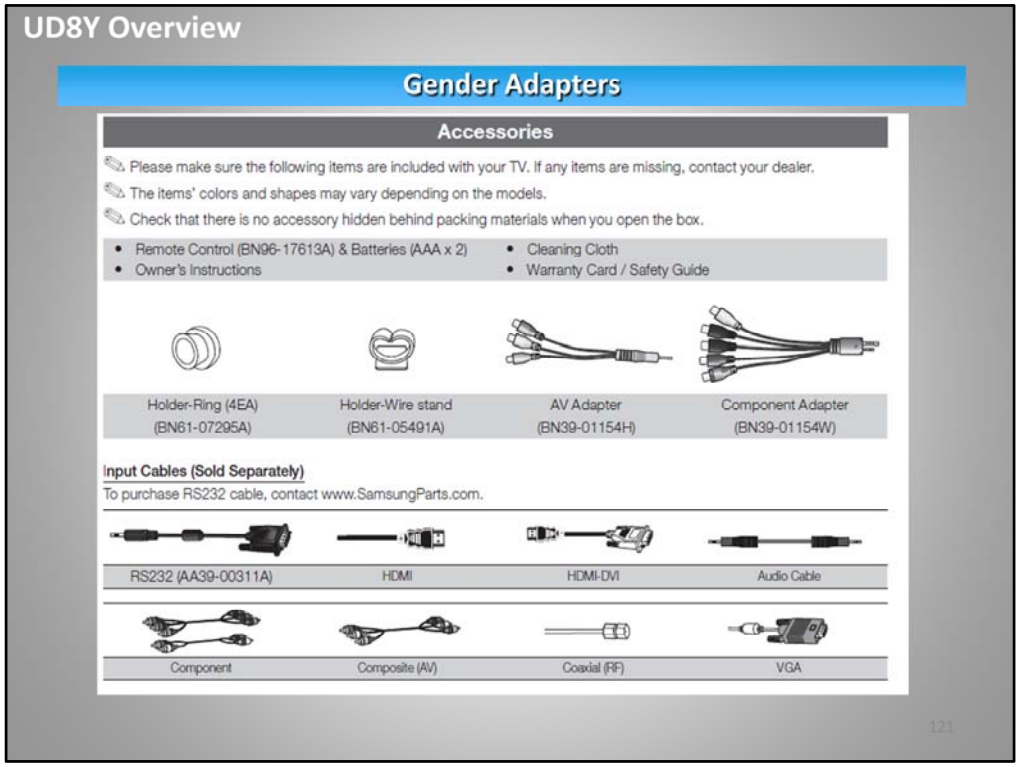
2011 D8000 Vs 2010 C8000 Spec Sheet
-New narrow Bezel
-New Built in Wi-Fi with Web Browser
-New 3D Bluetooth
-New Napoli IC/Test Mode Patterns



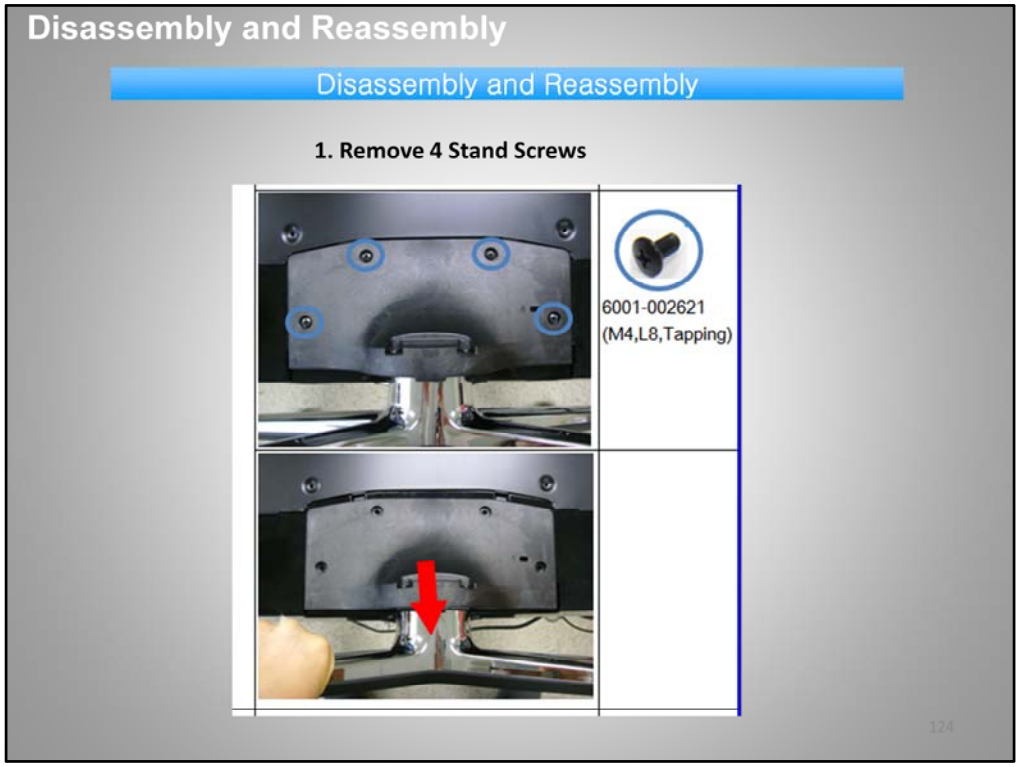
Control Panel (IR Sensor, Power Indicator, Source, Menu, Volume, Channel, Power) Location & Operation



Accessories including a new 2011 Gender Cable for the “Component Adapter.” The “AV Adapter” is similar to the 2010 Model Adapters.


Disassembly
Repair Preparation
SAMSUNG

When handing the large screen slim line LED TVs, it's important to use extra caution. Avoid bending or touching the screen especially when placing in its servicing position face down on a protected table.



Remove the 4 Stand Screws
CAUTION: Some models require longer stand screws. It's extremely important for safety to return them to their proper stand locations.
It's recommended to service the TV face down on a protected surface.
Whenever servicing the TV in it's upright position it is necessary to secure the Stand with the Stand Screws at all times.

Disassembly and Reassembly

2. Remove the screws of rear-cover.		 6001-002671 (M3,L6,Tapping)
3. Lift up and remove the rear-cover. *Caution : Becareful when you lift up the rear-cover, It's really sharp		

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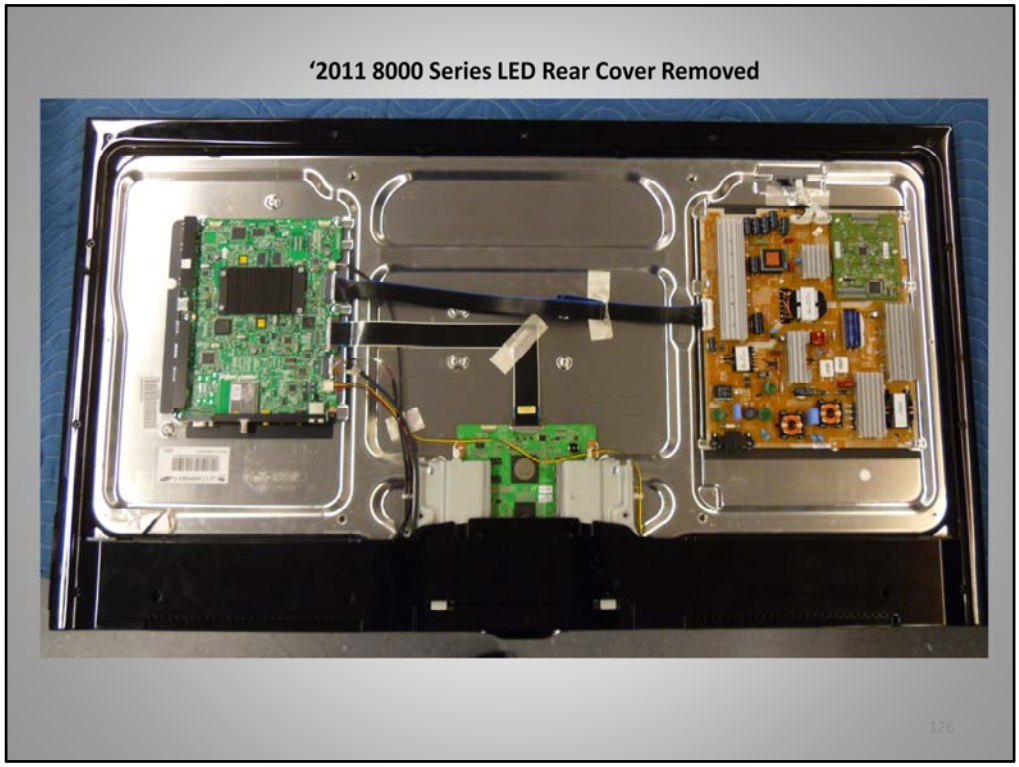
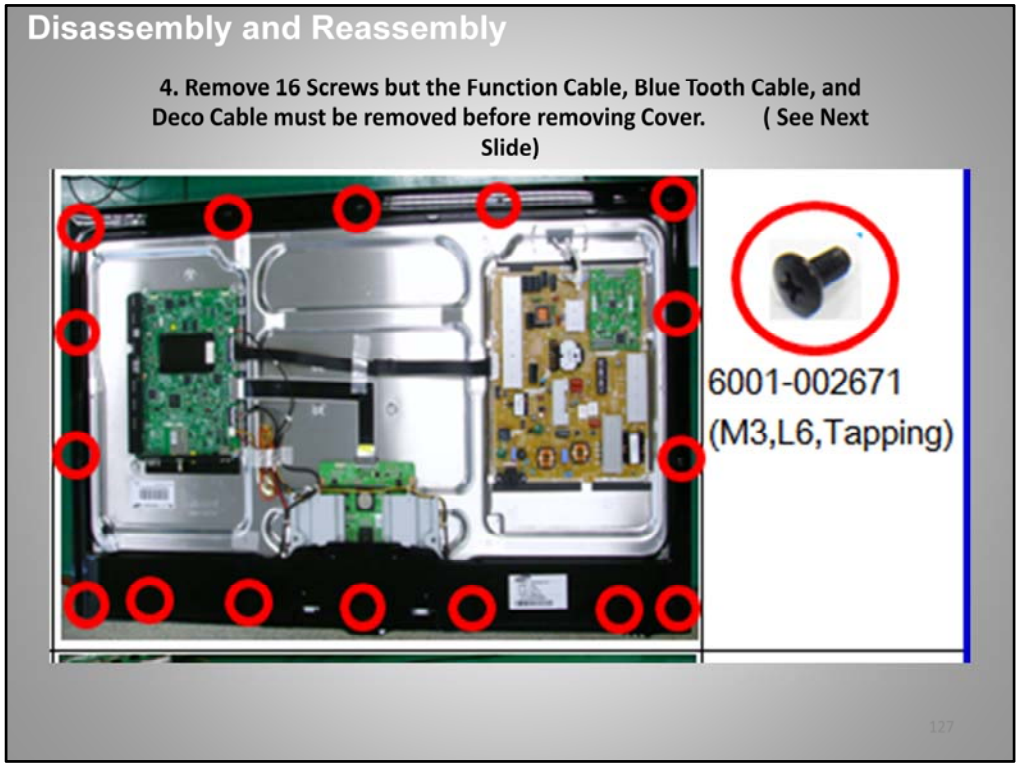
Locate and remove the Rear Cover Screws. Take extra caution when lifting up the rear cover, it’s sharp at the edges.



The 2011 LED Slim Line Models have an additional Cover around the perimeters of the TV. It does not need to be removed if only the IP Board or Main Board are to be replaced. Most testing can also be performed without further disassembly.



Remove the remaining 16 screws to remove the surrounding “Middle Cover”.
CAUTION: **the Function Cable, Blue Tooth Cable, and Deco Cable must be removed before removing Cover. (See Next Slide)**

Disassembly and Reassembly

5. Lift up and remove the middle-cover.	
*Caution: Remove the function cable, Bluetooth Cable and deco cable before removing the middle cover	  

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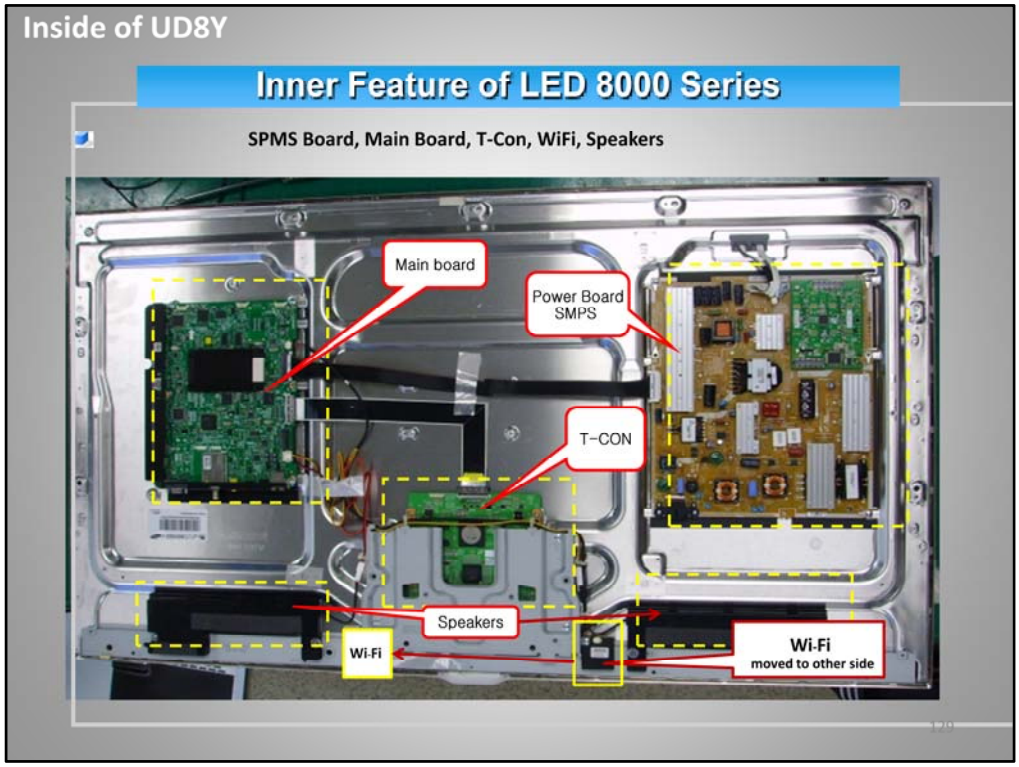
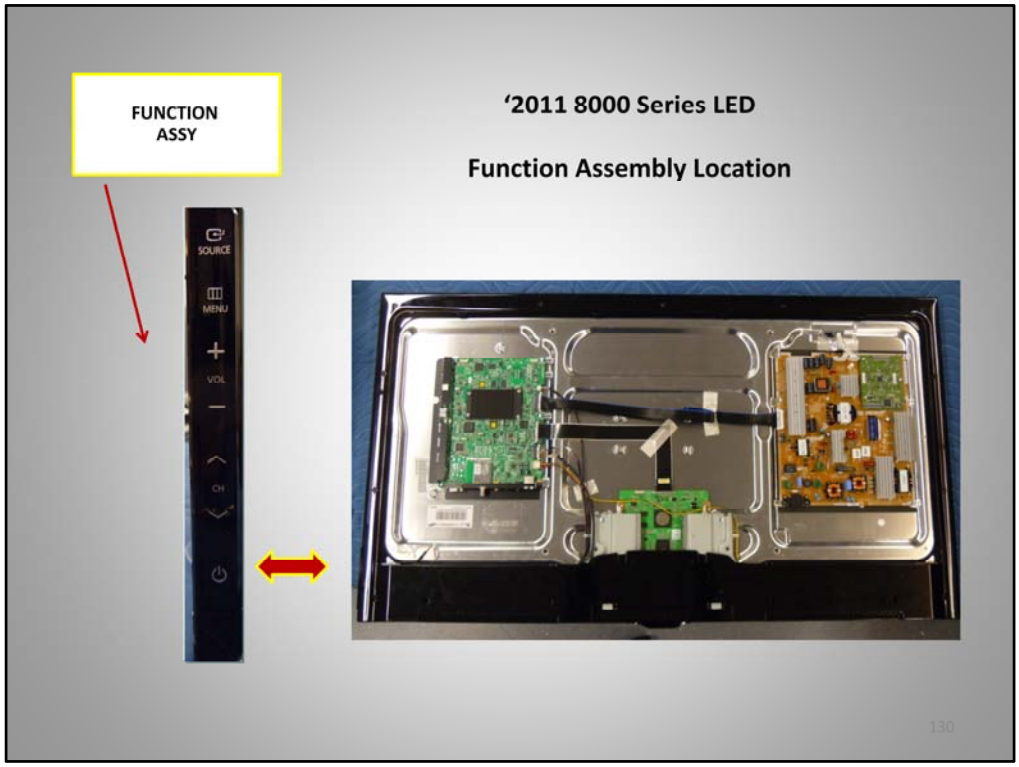
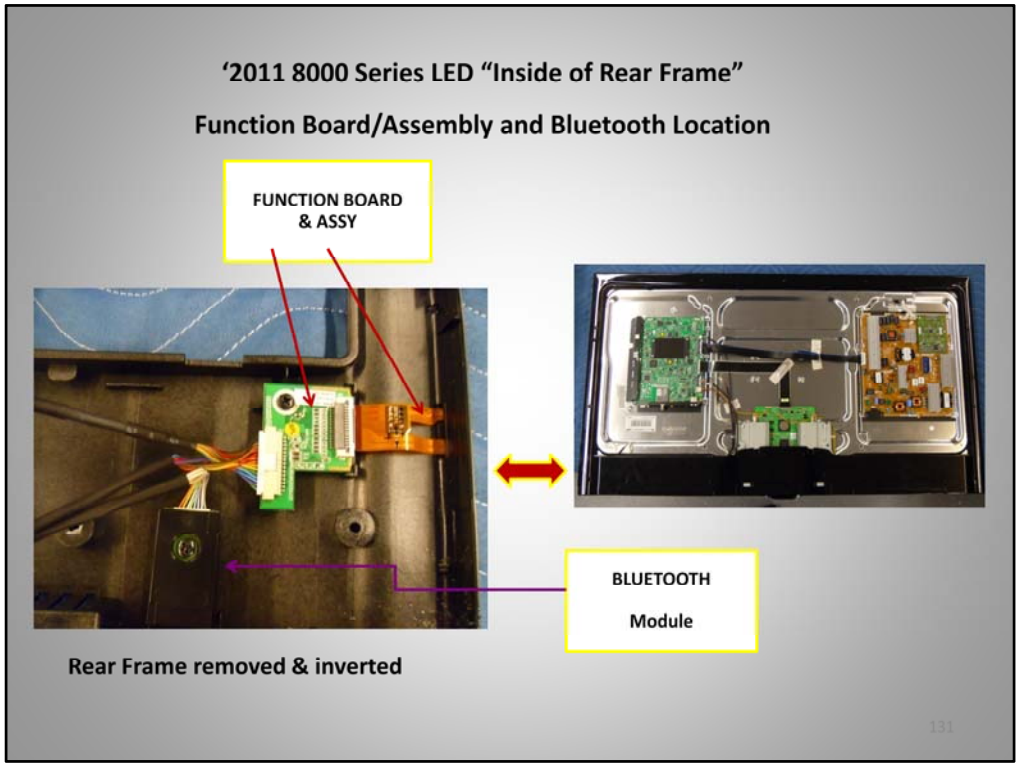
Use Caution: Don’t forget to remove the Function Cable, Bluetooth Cable, and Deco Cable (lamp) connectors as you lift the cover. ALSO: The cover may need gently prying when removing around the edges. EXTRA Caution not to break or crack the cover is necessary.



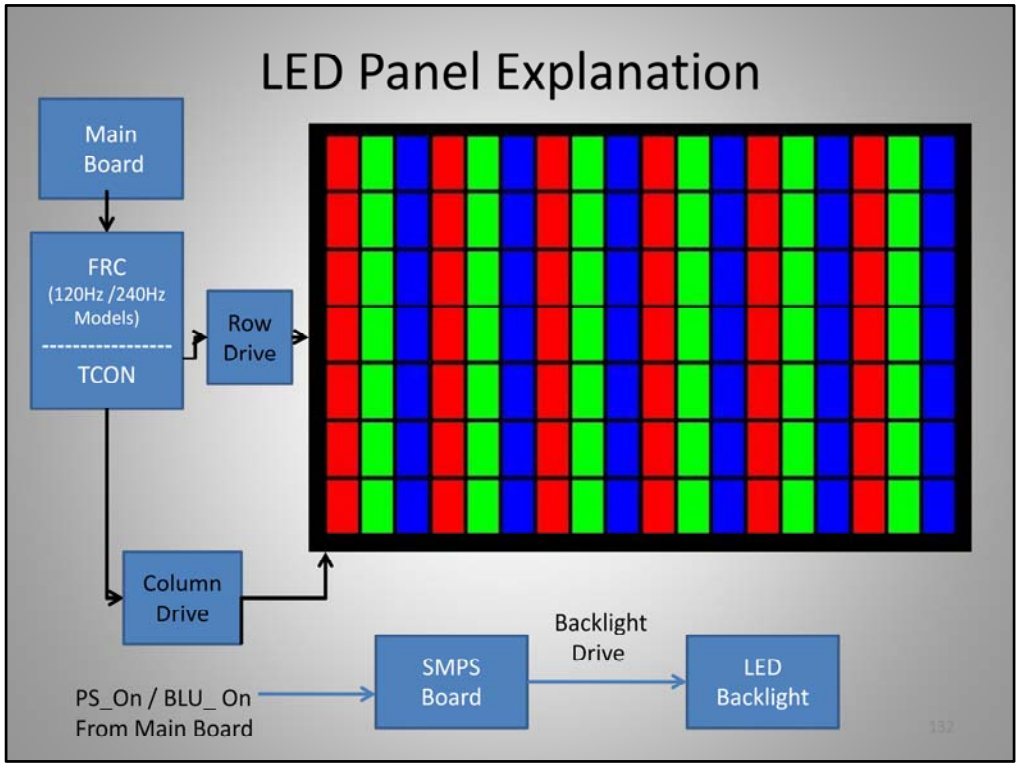
The LED upper model 2011 LED D8000 Series will continue to be examined in detail. The Board Layout includes MAIN BOARD; SMPS BOARD, FRC/T-CON BOARD, new WI-FI Module, new BLUETOOTH Module (not seen here, located in the removed Middle Cover) and Speakers,



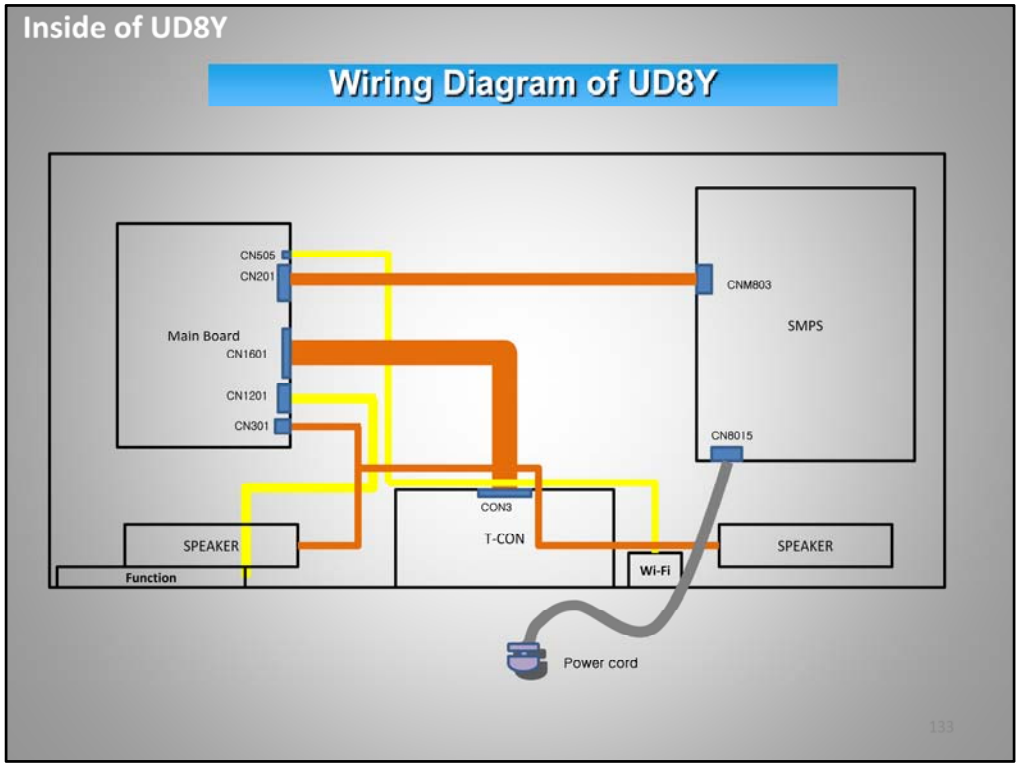
The FUNCTION ASSY is located on the bottom right side of the panel.



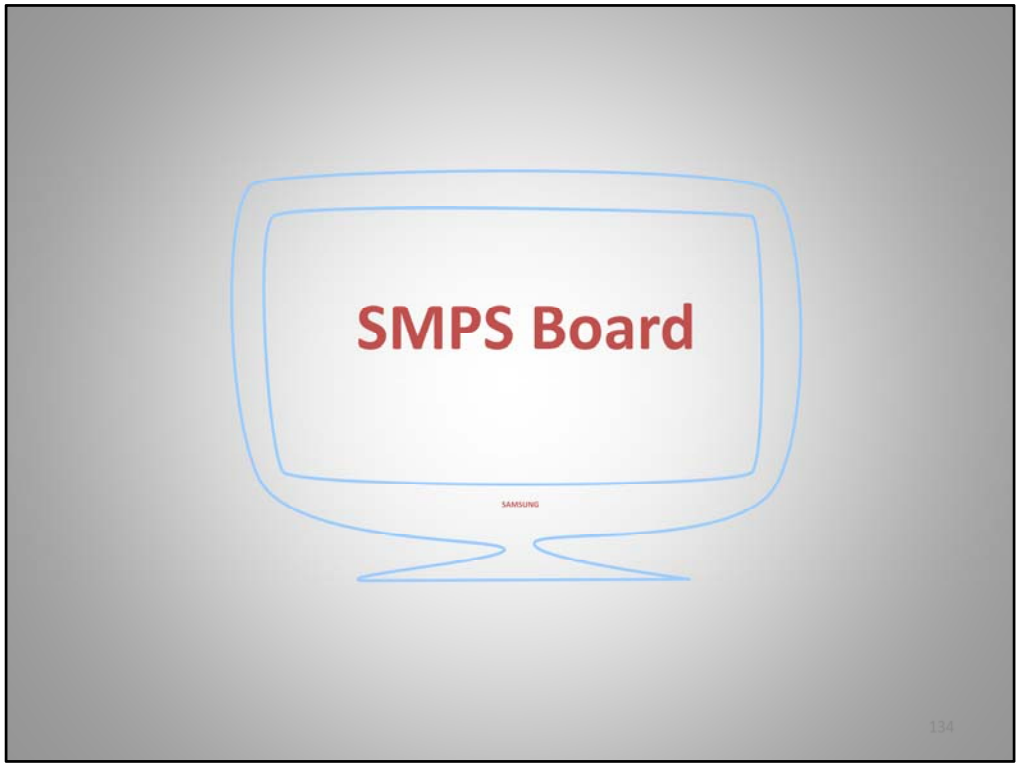
The FUNCTION ASSY and BLUETOOTH MODULE are located inside the rear Middle Cover.



- LCD panels are made up of rows and columns of red green and blue sub pixels. The TCON board selects the specific sub pixel (each LCD) and controls the amount of light produced from that area.
-The panel resolution determines the number of pixels. For example a 720P panel has 1280 horizontal pixels and 768 vertical rows. A 1080P panel has 1920 horizontal pixels and 1080 rows. Obviously the higher resolution requires that many more control lines.
-The video data signal outputs from the Main Board thru an LVDS Cable to the FRC/TCON Board.
- The TCON Board provides the Row and Column Drive to the LCDs in time with the Scan Signal.
- The Main Board supplies PS ON & BL ON signals to the SMPS Board which turns on the LED Backlight while providing supply voltages to the other Board Assemblies.



The new 2011 wiring diagram for the illustrated LED D8000 Series includes the added Wi-Fi Cable from the Main Board to Wi-Fi Module. The Function Cable Connector also supplies the Main Board signals for the new 3D Bluetooth Module.


SMPS Board
SAMSUNG
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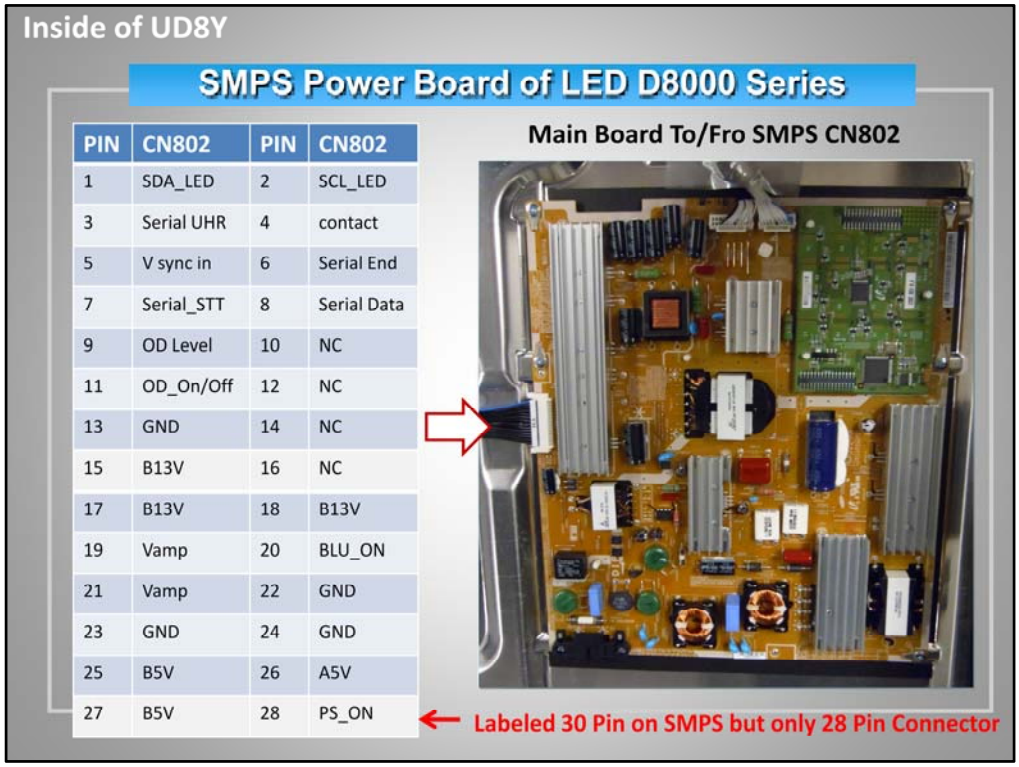
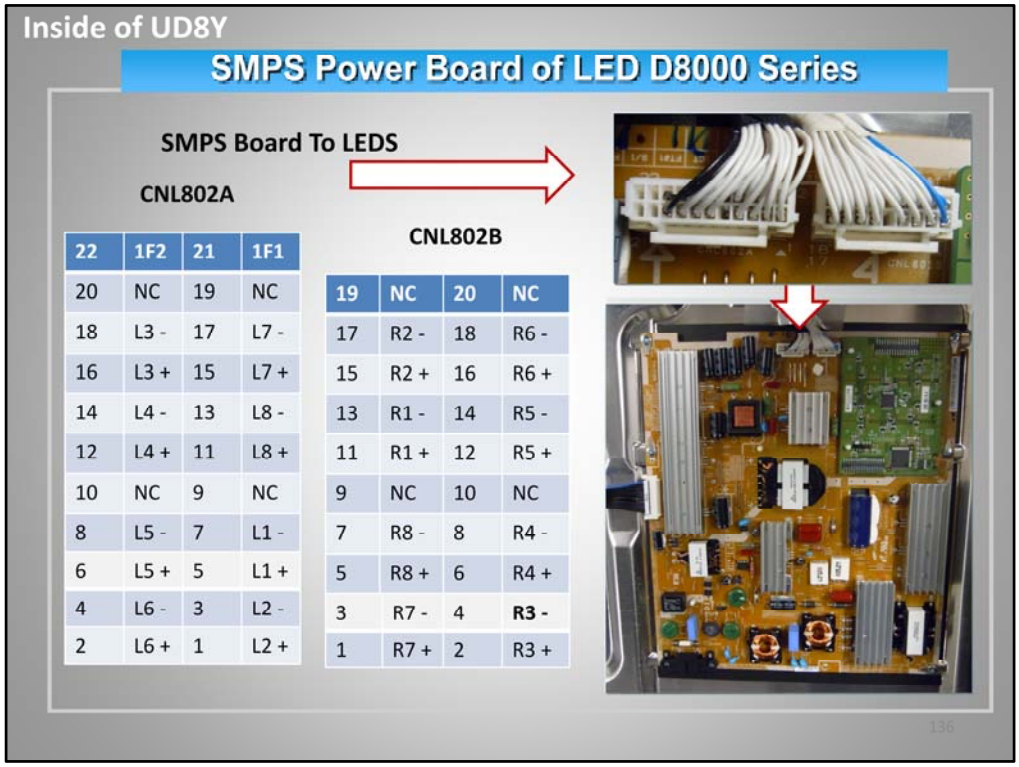


PIN	CN802	PIN	CN802
1	SDA_LED	2	SCL_LED
3	Serial UHR	4	contact
5	V sync in	6	Serial End
7	Serial_STT	8	Serial Data
9	OD Level	10	NC
11	OD_On/Off	12	NC
13	GND	14	NC
15	B13V	16	NC
17	B13V	18	B13V
19	Vamp	20	BLU_ON
21	Vamp	22	GND
23	GND	24	GND
25	B5V	26	A5V
27	B5V	28	PS_ON

The SMPS (Switching Mode Power Supply) Board CN802 Connector for this example, although labeled a 30 pin connector on the SMPS printed circuit board is actually a 28 pin connector to/from the Main Board. The signals & Voltages include:
- 5V Standby “A5V pin26
-PS_ON pin 28
-BLU_ON pin 20
-Control Signals for Pin Point Dim Control Pins 1thru 8, 9 & 11
-Switched Voltages “B5V” Pins 25,27 “B13V” Pins 15,17, 18

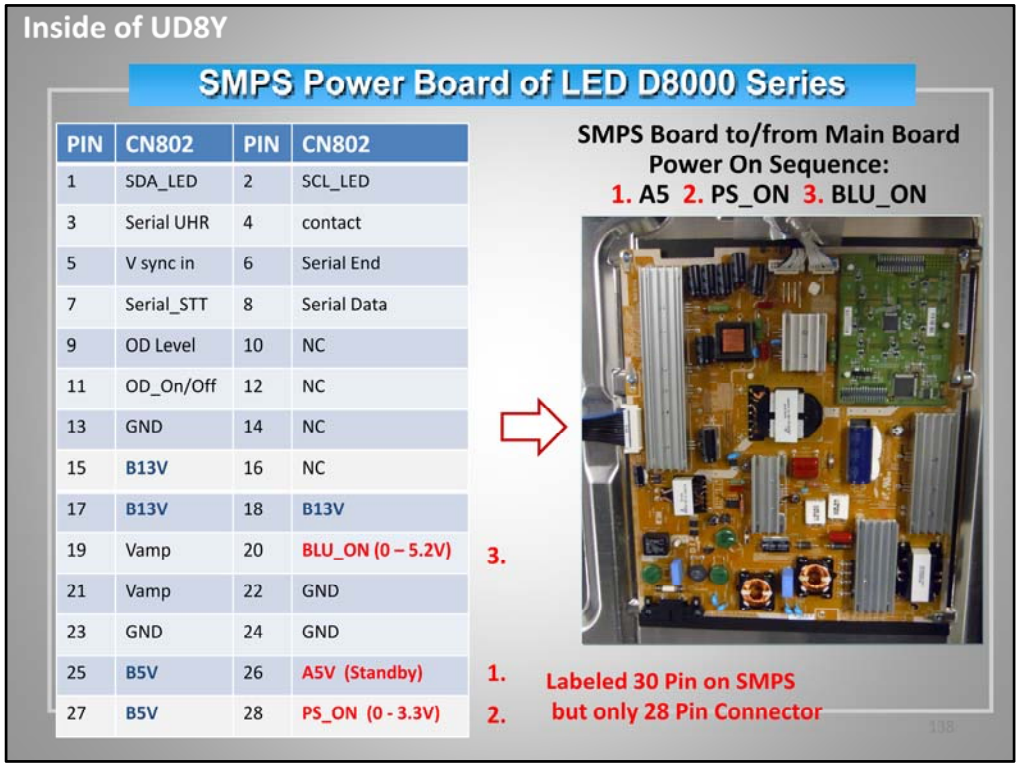


22	1F2	21	1F1
20	NC	19	NC
18	L3 -	17	L7 -
16	L3 +	15	L7 +
14	L4 -	13	L8 -
12	L4 +	11	L8 +
10	NC	9	NC
8	L5 -	7	L1 -
6	L5 +	5	L1 +
4	L6 -	3	L2 -
2	L6 +	1	L2 +

19	NC	20	NC
17	R2 -	18	R6 -
15	R2 +	16	R6 +
13	R1 -	14	R5 -
11	R1 +	12	R5 +
9	NC	10	NC
7	R8 -	8	R4 -
5	R8 +	6	R4 +
3	R7 -	4	**R3 -**
1	R7 +	2	R3 +

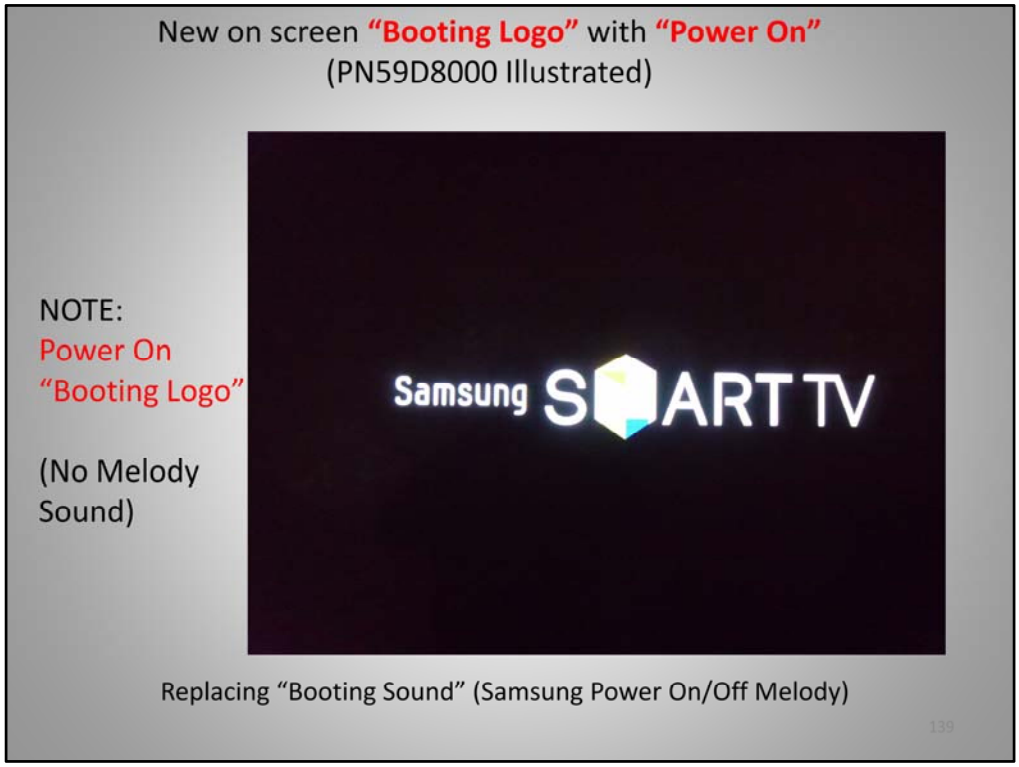
The two LED Drive connectors to the Panel are a 22 Pin Connector (CNL802A) controlling the Left Eight Sets of LEDS and a 20 Pin Connector (CNL802B) which control the Right Eight Sets of LEDS to the panel.
Each set of “Left” and “Right” Connector Pins are labeled 1 thru eight +/-.

The Pin Point Dimming Control Board is used to drive the 16 individual sets of LEDs on the Panel. It receives its complex Dimming control data signals from the Main Board and Power from the SMPS to produce the individual Drive Signals.
This board is attached to the SMPS Board by two connectors. Although it can be removed it, it is replaced by ordering the complete SMPS Board Assembly.



Power ON Start Up Sequence includes:

1. **A5 Standby pin 26**
2. **2. PS_ON pin 28 (0 – 3.3V)**
3. **3. BLU_ON (0 – 5.2V)**



New 2011 Power On "Booting Logo" replaces the familiar Booting "Melody".
NOTE: The on screen Logo may differ for various Model Series.

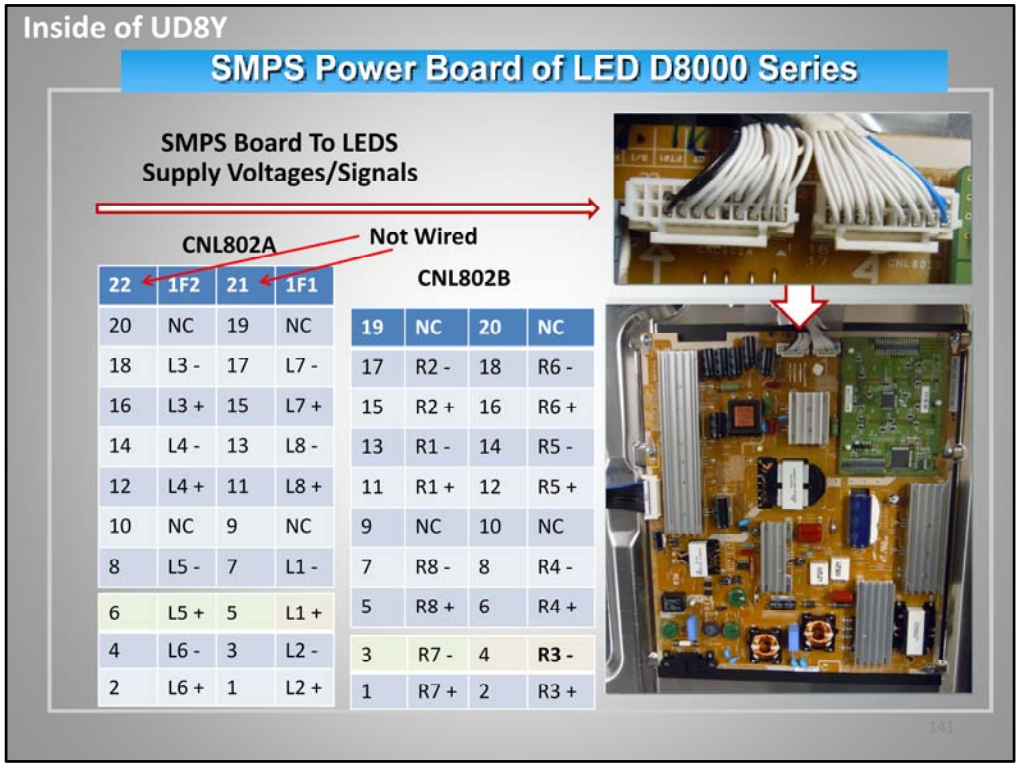
Inside of UD8Y

SMPS Power Board of LED D8000 Series

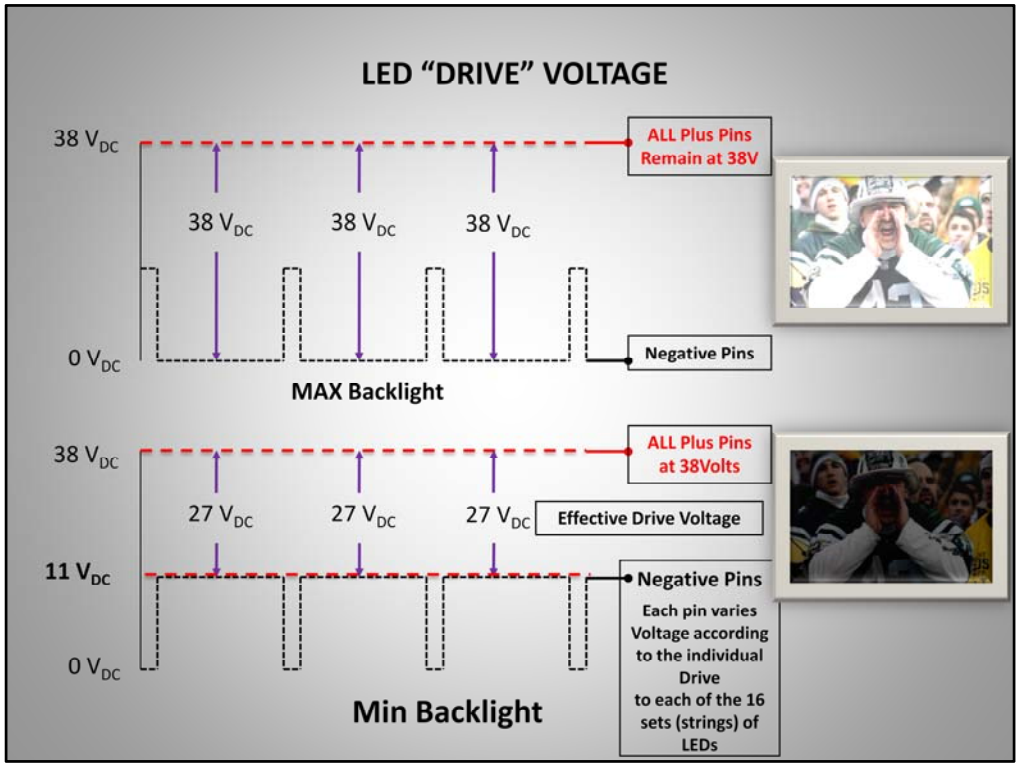
PIN	CN802	PIN	CN802
1	SDA_LED	2	SCL_LED
3	Serial UHR	4	contact
5	V sync in	6	Serial End
7	Serial_STT	8	Serial Data
9	OD Level	10	NC
11	OD_On/Off	12	NC
13	GND	14	NC
15	B13V	16	NC
17	B13V	18	B13V
19	Vamp	20	BLU_ON
21	Vamp	22	GND
23	GND	24	GND
25	B5V	26	A5V
27	B5V	28	PS_ON

SMPS Board from Main Board
Pin Point Dimming Control:

Multiple complex Data and Operating Signals are used to control the Pin Point Dimming Control Board attached to the SMPS Board.
The Main Board sends these controlling signals based on the video signal and it's corresponding Back Light Pin Point requirement changes.



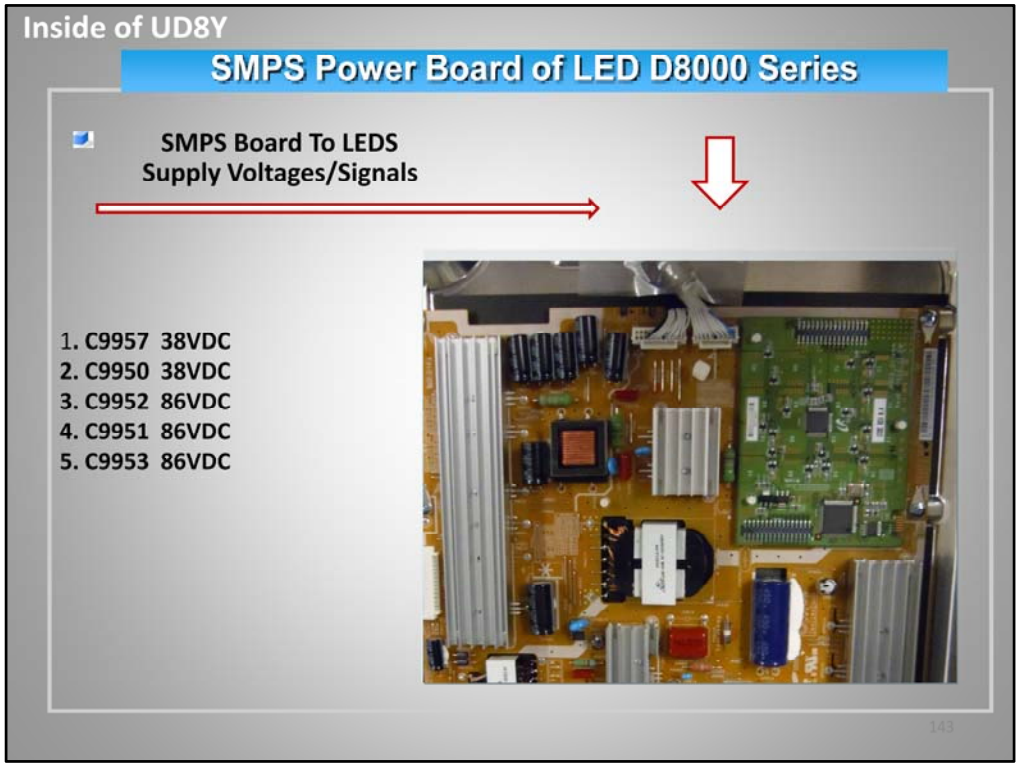
- Once again… The two LED Drive connectors to the Panel are a 22 Pin Connector (CNL802A) controlling the Left Eight Sets of LEDS and a 20 Pin Connector (CNL802B) which control the Right Eight Sets of LEDS to the panel.
Each set of “Left” and “Right” Connector Pins are labeled 1 thru eight +/-.
-Each Positive Pin outputs the same 38V DC Drive Signal to the LEDS.
-Each negative Pin outputs an individual PWM Drive Signal based on the Pin Point Back Light requirements for that section that was determined by the Main Board and video signal.
-Troubleshooting :
Even though one connector is larger, the pins are parrelel in operation. **The smaller 20 pin connector can be inserted into the 22 Pin connector jack and used to test the LEDs and operation**.



The LED Drive signal is illustrated and shows the 38V continuous supply to the plus side of all 16 sets (strings) of LEDs.
The negative, controlling side of the LEDS receive a Pulse Width Modulated Signal.
When the LED Backlight is Brightest, the Negative Pulse is closet to 0% duty cycle or 0 Volts. This give nearly a full effective 38V to that set (string) of LEDs.
When the LED Backlight is Darkest, the Negative Pulse goes almost to 100% duty cycle or 11V. This gives only 27 Volts total to that set (string) of LEDs.
During half brightness of the backlight LEDs the Negative Pulse is 50% on/off duty cycle effectively 5.5V on the negative side. This gives about 32.5V total effective voltage to that set (string) of LEDs.

TROUBLESHOOTING:

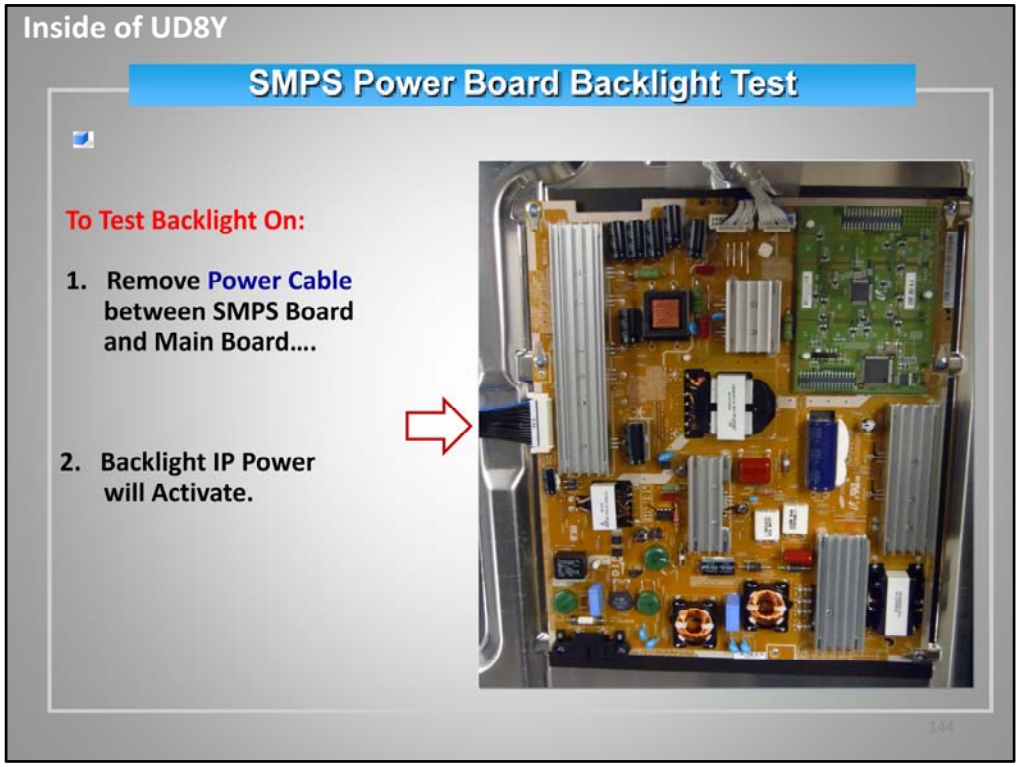
This can easily be done with a standard Multi Meter.
- First Measure the plus pins of both connectors, they should all read 38V.
- Now Measure the negative pins of both connectors, while the LEDs are being Driven bright to dark. Increase and decrease the user Backlight brightness control while measuring the pins.
The voltages should range from near 0V (brightest) to near 11V (darkest).



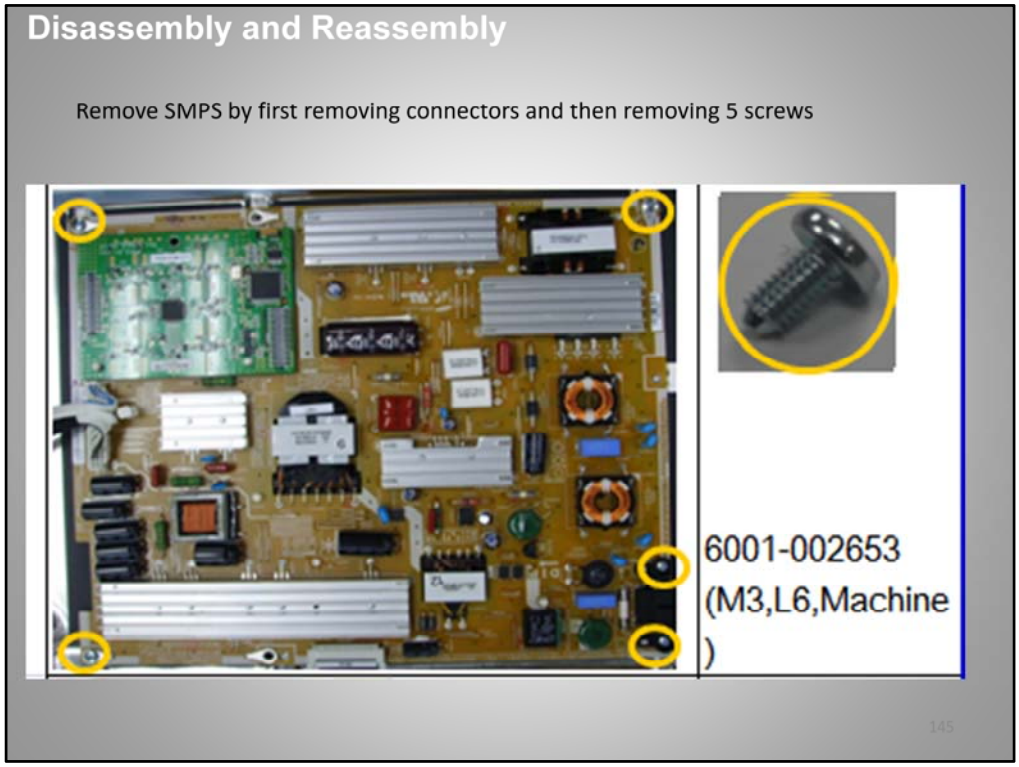
The LED Power Supply can be tested by checking the plus end of the Electrolytic Capacitors, similar to previous models.

1**. C9957 38VDC**
2. C9950 38VDC
3. C9952 86VDC
4. C9951 86VDC
5. C9953 86VDC

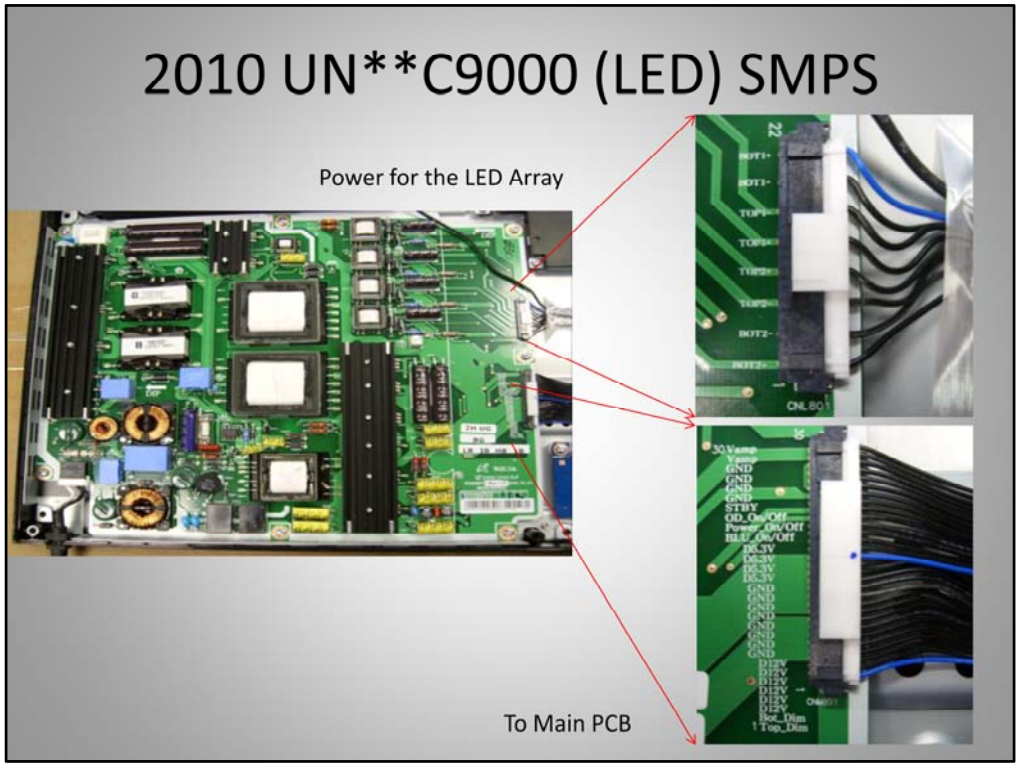
The operating voltages are listed. Pin Point dimming supplies are low in comparison to other models because there are less LEDs for each set. Since LEDs drop about 1.8V (lets say 2V to make the math easy), A 200V supply would have about 100 LEDs, a 38V supply has only around 19 or 20 LEDS. Don't forget there are 16 sets of LEDs. 16 x 20 is about 320 LEDs total!



Backlight can be tested (as previous models) by first removing the Power connector Cable to the Main Board.
Applying AC Power will turn the Backlight on.

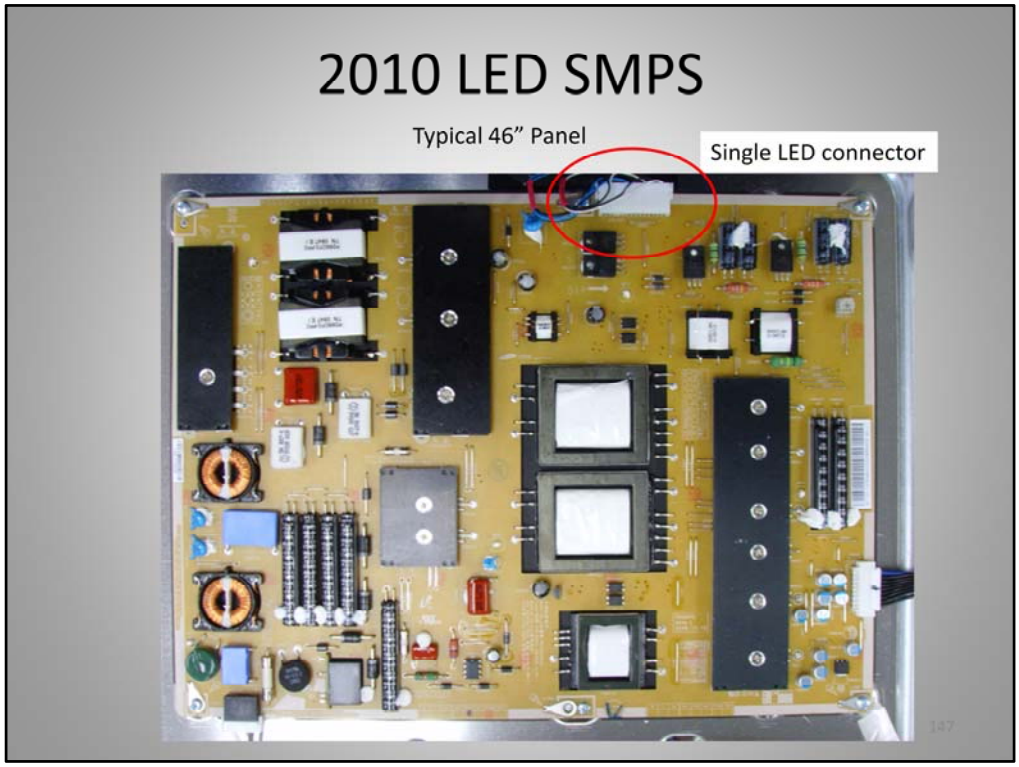


To remove this particular SMPS Board simply locate and remove the 5 associated Screws.

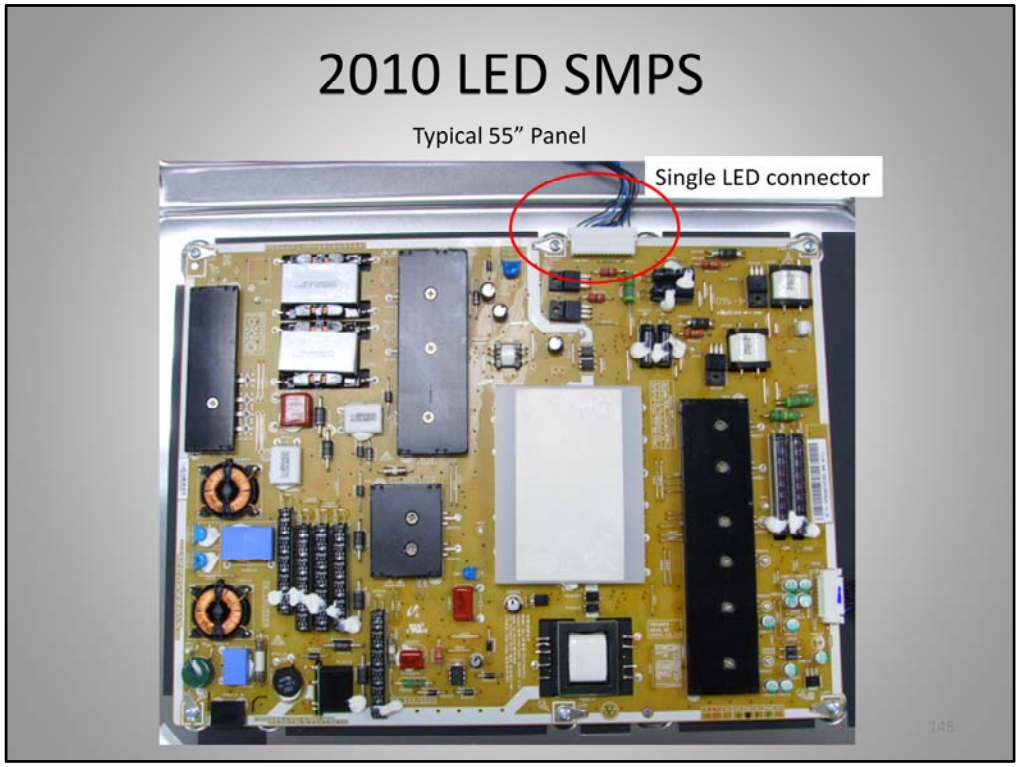


The latest 2010 LED SMPS controls the PWM to the LED backlight array.

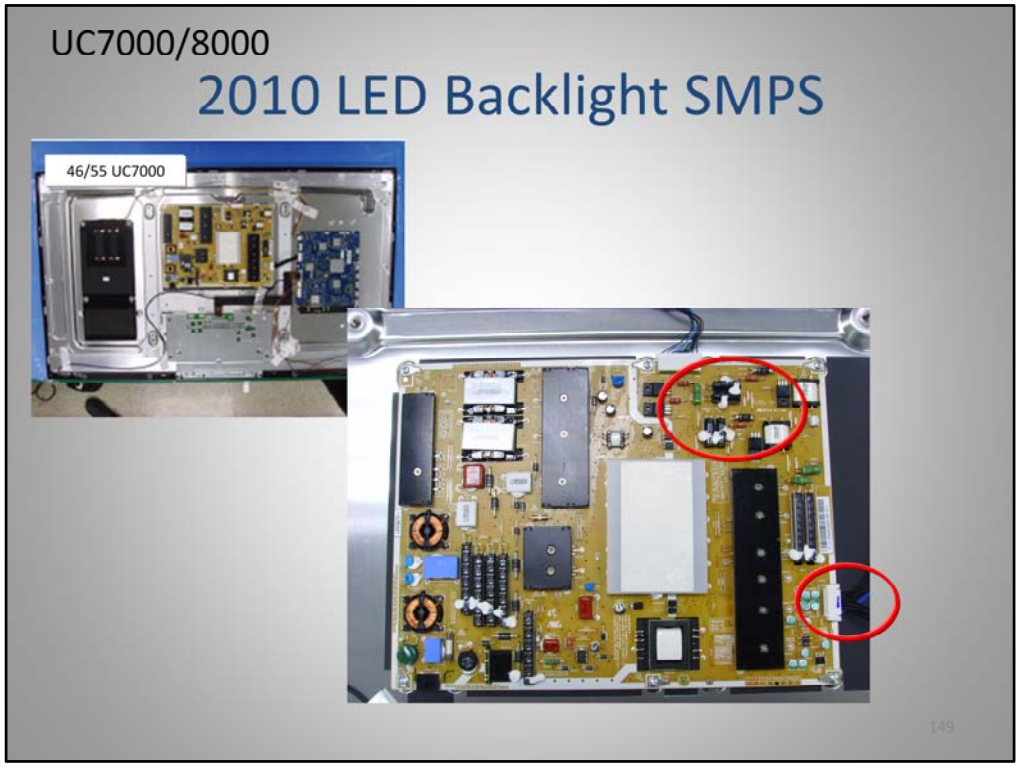
Bottom -DIM Top-DIM come from the Main PCB and control the effective ground pulse. And change the drive to the LEDs.



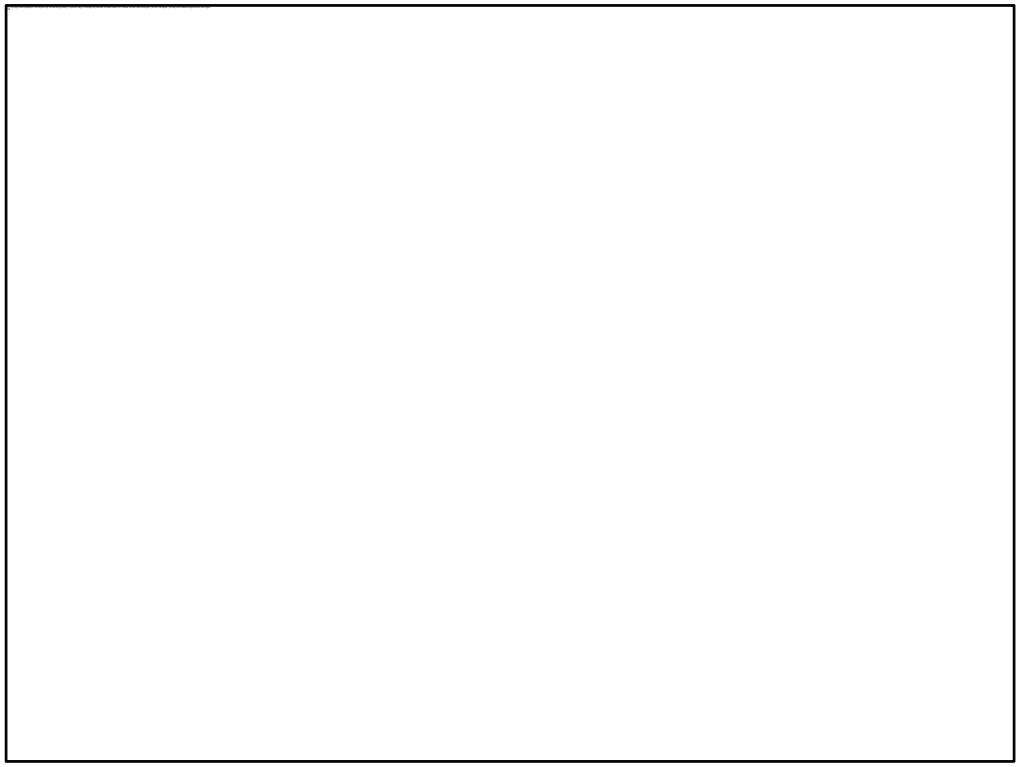
The 2010 LED BLU models have only one connector to the LED array.



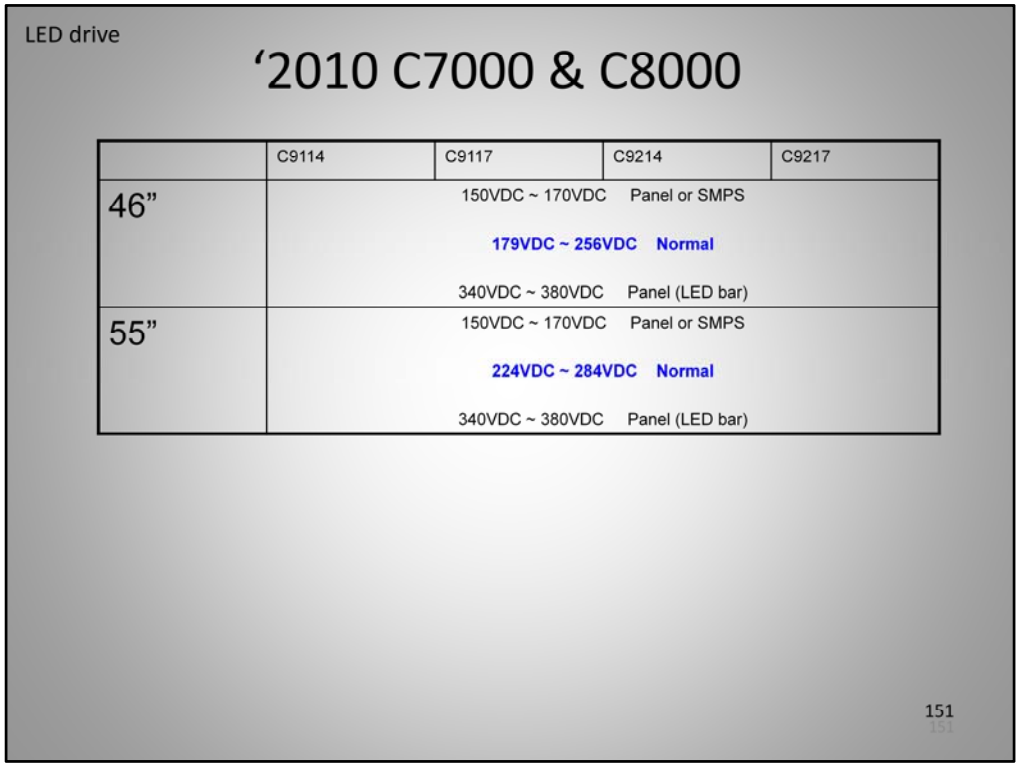
The LED SMPS will vary in size depending on the size of the screen. The larger the screen the more LEDs the larger the supply needed.



Location of test points for voltage measurements, see next page

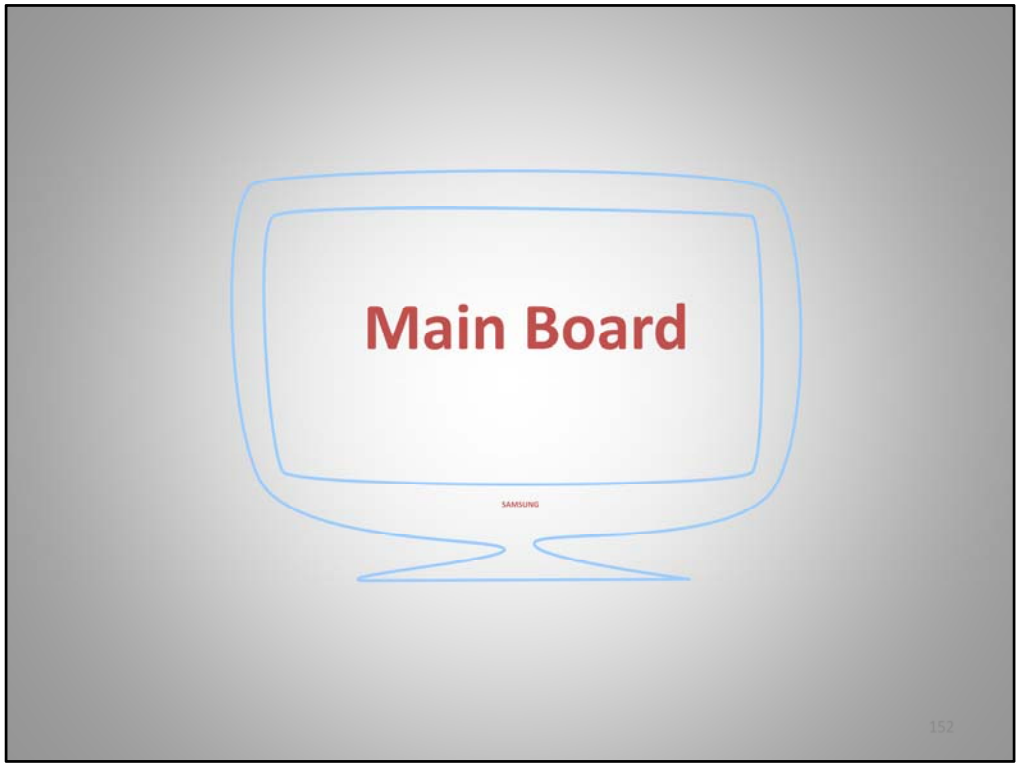


On some models (i.e. 2010 C9000): to check power supply operation, disconnect connector CNM801 and jumper out pins 16 and 18 (5Vdc Standby and PS_ON)on the power supply. This will force the power supply into a full power Back-Light operation. Measure the voltage across the capacitors C9114, C9117, C9214 and C9217. These voltage represent the voltage being applied to each LED bar within the panel.



- 46" panels; optimum operating voltage is 179VDC to 256VDC
- 55" panel: optimum operating voltage is 224VDC to 284VDC.
- If any of the four voltage measurements are high (340VDC or above), the panel is not sinking the current and therefore is defective. However, if the voltages are low, it could be a power supply or load defect. Disconnect the connector to the panel and re-measure the voltages. If they stay low, the power supply is at fault, if the voltage goes high (no load would be in excess of 340 VDC) the power supply is good.

If unloaded, the voltage will momentarily go higher, but then drop to below the supply voltage (170 or 200)


Main Board
SAMSUNG
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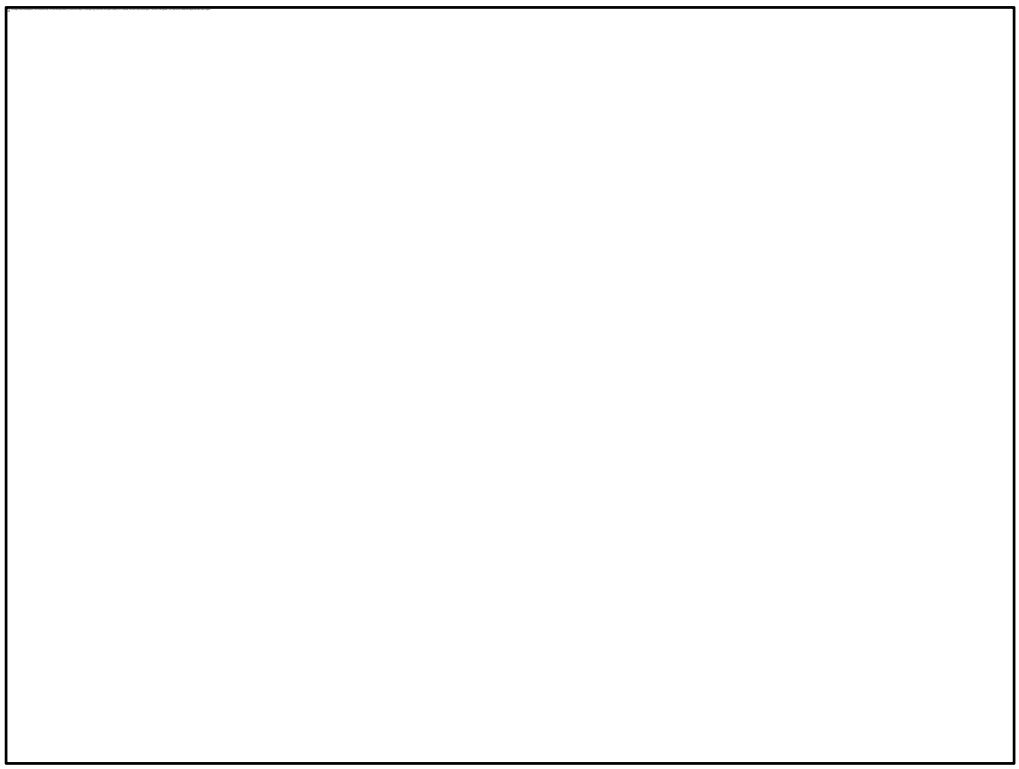
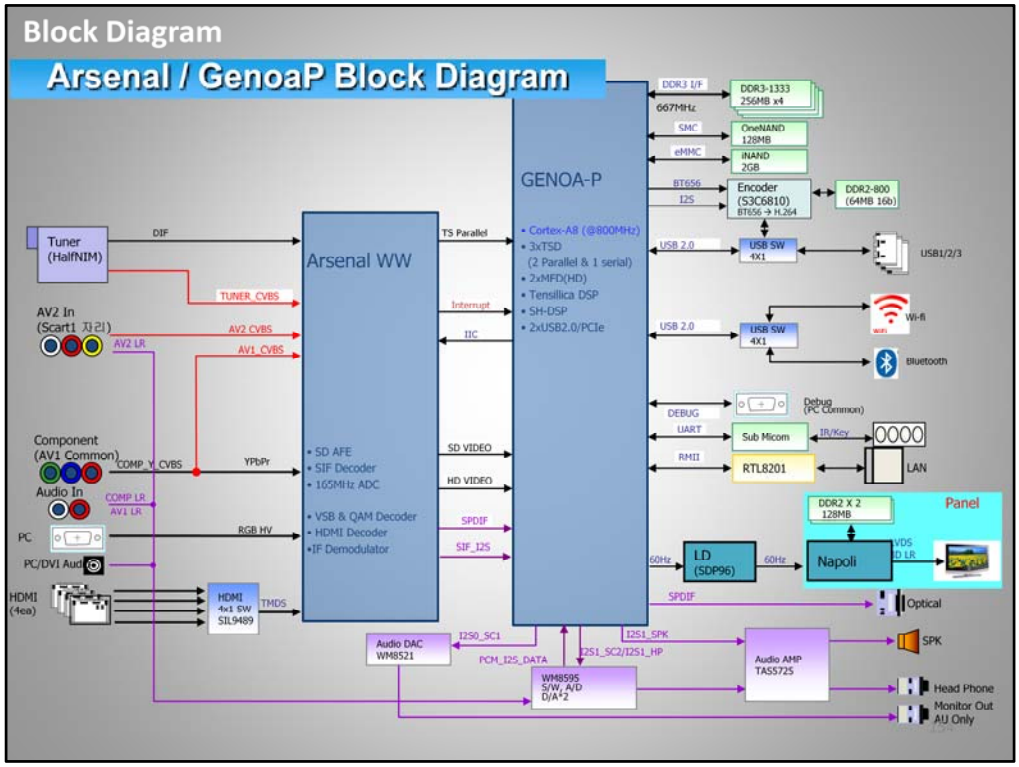
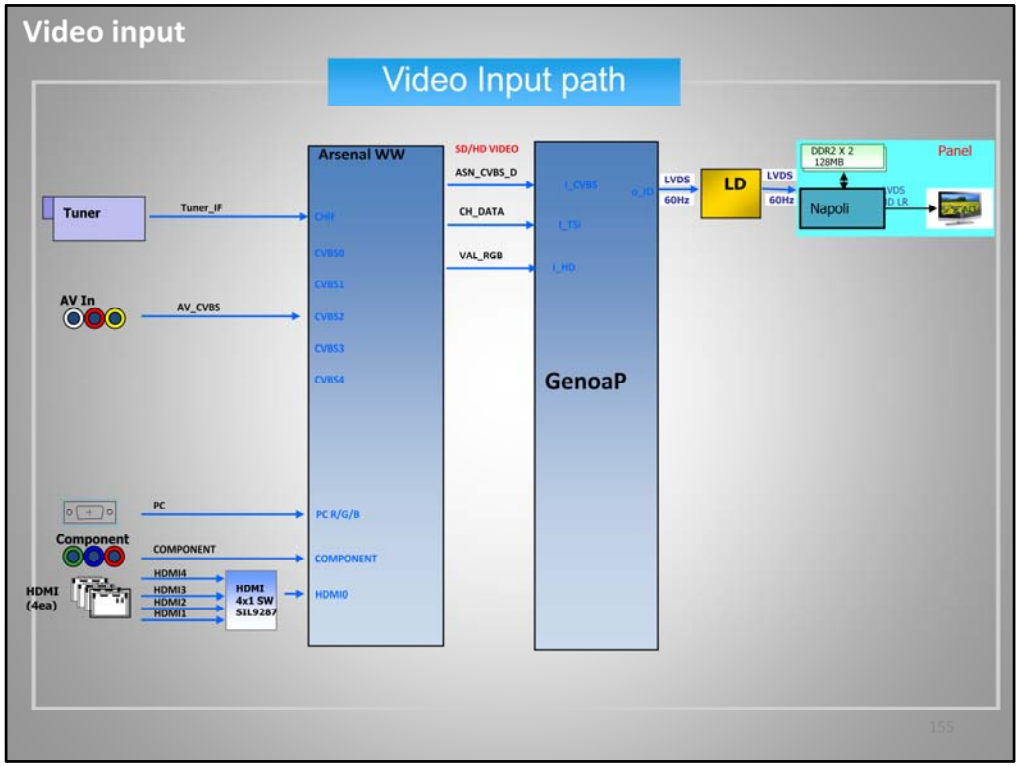


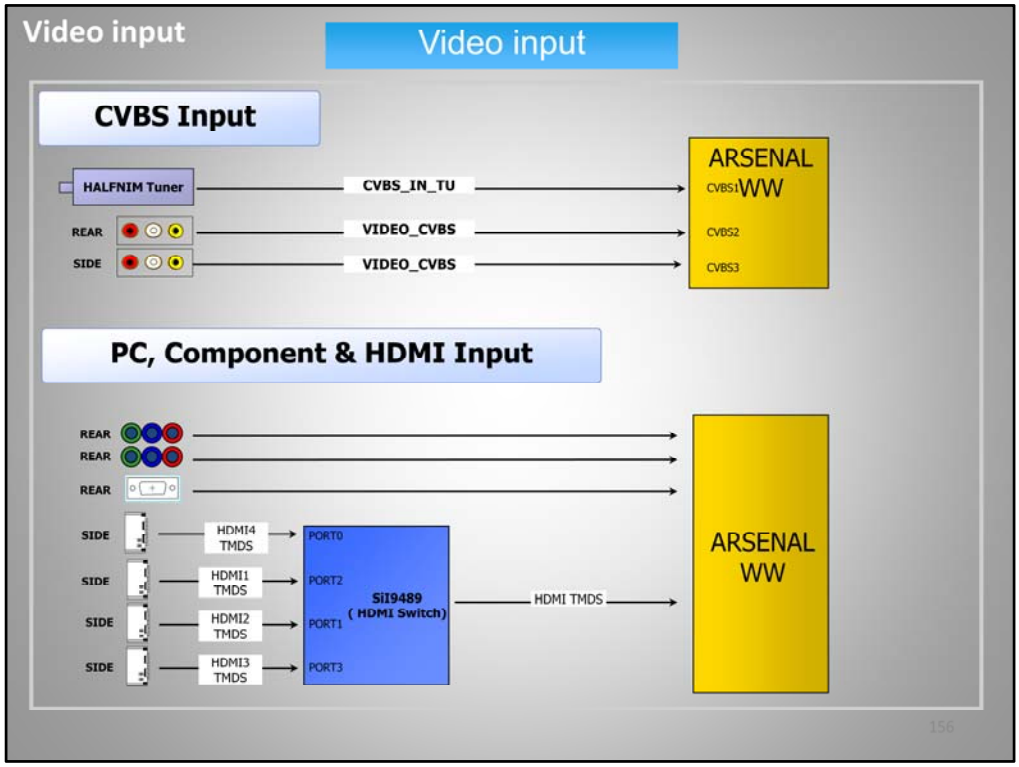
2011 Main Board Example with connectors and Decoder (Arsenal) and Processor (Genoa-P) ICs labeled



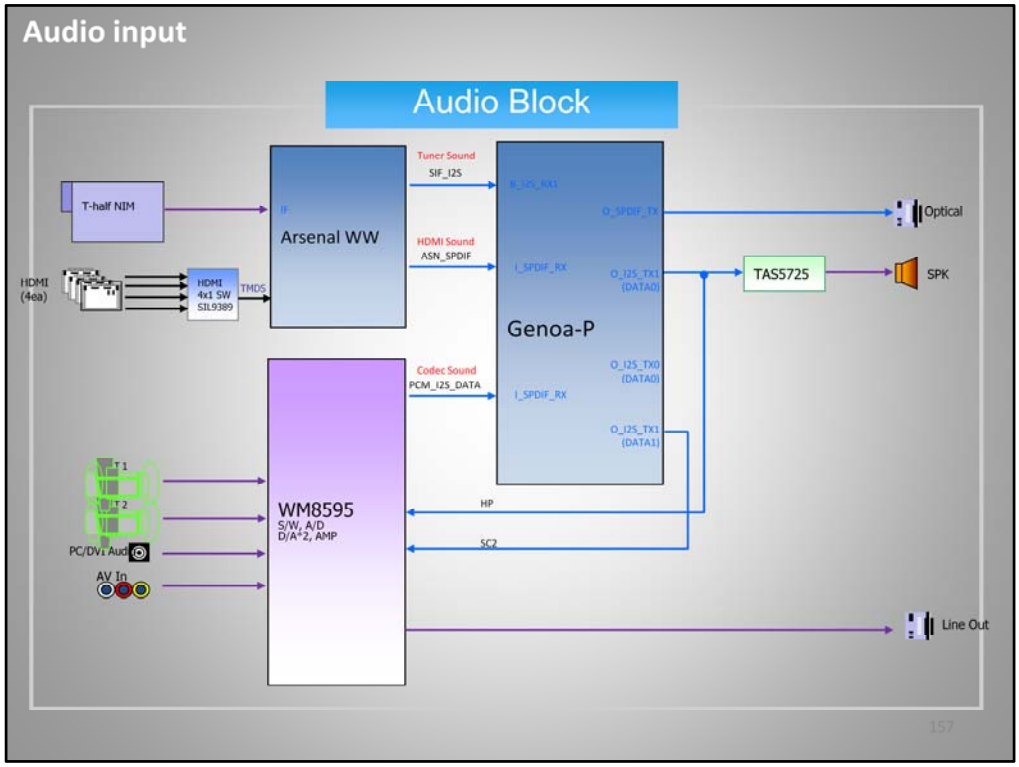
This new 2011 Main Board utilizes the 2010 Arsenal Decoder and incorporates the new Genoa-P Main Processor IC.
Wi-Fi processing as well as 3D Bluetooth has been added for 2011. Expanded on screen displays and functions supporting the new E-Manual as well as Smart Hub and other features are included.



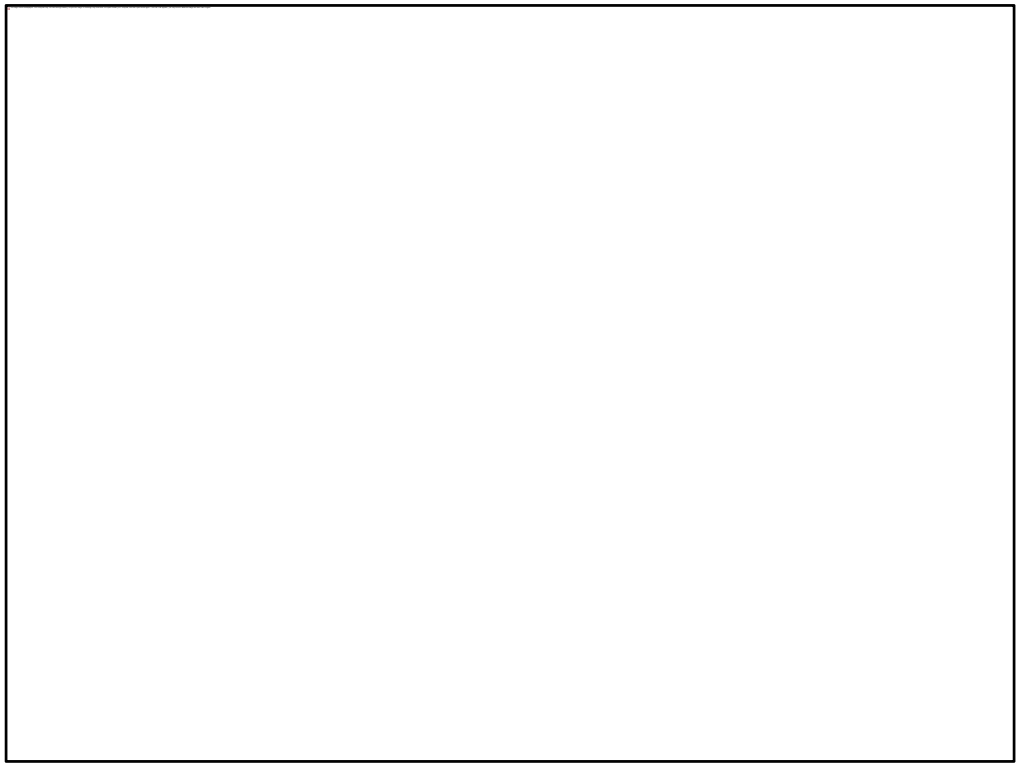
Video path is similar to the 2010 whereby the video input signals, including 4 HDMIs, a Component and a Composite signal, PC, and Tuner are inputted to the Arsenal Decoder which decodes and processes the various video signals and sync signals to the Genoa-P Processor. This processor in turn outputs a 10 Bit Data Signal to the LD through the LVDS Cable to the new Napoli (FRC) and finally to the Panel.



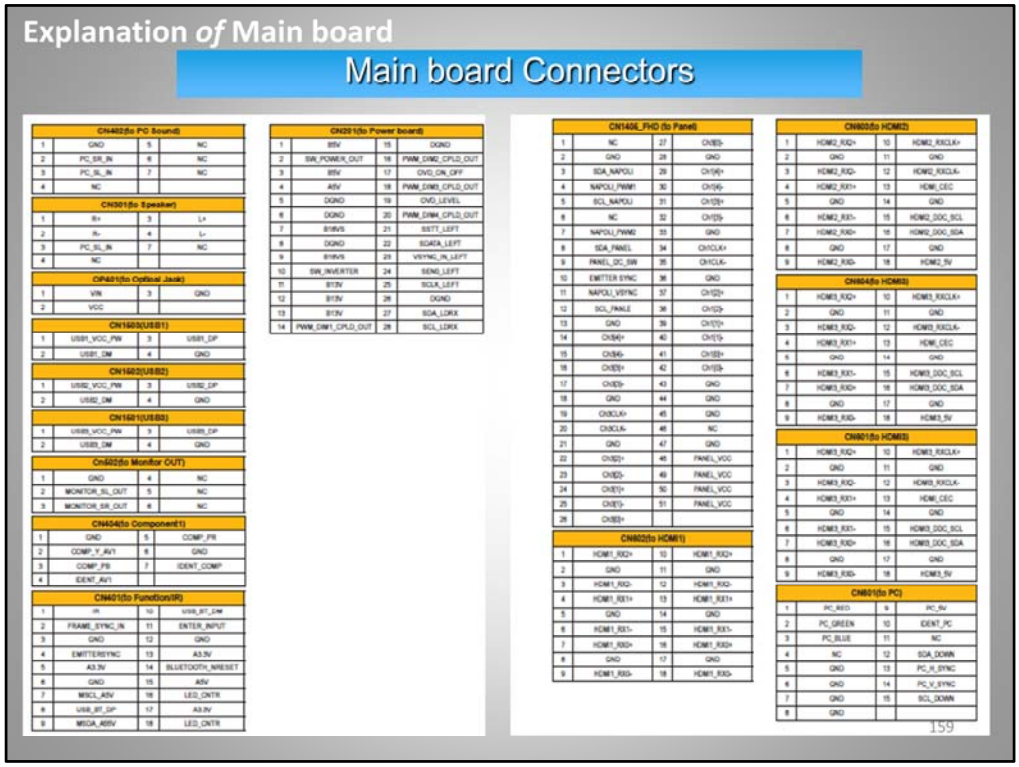
Various Video Inputs (Tuner, Composite, Component, PC, HDMI) are shown to the Arsenal with HDMI first switched.



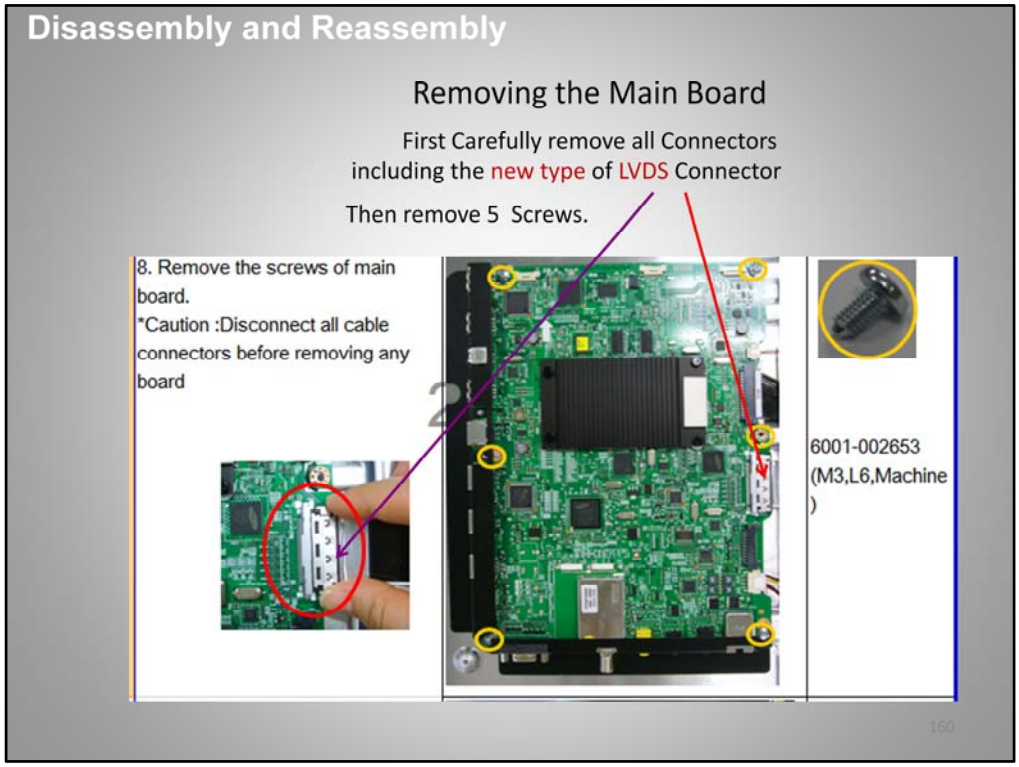
Various Audio inputs include the Tuner and HDMI into the Arsenal Decoder and PC/DVI Audio, Composite and Component into the WM8595 Audio Processor. The Genoa-P and WM8595 then both feed the TA55725 amp to the speakers.



Again the new 2011 Main Board example Layout with Connectors.
Details of the Connectors are on the next Slide.



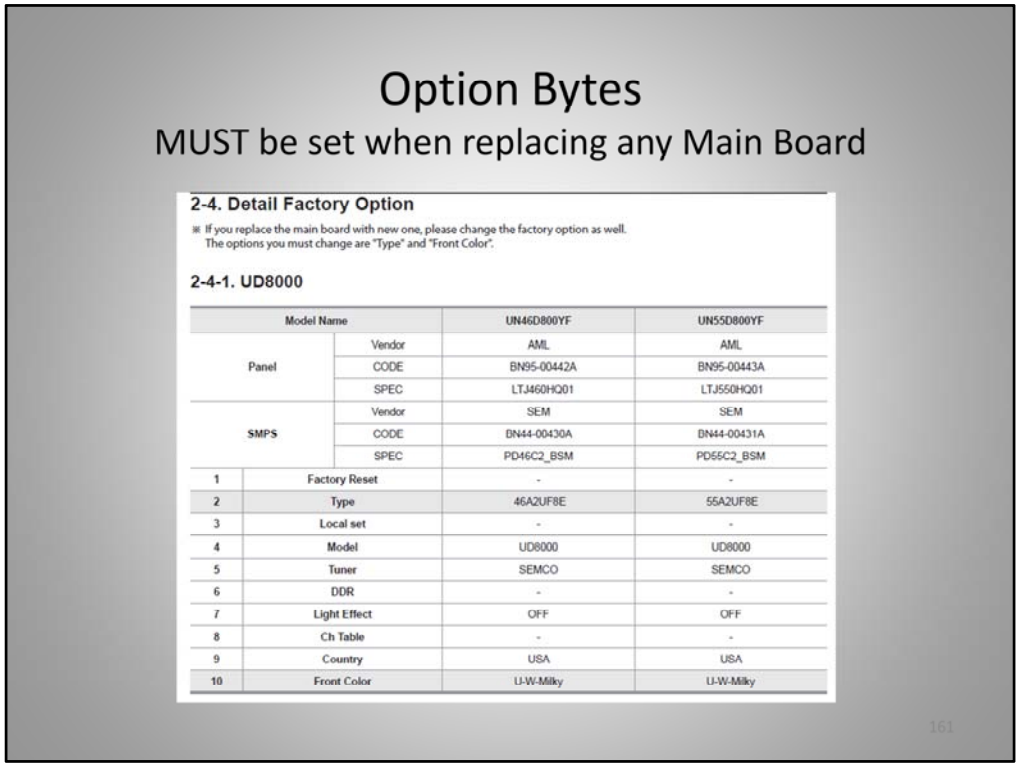
Main Board Connectors include:
-PC Sound; Speakers; Optical Jack; USB1,2,3; Monitor Out; Component 1; Function/IR; Power Board.
-FHD (to Panel); HDMI 1-4; PC



Before Removing the Main Board first remove the connectors, being extra careful when removing the new LVDS Cable.

Option Bytes

MUST be set when replacing any Main Board



2-4. 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" and "Front Color".

2-4-1. UD8000

Model Name			UN46D800YF	UN55D800YF
Panel		Vendor	AML	AML
		CODE	BN95-00442A	BN95-00443A
		SPEC	LTJ460HQ01	LTJ550HQ01
SMPS		Vendor	SEM	SEM
		CODE	BN44-00430A	BN44-00431A
		SPEC	PD46C2_BSM	PD55C2_BSM
1	Factory Reset		-	-
2	Type		46A2UF8E	55A2UF8E
3	Local set		-	-
4	Model		UD8000	UD8000
5	Tuner		SEMCO	SEMCO
6	DDR		-	-
7	Light Effect		OFF	OFF
8	Ch Table		-	-
9	Country		USA	USA
10	Front Color		U-W-Milky	U-W-Milky

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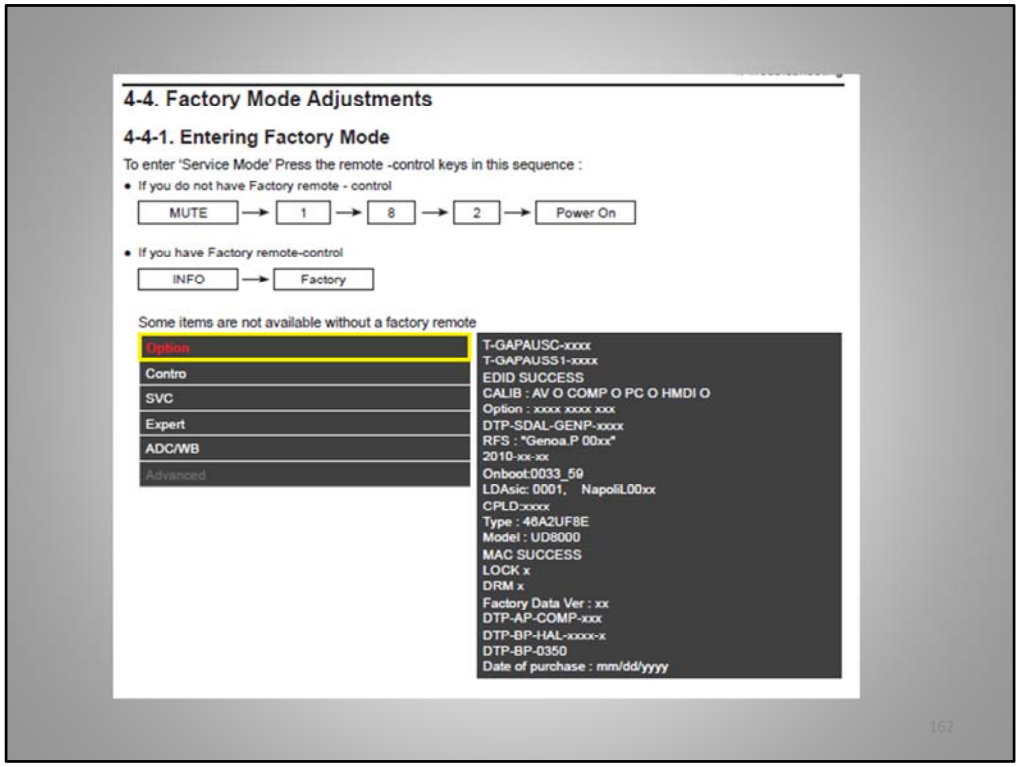
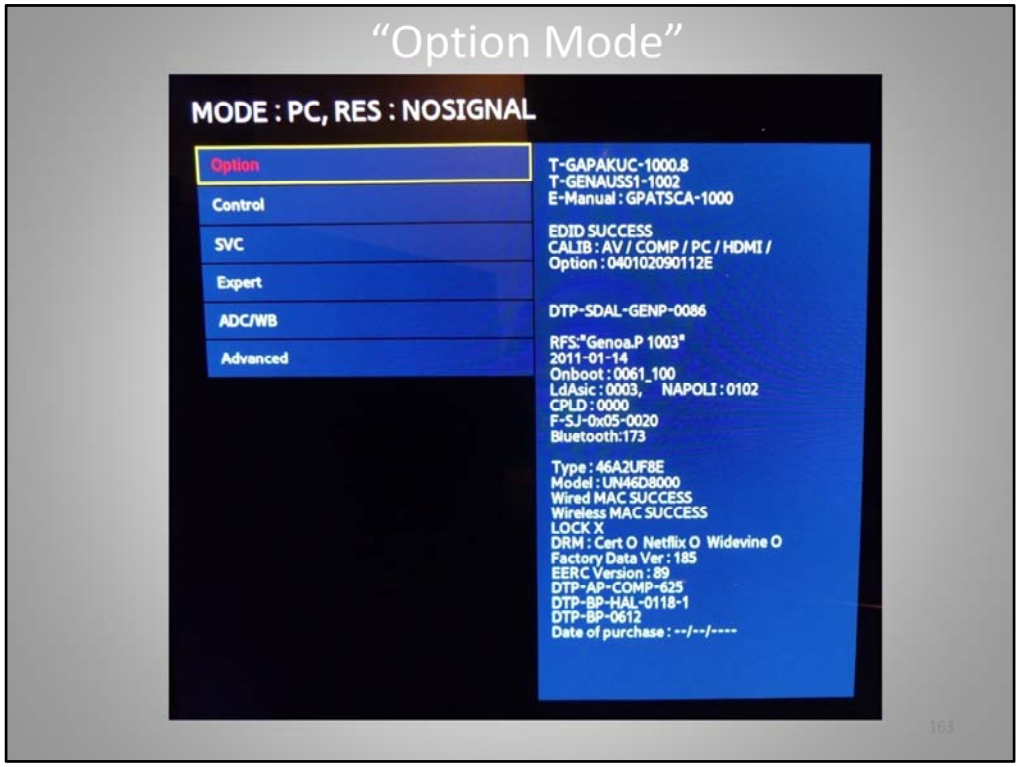
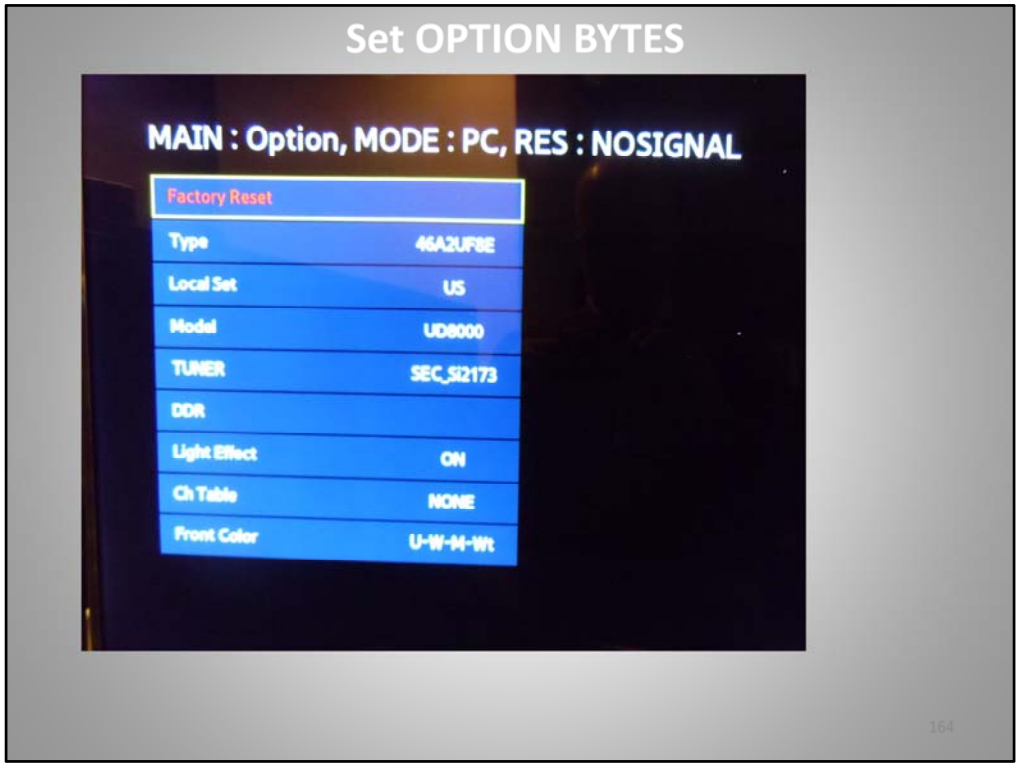
Whenever the Main Board is replaced you must set the Option Bytes in Factory Mode. First check the specific model service manual for details and set:
-Type; Model; Tuner; Front Color
-Failure to do so can result in Video noise, Color Problems, Sizing & Display issues, User Operation and Display Problems, and other malfunctions.



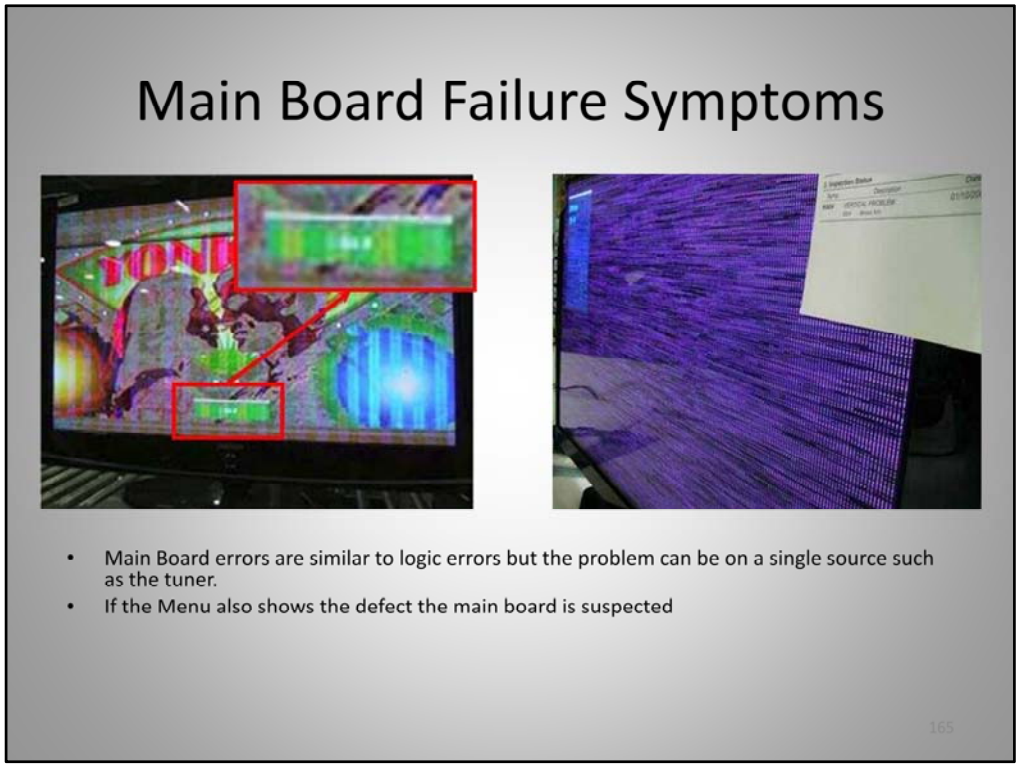
- As in previous models Factory Mode can be activated by pressing : Mute, 182 then Power On from standby mode.
- If you have a factory remote press Info then Factory commands while already Power On.



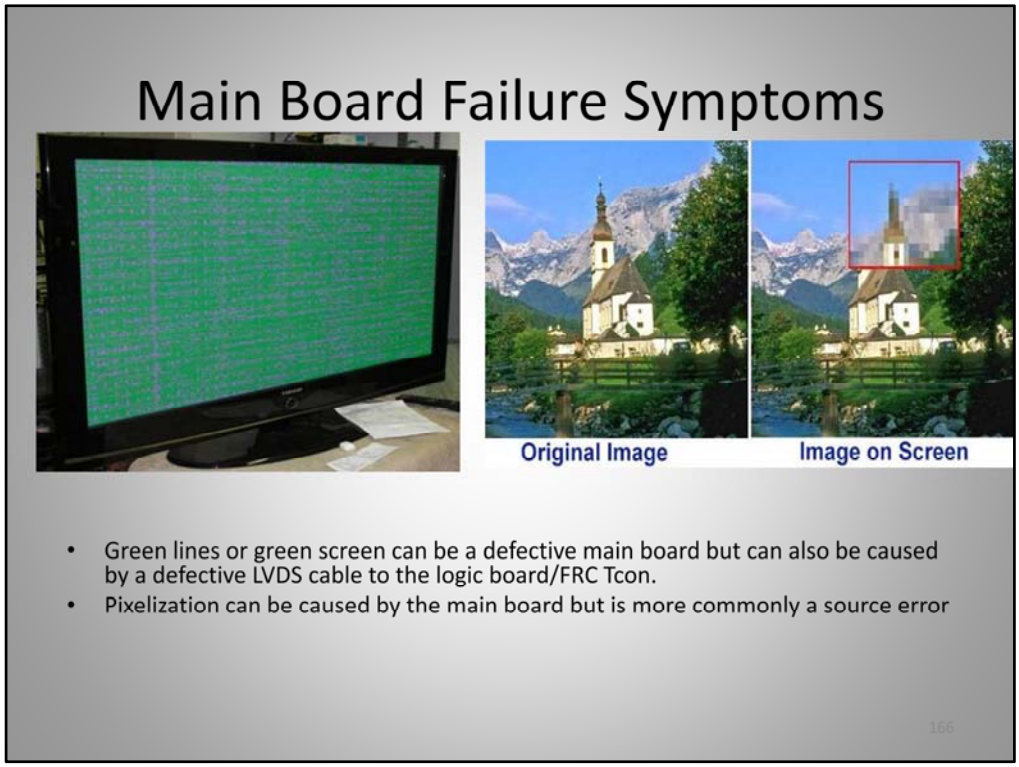
New 2011 Factory Mode Screen is Displayed.



Factory Reset can be performed from Service Mode and will restore Customer Settings to factory.
The Plug N. Play will then appear to set the configuration for the particular customer requirements.
NOTE: Factory reset does not effect any changes to the settings made in Factory Mode.



The main board also provides the operating system. This means all operation functions are controlled by this board.
Main board failures can be specific to a single input or all sources. Access the Onscreen display to generate a reference picture that can be used to verify the operation of the Video processor. If the OSD image is correct in all aspects the source video is suspected.
Main board problems can often be disguised by a defective or improperly connected LVDS cable. This cable transfers the video in digital format to the T-CON board. Improper connections here can cause missing data bits which will show a wide range of symptoms. Use the specific Factory Mode test patterns will help to verify the problem is either after or before the main board.



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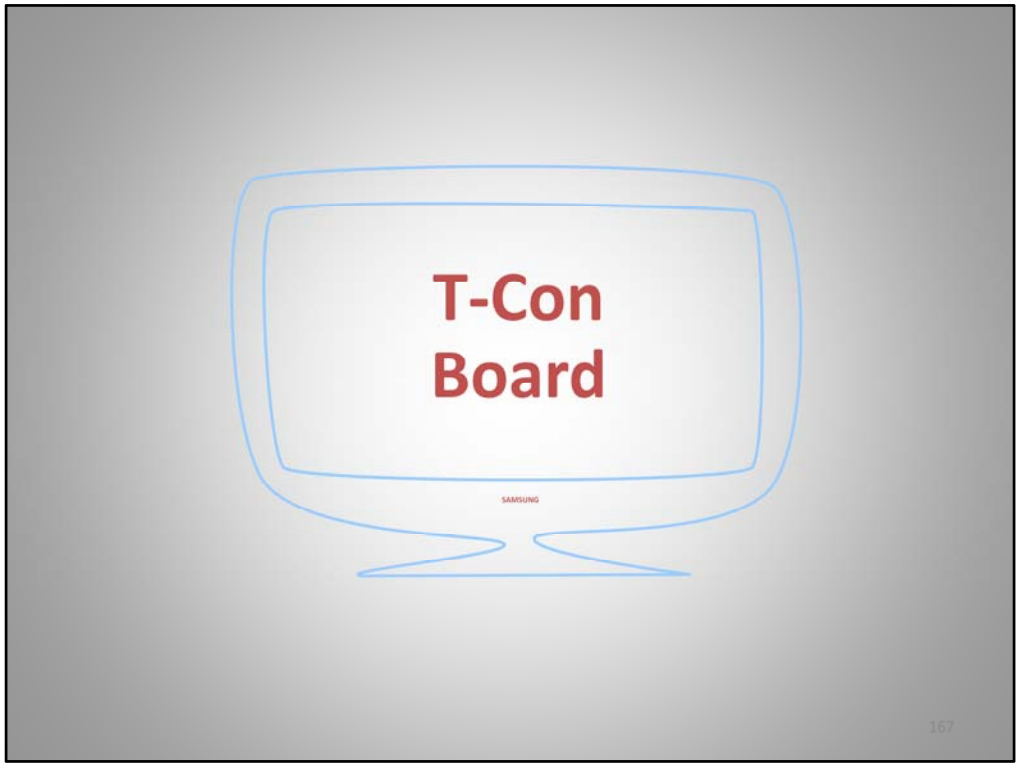
Main board problems can often be disguised by a defective or improperly connected LVDS cable. This cable transfers the video in digital format to the T-CON board. Improper connections here can cause missing data bits which will show a wide range of symptoms. Use the logic board test patterns to verify the problem is after the main board or before.


T-Con
Board
SAMSUNG
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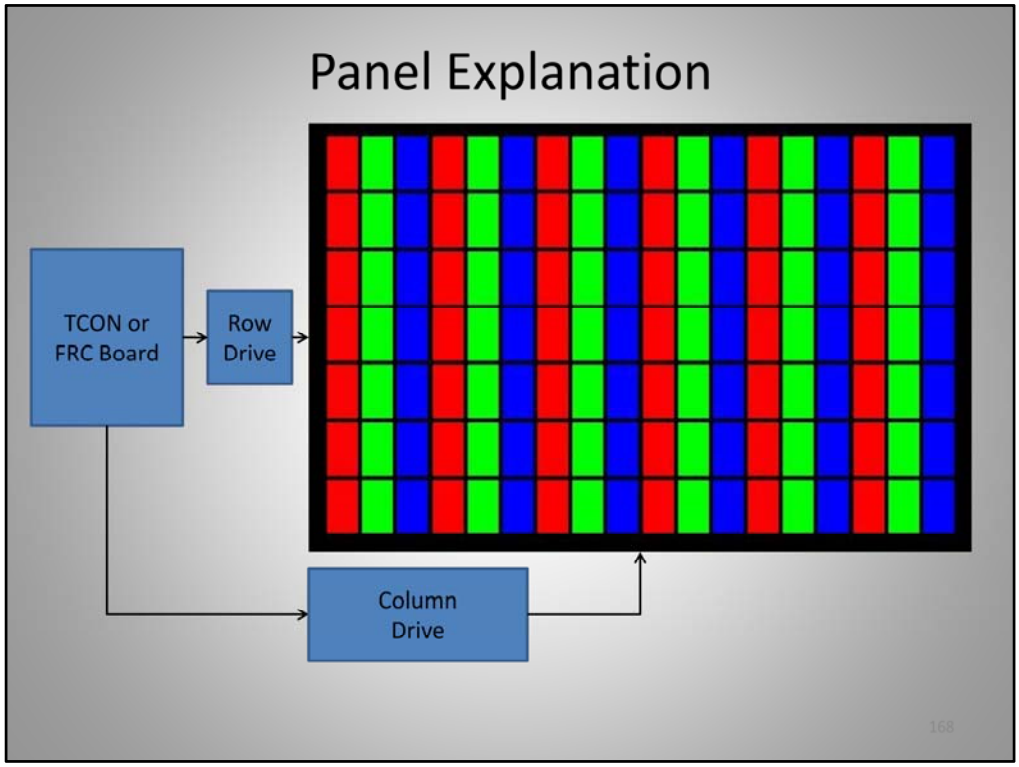
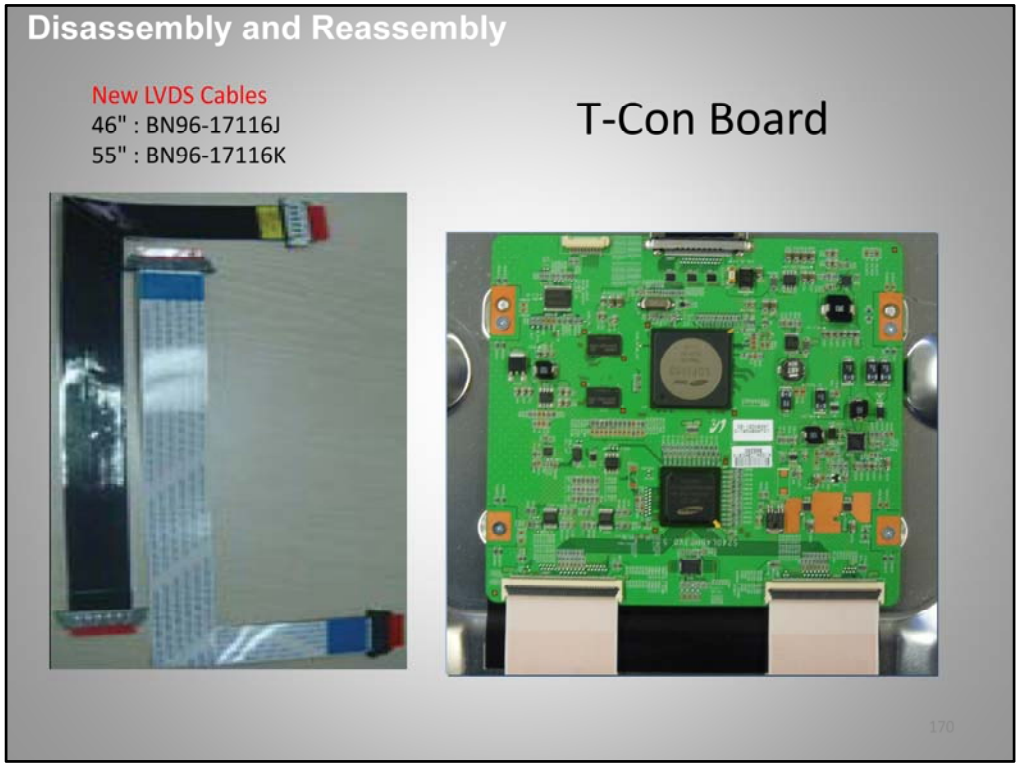


- LCD panels are made up of rows and columns of red green and blue sub pixels. The TCON board selects the specific sub pixel (each LCD) and controls the amount of light produced from that area.
-The panel resolution determines the number of pixels. For example a 720P panel has 1280 vertical sets of pixels and 768 Horizontal rows. A 1080P panel has 1920 vertical sets of pixels and 1080 rows. Obviously the higher resolution requires that many more control lines.
-The video data signal outputs from the Main Board thru an LVDS Cable to the FRC/TCON Board.
- The TCON Board provides the Row and Column Drive to the LCDs in time with the Scan Signal.
- The Main Board supplies PS ON & BL ON signals to the SMPS Board which turns on the LED Backlight while providing supply voltages to the other Board Assemblies.

T-Con Boards are often located behind the Stand Bracket. This also serves to provide shielding to eliminate any noise potential to the FRC/T-Con Board.



New 2011 LVDS Cables need to be observed for new connect/disconnect operation to ensure making accurate connections.

Disassembly and Reassembly

CN1405_FHD (to Panel)			
1	NC	27	Ch3[0]-
2	GND	28	GND
3	SDA_NAPOLI	29	Ch1[4]+
4	NAPOLI_PWM1	30	Ch1[4]-
5	SCL_NAPOLI	31	Ch1[3]+
6	NC	32	Ch1[3]-
7	NAPOLI_PWM2	33	GND
8	SDA_PANEL	34	Ch1CLK+
9	PANEL_I2C_SW	35	Ch1CLK-
10	EMITTER SYNC	36	GND
11	NAPOLI_VSYNC	37	Ch1[2]+
12	SCL_PANLE	38	Ch1[2]-
13	GND	39	Ch1[1]+
14	Ch3[4]+	40	Ch1[1]-
15	Ch3[4]-	41	Ch1[0]+
16	Ch3[3]+	42	Ch1[0]-
17	Ch3[3]-	43	GND
18	GND	44	GND
19	Ch3CLK+	45	GND
20	Ch3CLK-	46	NC
21	GND	47	GND
22	Ch3[2]+	48	PANEL_VCC
23	Ch3[2]-	49	PANEL_VCC
24	Ch3[1]+	50	PANEL_VCC
25	Ch3[1]-	51	PANEL_VCC
26	Ch3[0]+		

T-Con Board

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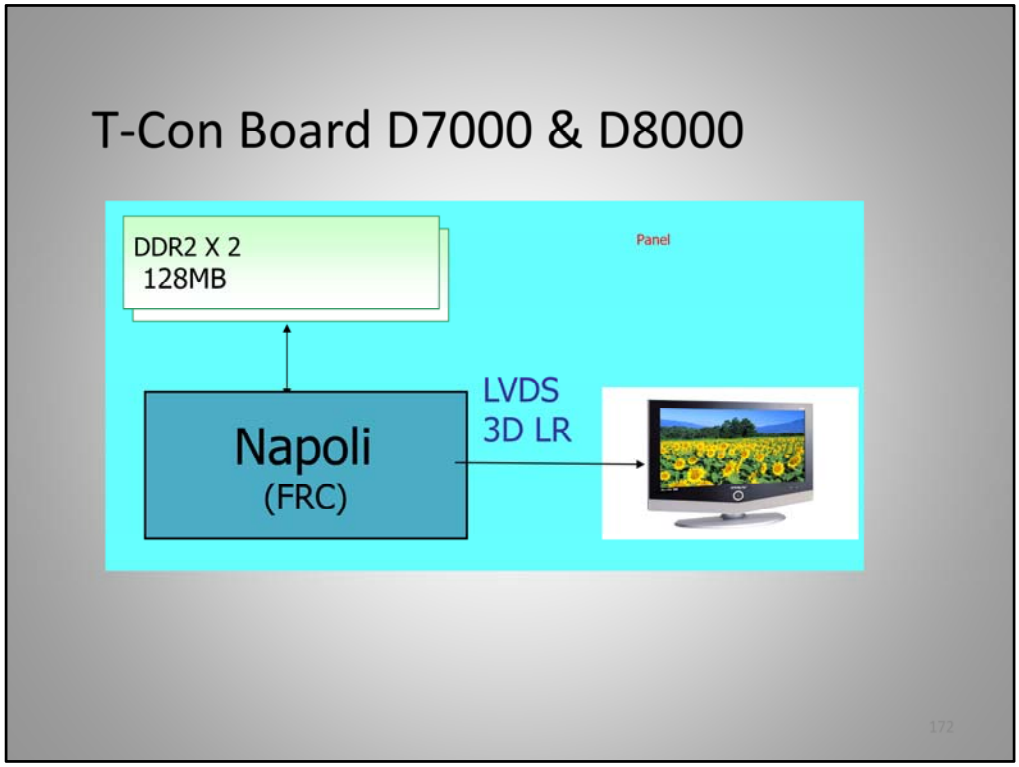
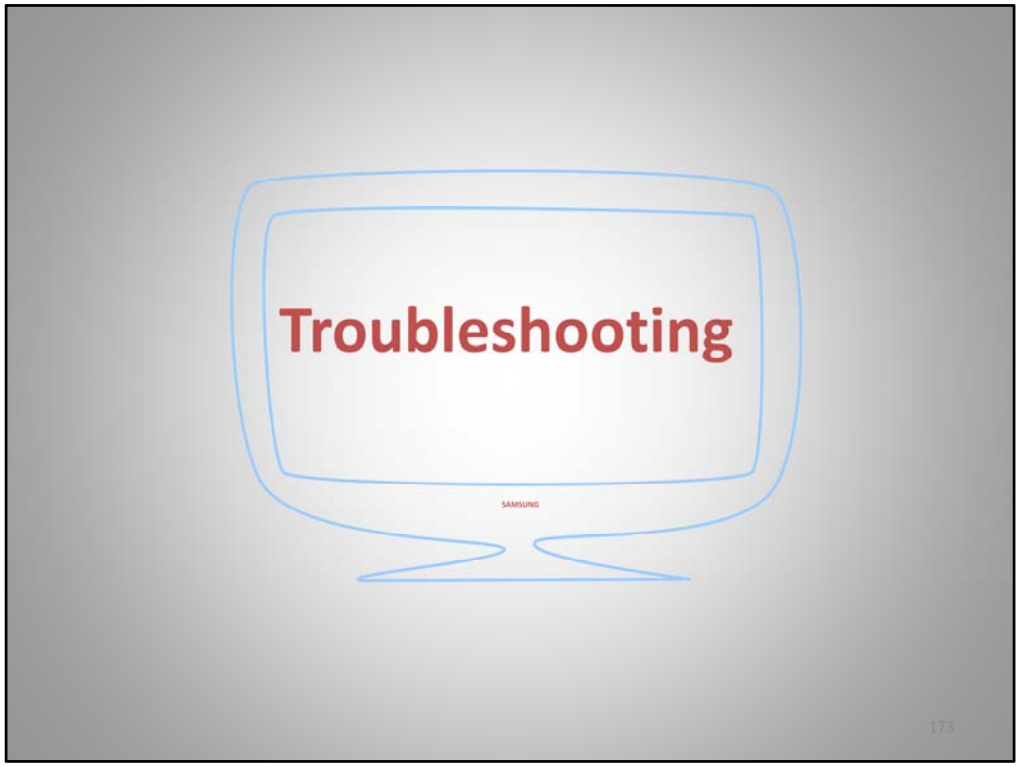
The pin outs for the 51 Pin FHD to the Panel is provided.



New Napoli IC is utilized in the T-Con for the 7000 & 8000 series 2011 LED Panels.


Troubleshooting
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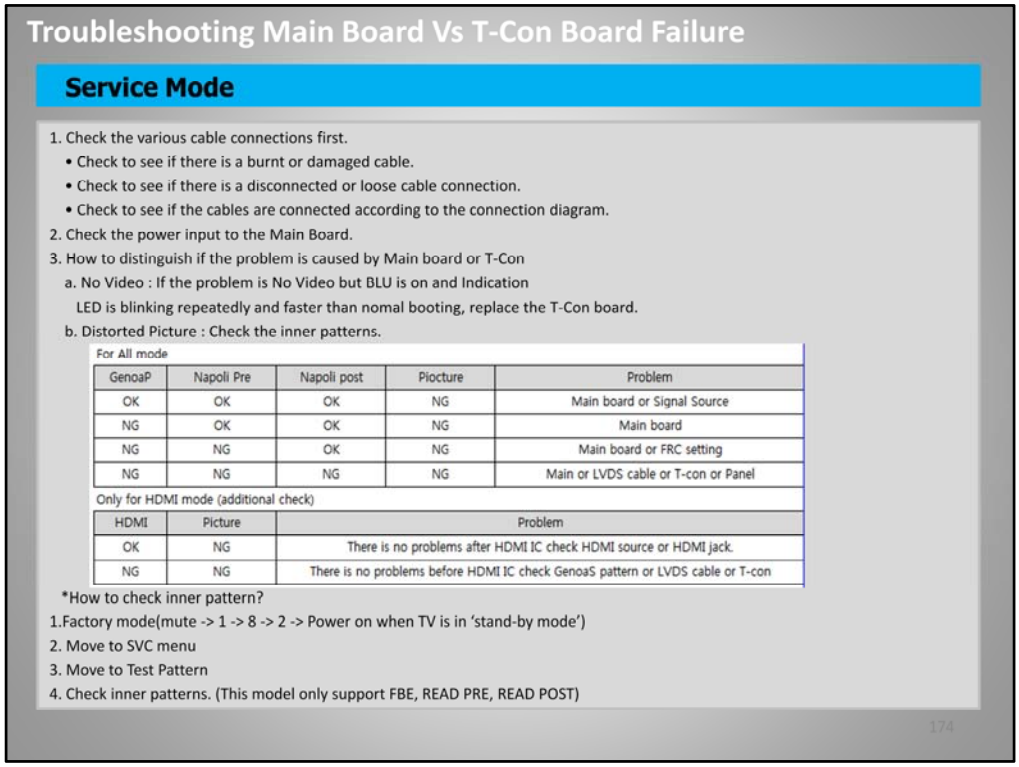

Troubleshooting Main Board Vs T-Con Board Failure

Service Mode

1. Check the various cable connections first.
   - Check to see if there is a burnt or damaged cable.
   - Check to see if there is a disconnected or loose cable connection.
   - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Main Board.
3. How to distinguish if the problem is caused by Main board or T-Con
   a. No Video : If the problem is No Video but BLU is on and Indication
   LED is blinking repeatedly and faster than nomal booting, replace the T-Con board.
   b. Distorted Picture : Check the inner patterns.

For All mode

GenoaP	Napoli Pre	Napoli post	Piocture	Problem
OK	OK	OK	NG	Main board or Signal Source
NG	OK	OK	NG	Main board
NG	NG	OK	NG	Main board or FRC setting
NG	NG	NG	NG	Main or LVDS cable or T-con or Panel

Only for HDMI mode (additional check)

HDMI	Picture	Problem
OK	NG	There is no problems after HDMI IC check HDMI source or HDMI jack.
NG	NG	There is no problems before HDMI IC check GenoaS pattern or LVDS cable or T-con

*How to check inner pattern?
1.Factory mode(mute -> 1 -> 8 -> 2 -> Power on when TV is in 'stand-by mode')
2. Move to SVC menu
3. Move to Test Pattern
4. Check inner patterns. (This model only support FBE, READ PRE, READ POST)

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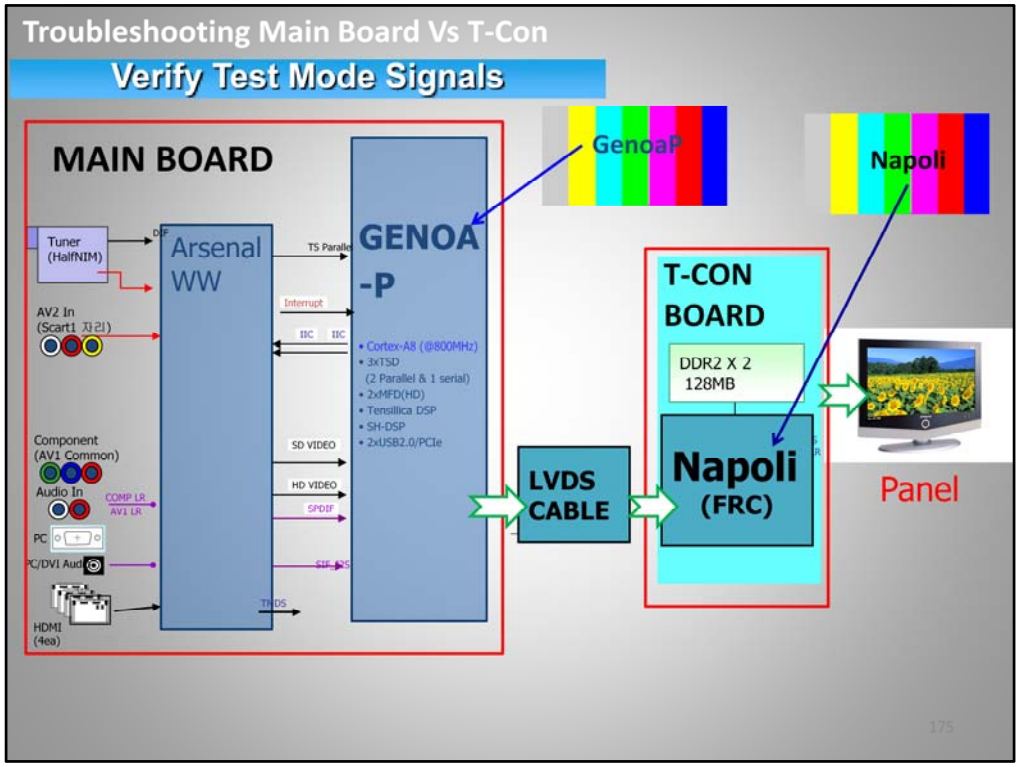
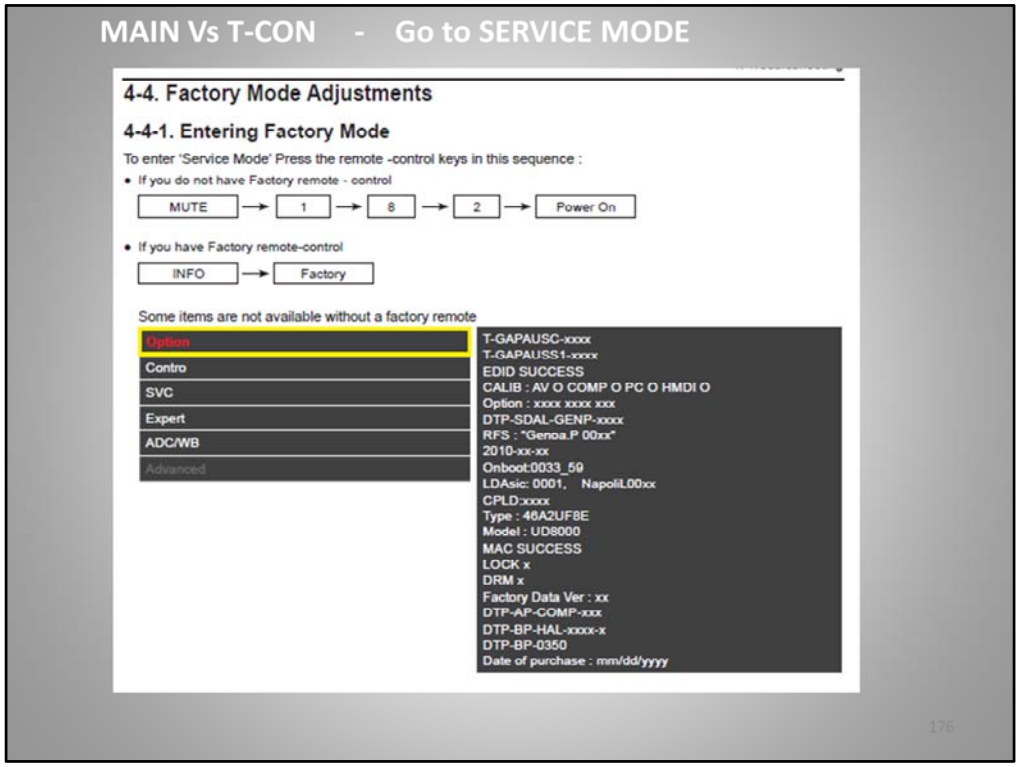
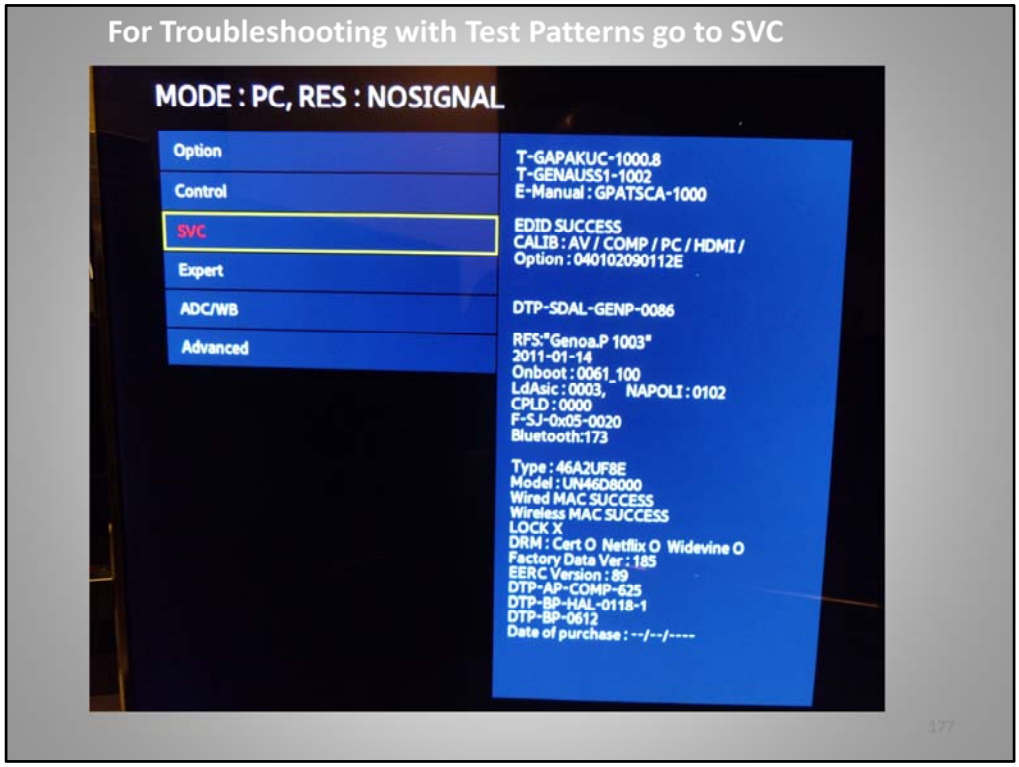
Troubleshooting Chart for Main board vs T-CON Board.
Next slides demonstrate step by step procedure using Service Mode.



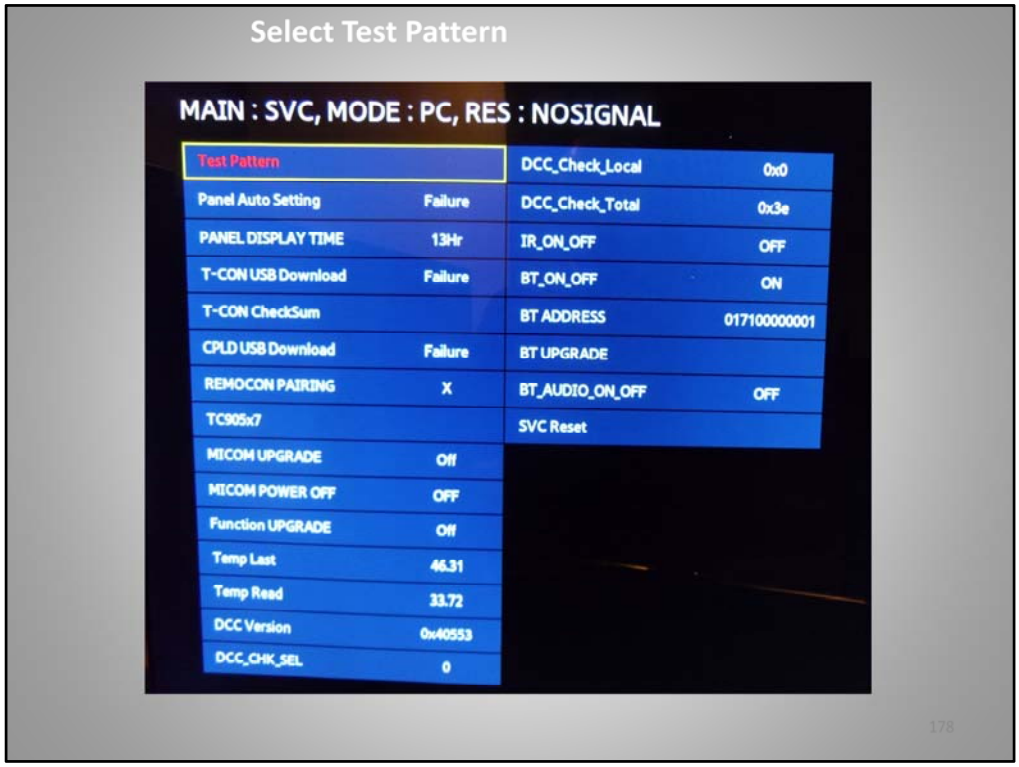
Using the Test Patterns in Service mode will greatly assist in determining failures.
First note that the test patterns for the Genoa-P Processor IC is located on the Main Board.
The test patterns for the Napoli (FRC) are located on the T-CON Board.
If the Napoli test pattern is OK and the Genoa-P is noisy the failure is with either the Main Board or LVDS Cable.
If the Napoli Test pattern is noisy the problem is most likely the T-Con Board.



Steps to test Main Board/LVDS Vs T-Con Board…
First Place the TV in Service Mode.



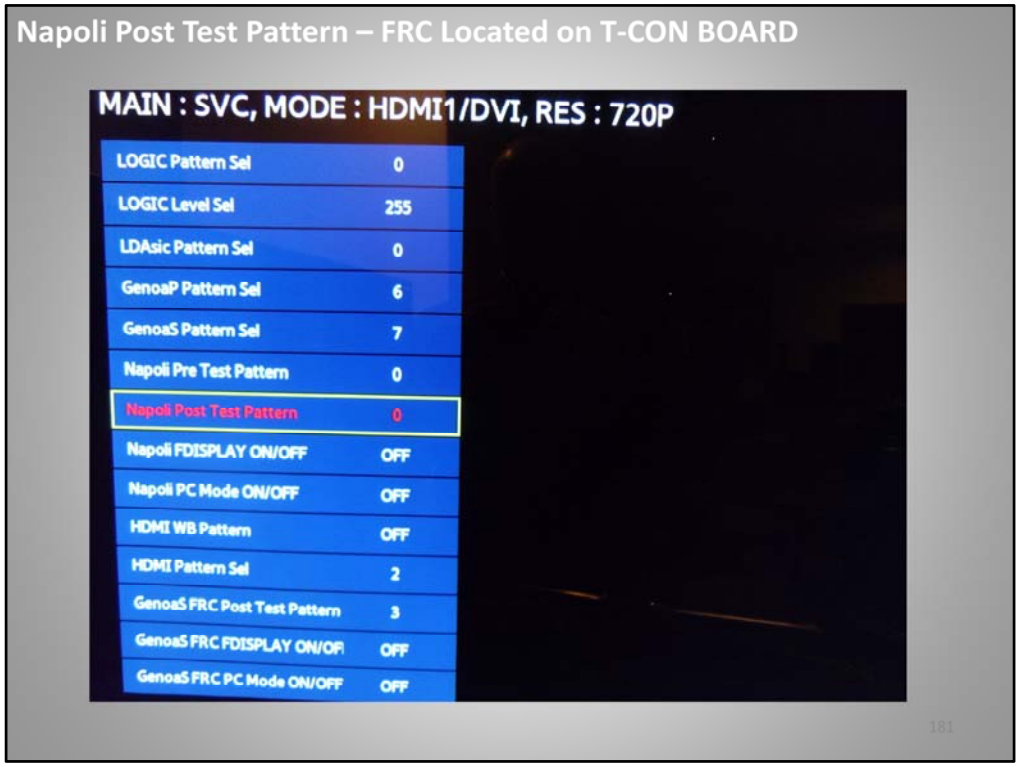
2nd Select the SVC option



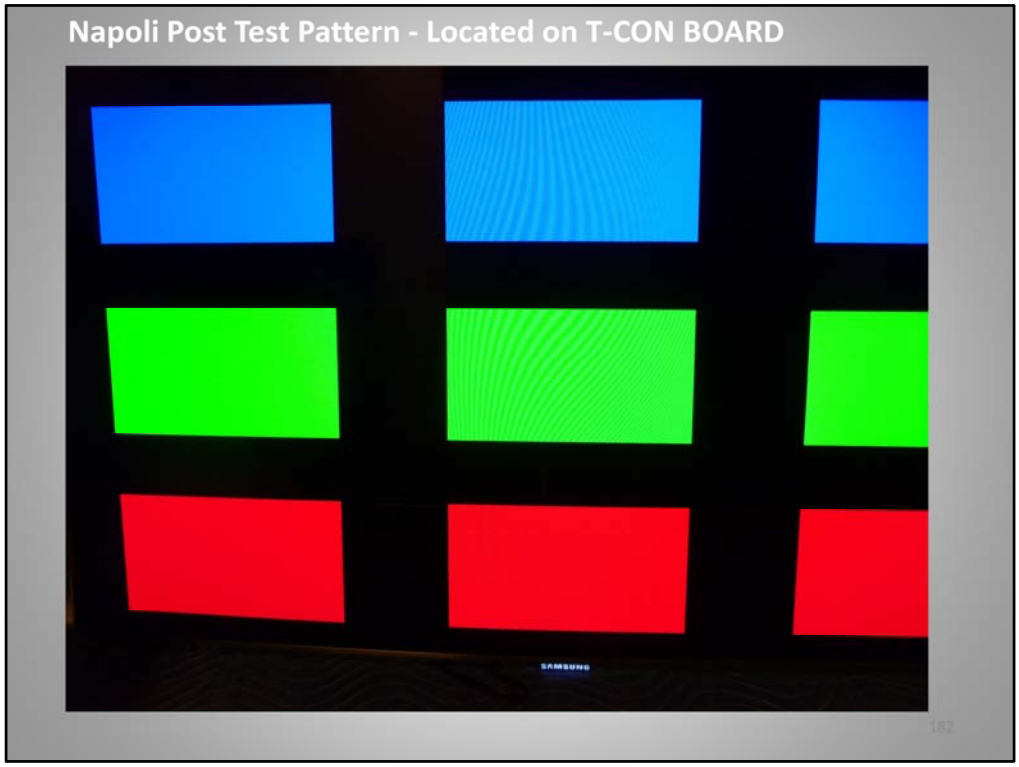
3rd Select Test Pattern

4th Now select “Genoa-P Pattern Sel” Remember that the Genoa-P is located on the Main Board.

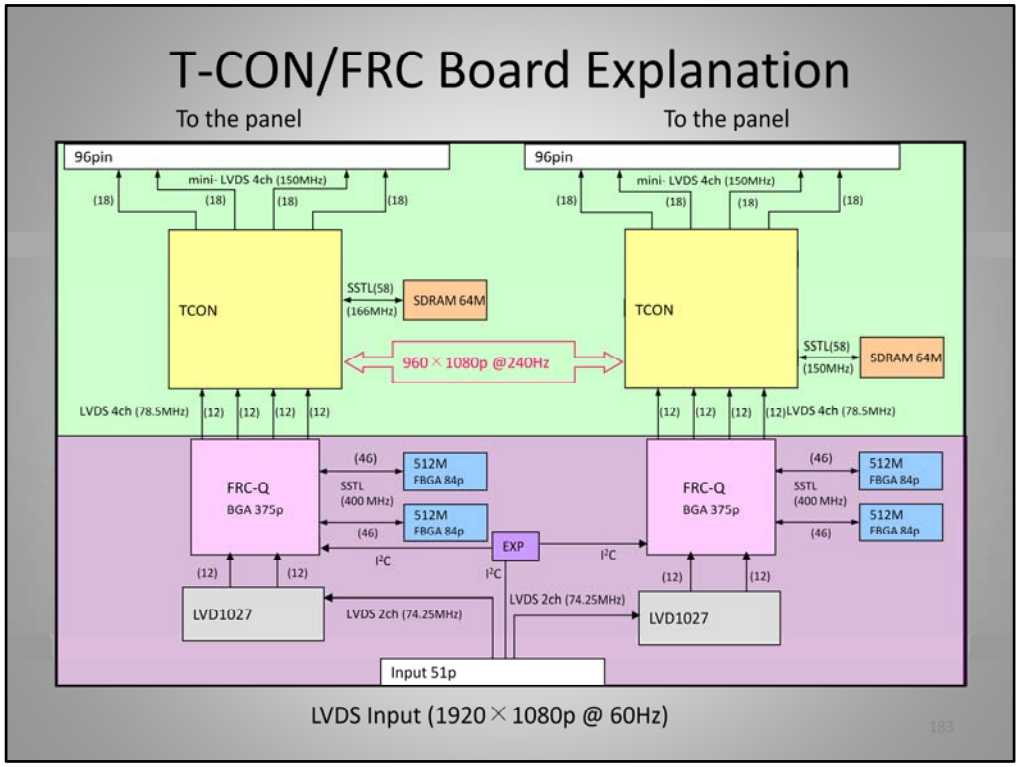
5th Step through the various Test Patterns. Verify Patterns for accuracy and no noise present.
NOTE: The Genoa-P test Patterns will not appear unless a signal is provided on that particular input.



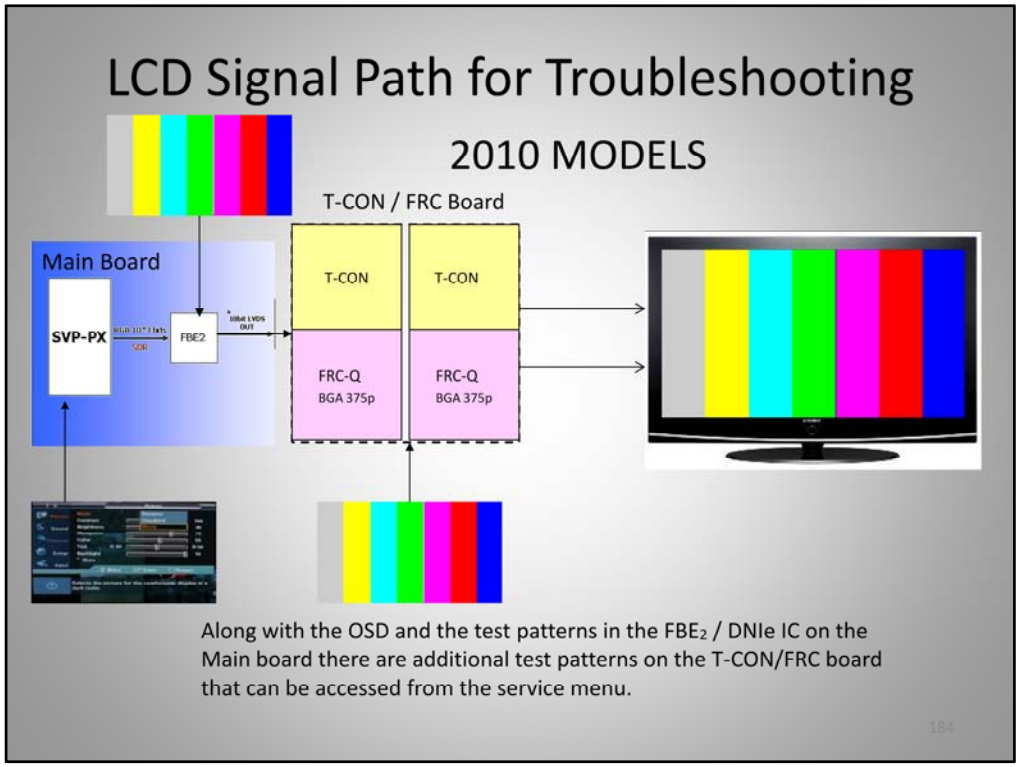
6th Now select “Napoli Post Test Pattern” Remember that the Napoli IC is located on the T-Con Board.



Step through the test patterns and Verify their accuracy and that no noise is present.

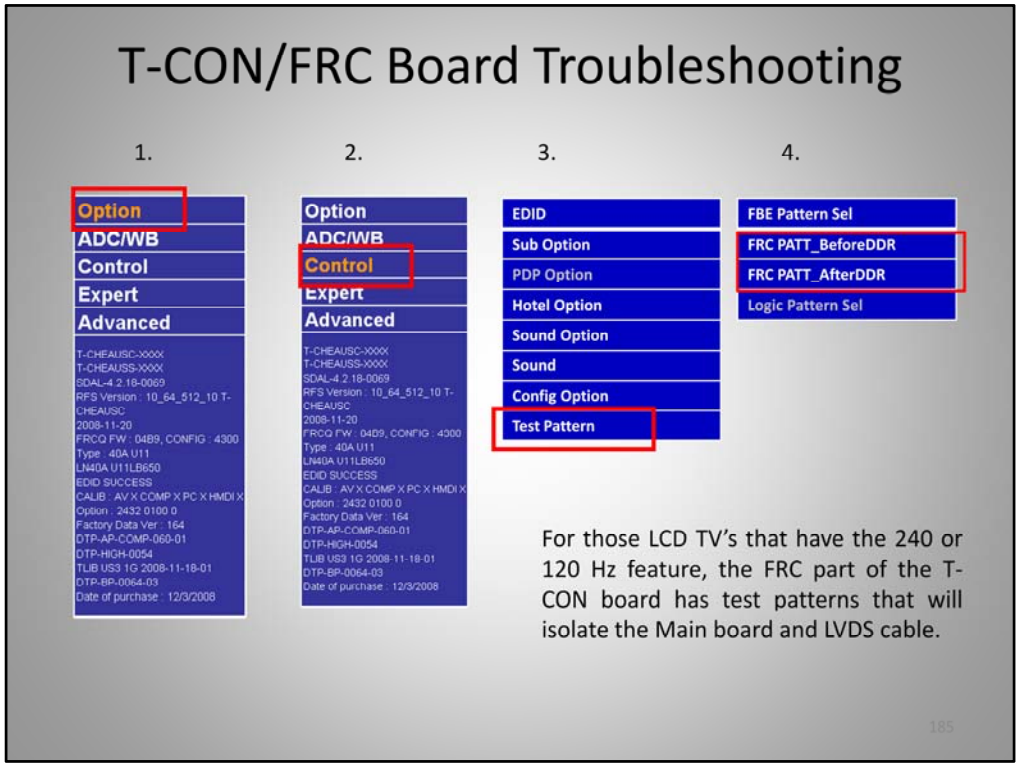


Models that use 120Hz or 240Hz refresh rates use a combination TCON and FRC Board. FRC or frame rate conversion is where the extra frames are created or interpolated. Video in LVDS format is applied to the FRC board. The FRC board creates the additional frames by reading two adjacent original frames then calculating the luminance and chrominance data.

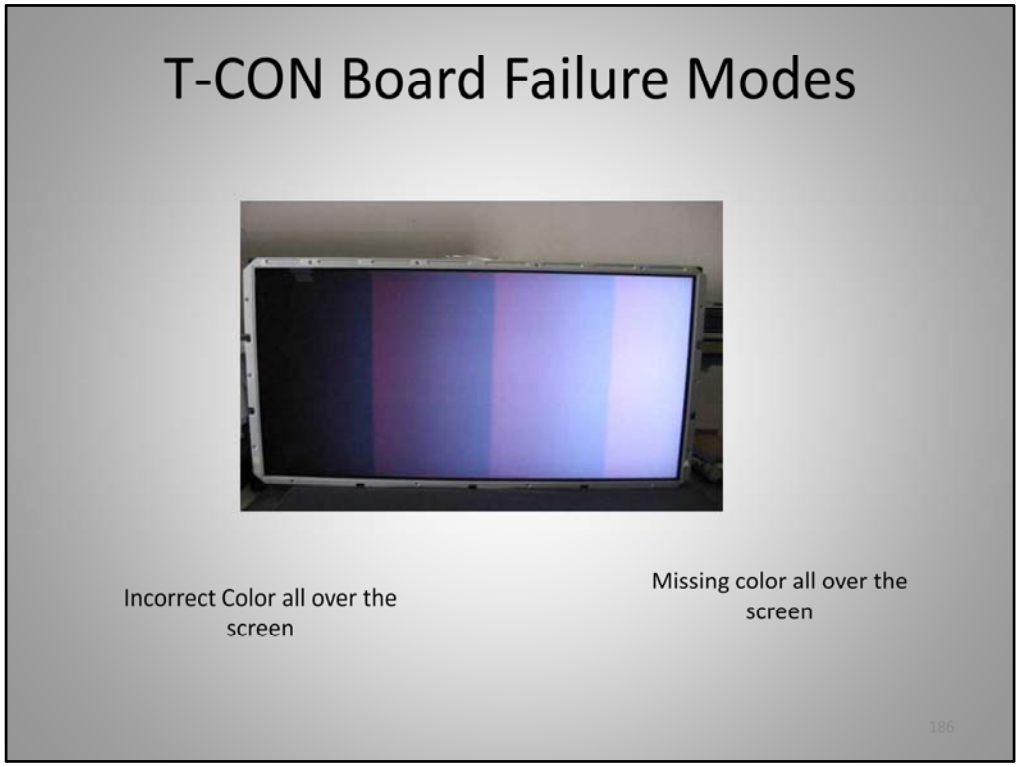


To troubleshoot video problems or to make sure every board after the main board is working properly, the internal test patterns can be accessed in the logic board then move to the main board test patterns. Even the customer menu's can be used as a test pattern.

- Main board has the test pattern (FBE) generator On the 2nd IC in service mode (same main board as plasma)
-SVC > test pattern > FBE (ahead of the LVDS CABLE)
- FRC PATTERNs only available on units that have FRC circuitry

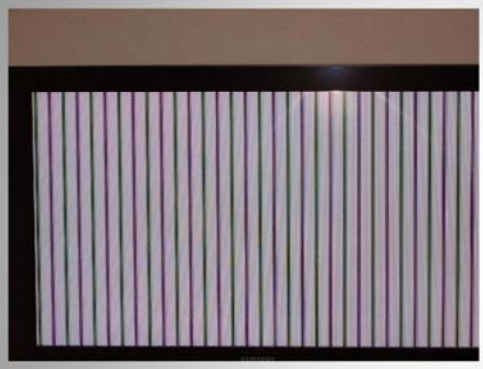


The FRC board can be tested by accessing the FRC Test pattern under the control submenu of the service mode. Both of the FRC patterns are generated on the FRC board. If the test patterns are displayed without error the problem is before the FRC board, either the Main board or the source.



T-Con board failures can be all over the screen or localized (because it is responsible for which cell to light and how much intensity). TCON board failures can cause half the screen to go black or full white (since it handles half of the screen one side could be good and other bad). TCON Board defects do not go away with content or connection. If the problem disappears when the input is changed it is not the TCON board. If the problem completely disappears with a darker or brighter scene the problem is not the TCON board.
If the screen defect appears after a period of time the TCON board can be suspected (after is heats up).

LCD Panel Failures



Vertical or Horizontal Lines present in all modes…
(May also be caused by a defective T-CON, LVDS, or Main Board, use Test Patterns in Factory Service Mode to determine error)

De-lamination: PANEL FAILURE

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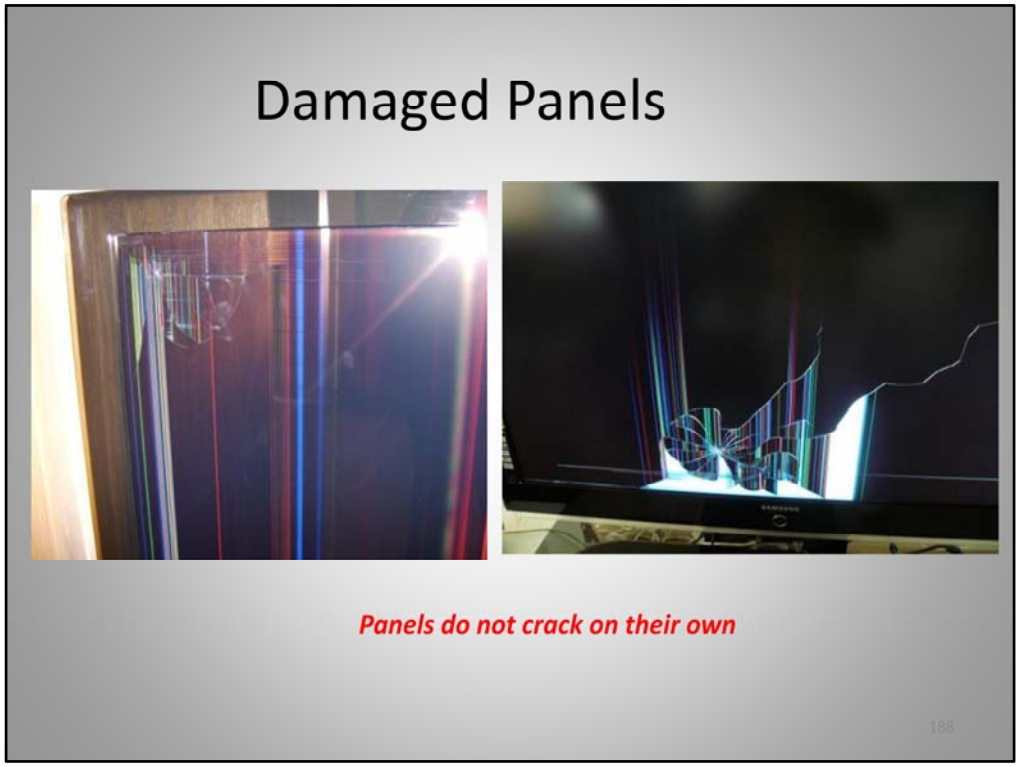
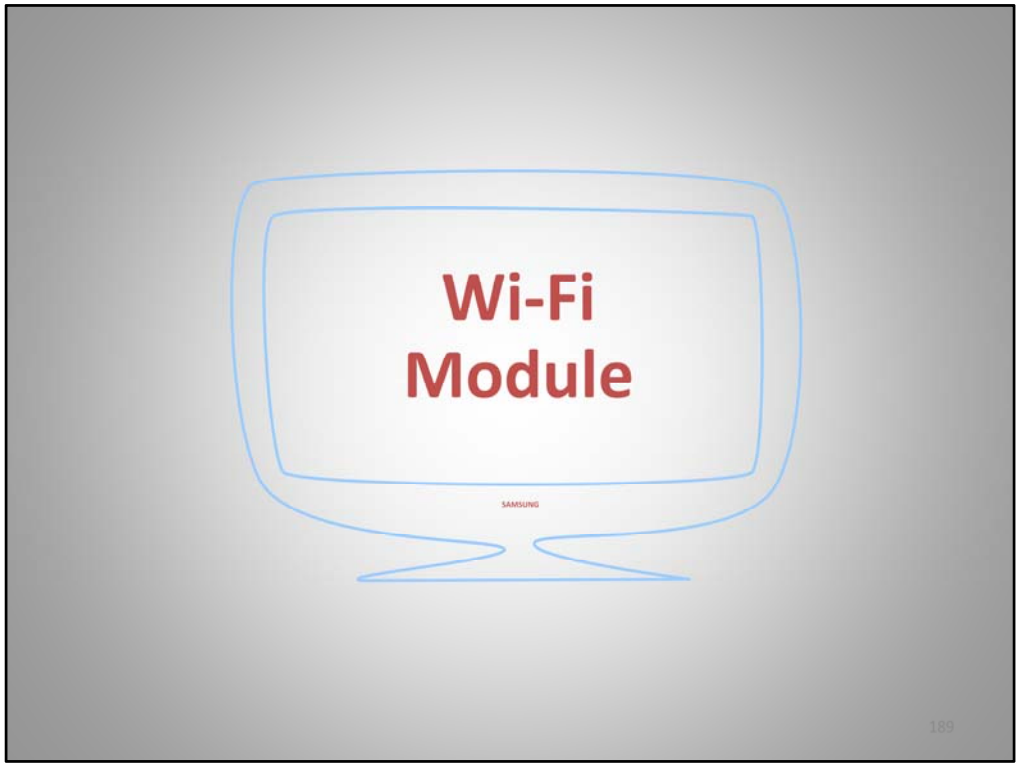
- Vertical or horizontal lines that are present with all inputs and all types of content are defective panels, T-Con Board, LVDS, or Main Board. Use the Test Patterns in Service Mode to Verify.
- Backlight errors can usually be identified by an area that is always noticeably darker.
-Smaller lines or imperfections in the image that are present in all modes is called de-lamination which requires replacing the panel.



LCD panels use a flexible polarizer on the outside edge of the panel. If the unit is hit by a object the flexible polarizer may not show damage but the inside LCD glass will break. Panels showing a center point and cracks radiating from that point is impact damage. Corner cracks are usually the result of rough handling. Panels do not crack on their own, panel damage has been tied to flying objects or transportation damage.


Wi-Fi
Module
SAMSUNG
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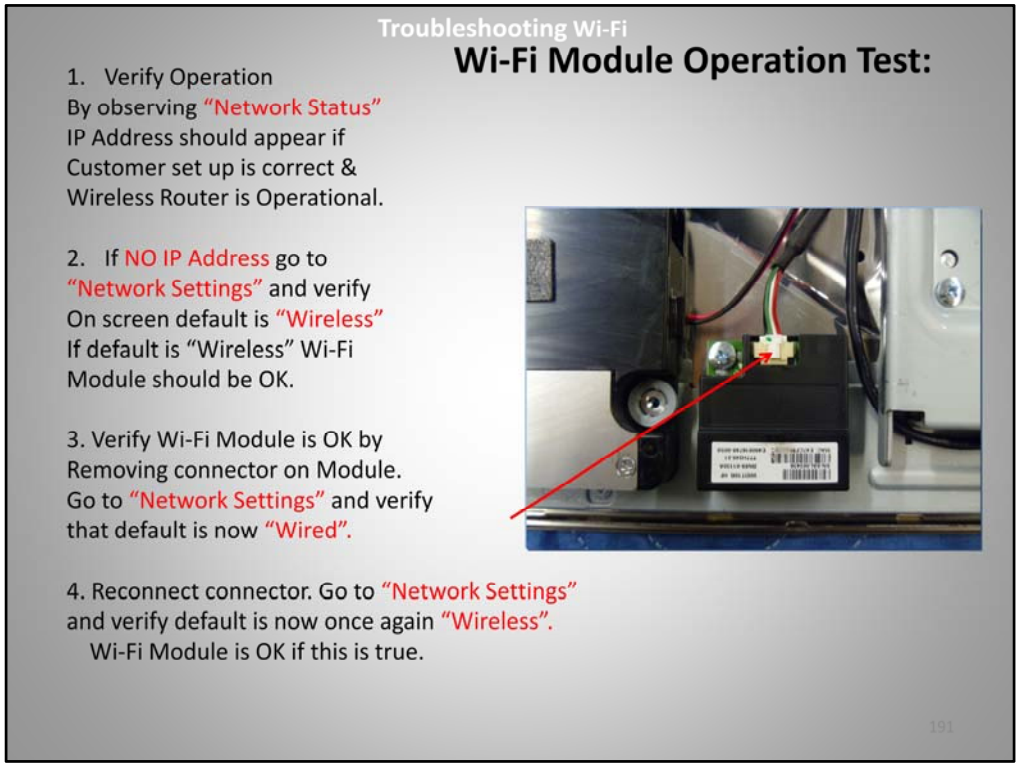
Troubleshooting Wi-Fi

Wi-Fi Module



1. TESTING WI-FI

2. Verify Operation
By observing "Network Status"
IP Address should appear if
Customer set up is correct &
Wireless Router is Operational.

2. If NO IP Address go to
"Network Settings" and verify
On screen default is "Wireless"
If default is "Wireless" Wi-Fi
Module should be OK.

3. Verify Wi-Fi Module is OK by
Removing connector on Module.
Go to "Network Settings" and verify
that default is now "Wired".

4. Reconnect connector. Go to "Network Settings"
and verify default is now once again "Wireless".
Wi-Fi Module is OK if this is true.

Troubleshooting Wi-Fi

Wi-Fi Module Operation Test Failure:

If Wi-Fi Module Test Failed check pins on Wi-Fi Module Connector:

CN1201 (MAIN) - FUNCITON/Wi-Fi	
Pin No.	Signal
1	B5V
2	Wi-Fi DM
3	Wi-Fi DP
4	GND
5	N/C
6	IR
7	GND
8	A3.3V
9	SCL
10	SDA
11	FUNC_INT
12	LED_STB

If Voltages/Signals are OK replace defective Wi-Fi Module.
If Voltages/Signals are not correct check Main Board and Connectors.

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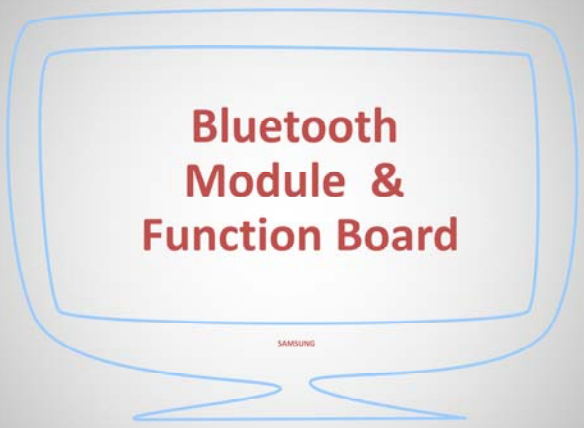
If Wi-Fi Module Test Failed check pins on Wi-Fi Module 12 pin Connector

Disassembly and Reassembly



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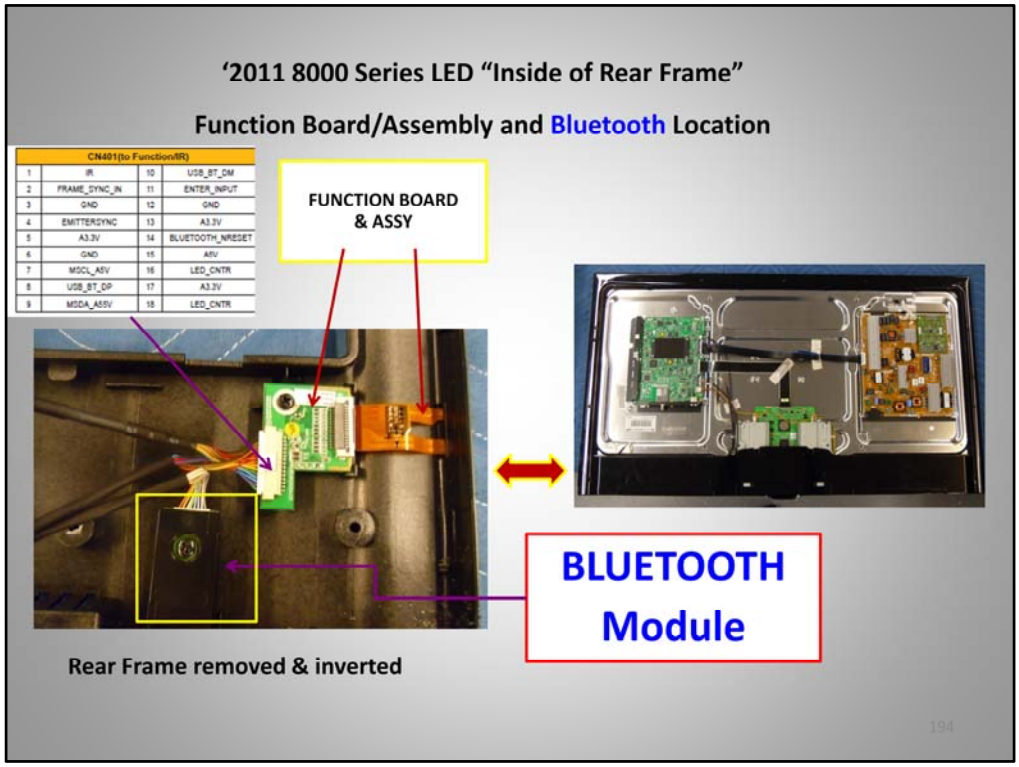
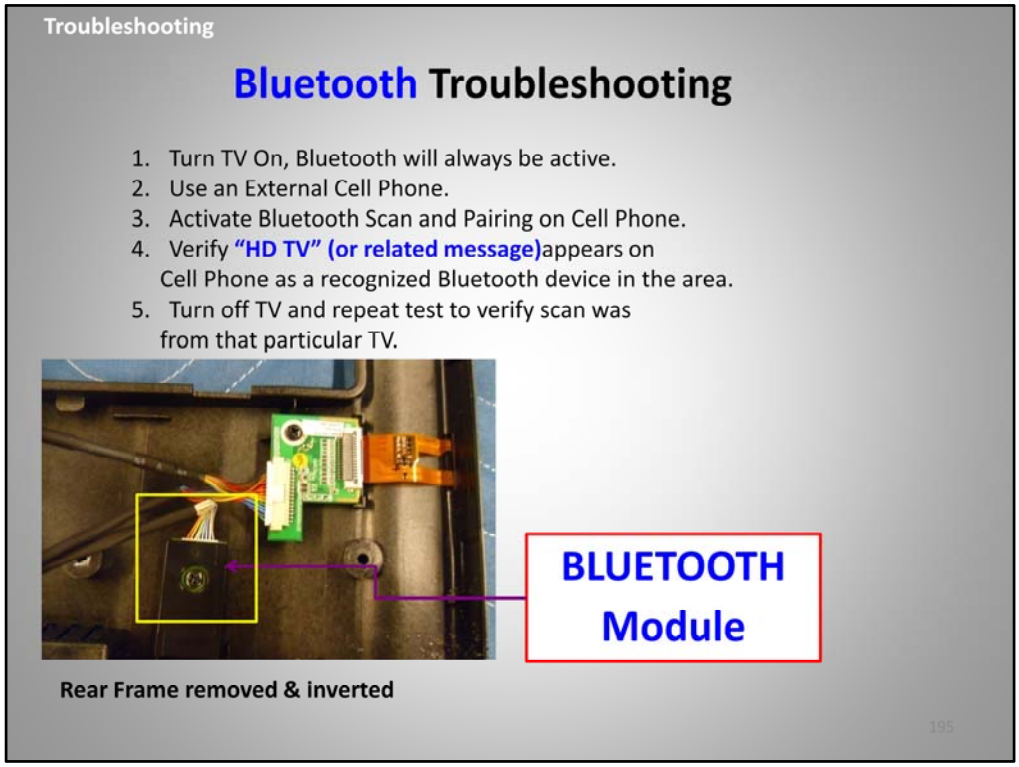
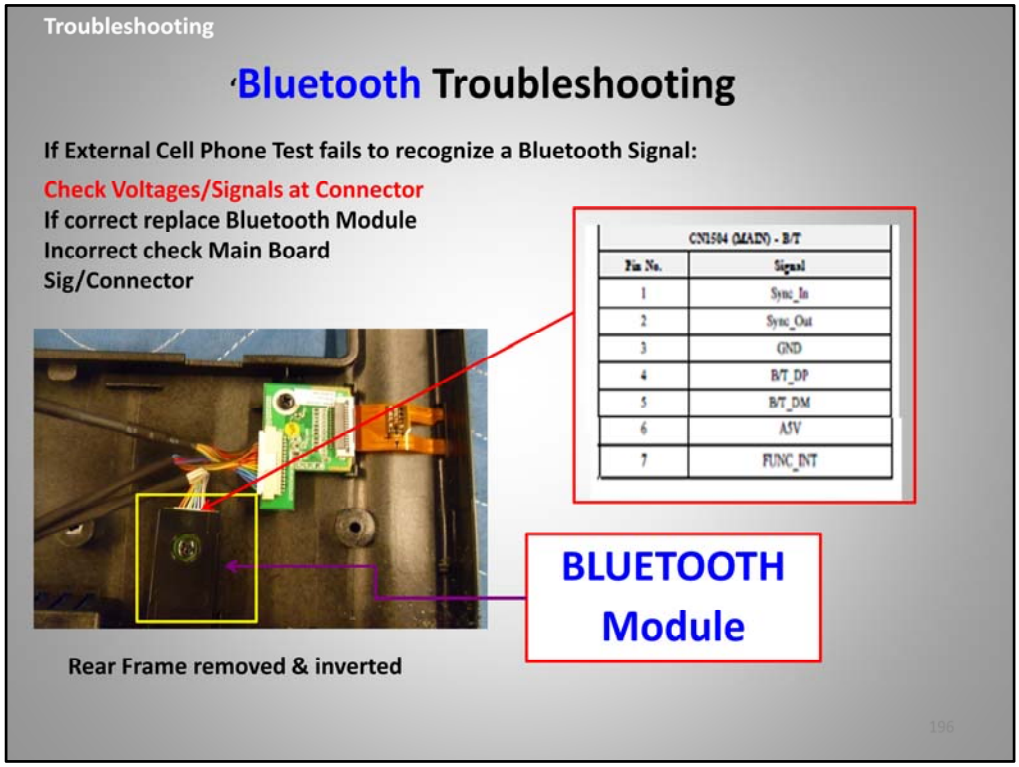


The Function Board/Assembly and Bluetooth Locations are in the "Middle Cover" Location.



Bluetooth Troubleshooting

1. Turn TV On, Bluetooth will always be active.
2. Use an External Cell Phone.
3. Activate Bluetooth Scan and Pairing on Cell Phone.
4. Verify **"HD TV" (or related message)**appears on Cell Phone as a recognized Bluetooth device in the area.
5. Turn off TV and repeat test to verify scan was from that particular TV.



If External Cell Phone Test fails to recognize a Bluetooth Signal:
Check Voltages/Signals at Connector
If correct replace Bluetooth Module
Incorrect check Main Board
Sig/Connector

The following 25 Slides are for Troubleshooting User Operation Errors or Miss-Understandings. It is a good reference for the tech and customer assist line and provides information and answers to each situation.

Picture Qulity Troubleshooting

Question	Answer
•• First of all, please perform the Picture Test and confirm that your TV is properly displaying test image. (go to MENU - Support - Self Diagnosis - Picture Test) If the test image is properly displayed, the poor picture may caused by the source or signal.	
The TV image does not look as good as it did in the store.	•• Store displays are all tuned to digital, HD (high definition) channels •• If you have an analog cable/set top box, upgrade to a digital set top box. Use HDMI or Component cables to deliver HD (high definition) picture quality. •• Cable/Satellite subscribers: Try HD channels from the channel line up. •• Air/Cable Antenna connection: Try HD channels after performing Auto program. Many HD channels are up scaled from SD (Standard Definition) contents. Look for a channel that is broadcasting true HD content. •• Adjust the Cable/Sat box video output resolution to 1080i or 720p.
The picture is distorted: macro block error, small block, dots, pixelization	•• Compression of video contents may cause picture distortion especially in fast moving pictures such as sports and action movies. •• Low signal level or bad quality can cause picture distortion. This is not a TV issue. •• Mobile phones used close to the TV (cca up to 1m) may cause noise in picture on analog and digital TV.
There is poor color or brightness.	•• Adjust the Picture options in the TV menu (go to Picture mode / Color /Brightness / Sharpness) •• Adjust Energy Saving option in the TV menu (go to MENU – System – Eco Solution – Energy Saving) •• Try resetting the picture to view the default picture settings (go to MENU - Picture - Reset Picture)
There is a dotted line on the edge of the screen.	•• If the picture size is set to Screen Fit, change it to 16:9. •• Change cable/satellite box resolution.
The picture is black and white	•• If you are using an AV composite input, connect the video cable (yellow) to the Green jack of component input 1 on the TV.
When changing channels, the picture freezes or is distorted or delayed.	•• If connected to a cable box, please try to reset it. (reconnect the AC cord and wait until the cable box reboots. It may take up to 20 minutes) •• Set the output resolution of the cable box to 1080i or 720p.
Color is wrong or missing.	•• If you're using a component connection, make sure the component cables are connected to the correct jacks. Incorrect or loose connections may cause color problems or a blank screen.

Troubleshooting

3D

Question	Answer
The 3D Active Glasses may not work properly if there is any other 3D product or electronic devices turned on near the glasses or TV	•• If there is a problem, keep other electronic devices as far away as possible from the 3D Active Glasses.
You may notice a small amount of screen flickering when watching 3D images in poor light conditions (from a strobe light, etc.), or under a fluorescent lamp (50Hz ~ 60Hz) or 3 wavelength lamp.	•• If so, dim the light or turn the lamp off.
The ideal viewing distance should be three times or more the height of the screen.	•• We recommend sitting with viewer's eyes on a level with the screen.
If you leave 3D glasses on, battery lifespan is shortened.	•• Turn off 3D glasses while not using them.

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Troubleshooting

	Question	Answer
Sound Problem	First of all, please perform the Sound Test to confirm that your TV audio is properly operating. (go to MENU - Support - Self Diagnosis - Sound Test) If the audio is OK, the sound problem may caused by the source or signal.	
	There is no sound or the sound is too low at maximum volume.	•• Please check the volume of the device (Cable/Sat Box, DVD, Blu-ray etc) connected to your TV.
	The picture is good but there is no sound.	•• Set the Speaker Select option to TV Speaker in the Sound menu. •• If you are using an external device, make sure the audio cables are connected to the correct audio input jacks on the TV. •• If you are using an external device, check the device's audio output option (ex. you may need to change your cable box's audio option to HDMI when you have a HDMI connected to your TV). •• If you are using a DVI to HDMI cable, a separate audio cable is required. •• If your TV has a headphone jack, make sure there is nothing plugged into it. •• Reboot the connected device by reconnecting the device's power cable.
	The speakers are making an inappropriate noise.	•• Check cable connections. Make sure a video cable is not connected to an audio input. •• For antenna or Cable connections, check the signal strength. Low signal level may cause sound distortion. •• Perform the Sound Test as explained above.
No Picture, No Video	The TV turns off automatically.	•• Ensure the Sleep Timer is set to Off in the System menu. •• If your PC is connected to the TV, check your PC power settings. •• Make sure the AC power cord is plugged in securely to the wall outlet and the TV. •• When watching TV from an antenna or cable connection, the TV will turn off after 10 - 15 minutes if there is no signal.

Troubleshooting

	Question	Answer
RF(Cable/Antenna) Connection	The TV is not receiving all channels.	•• Make sure the coaxial cable is connected securely. •• Please try Auto Program to add available channels to the channel list. Go to MENU - Channel - Auto Program then select Auto and make surethe correct Cable TV signal type is set in the menu. There are 3 options (STD, HRC and IRC) •• Verify the Antenna is positioned correctly.
	No Caption on digital channels	•• Check Caption Setup menu. Try changing Caption Mode Service1 to CC1. •• Some channels may not have caption data.
	The picture is distorted: macro block error, small block, dots, pixelization.	•• Compression of video contents may cause picture distortion, especially with fast moving pictures such as sports and action movies. •• A low signal can cause picture distortion. This is not a TV problem.
PC Connection	A "Mode Not Supported" message appears.	
	"PC" is always shown on the source list, even if a PC is not connected.	•• This is normal; "PC" is always shown on the source list, regardless of whether a PC is connected.
	The video is OK but there is no audio.	•• If you are using an HDMI connection, check the audio output setting on your PC.
Network Connection	The wireless network connection failed.	
	Software Upgrade over the network fails.	•• Try network test in Network menu. •• If you have latest SW version, SW upgrade will not proceed.

Troubleshooting

Others

Question	Answer
Purple/green rolling horizontal bars and buzzing noise from theTV speakers with Component cable connection.	
The picture won't display in full screen.	•• HD channels will have black bars on either side of the screen when displaying up scaled SD (4:3) contents. •• Black bars on the Top & Bottom will be shown on movies that have aspect ratios different from your TV. •• Adjust the picture size options on your external device or TV to full screen.
Caption on TV menu is greyed out.	•• Caption can not be selected in the TV menu when connected via HDMI or Component. •• Caption must be activated on the external device.
There is a plastic smell from the TV.	•• This smell is normal and will dissipate over time.
The TV Signal Information is unavailable in the Self Diagnostic Test menu.	•• This function is only available with digital channels from an Antenna / RF / Coax connection.
The TV is tilted to the side.	•• Remove the base stand from the TV and reassemble it.
The channel menu is greyed out (unavailable).	•• The Channel menu is only available when the TV source is selected.
Your settings are lost after 30 minutes or every time the TV is turned off.	•• If the TV is in the Store Demo mode, it will reset audio and picture settings every 30 minutes. Change the settings from Store Demo mode to Home Use mode in the Plug & Play procedure. Press the SOURCE button to select TV mode, and go to MENU → System → Plug & Play → ENTER
You have intermittent loss of audio or video.	•• Check the cable connections and reconnect them. •• Loss of audio or video can be caused by using overly rigid or thick cables. Make sure the cables are flexible enough for long term use. If mounting the TV to a wall, we recommend using cables with 90 degree connectors.
You see small particles when you look closely at the edge of the frame of the TV.	•• This is part of the product's design and is not a defect.

Troubleshooting

Others

<table>
<tr><th>Question</th><th>Answer</th></tr>
<tr><td>The PIP menu is not available.</td><td>•• PIP functionality is only available when you are using a HDMI, PC or Component source.
<table>
<tr><th>Main \ Sub</th><th>TV Analog</th><th>TV Digital</th><th>Video</th><th>Component</th><th>HDMI</th><th>PC</th></tr>
<tr><td>TV Analog</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>TV Digital</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>Video</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>Component</td><td>O</td><td>O</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>HDMI</td><td>O</td><td>O</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>PC</td><td>O</td><td>O</td><td>X</td><td>X</td><td>X</td><td>X</td></tr>
</table></td></tr>
<tr><td>POP (TV's internal banner ad) appears on the screen.</td><td>•• Select Home Use under Plug & Play mode. For details, refer to Plug & Play Feature.</td></tr>
<tr><td>Melody is not played when television is turned off.</td><td>If the Volume is Mute or set to Volume level 0 or Melody mode is off, or in the case of automatic power off due to the 'Sleep timer' function, then no melody will be played at power off.</td></tr>
<tr><td>When the channel is changed, volume gradually gets louder.</td><td>It takes about 2 seconds to adapt to volume levels on different channels.</td></tr>
<tr><td>Even if I change sound mode, monitor out sound is constant.</td><td>The monitor out sound is independent from the main sound output, therefore changes to the audio output will not affect the monitor output.</td></tr>
<tr><td>Even if I set mute on, monitor out is still outputting.</td><td>The monitor out sound is independent from the main Speaker output, therefore to Mute or adjust the volume of monitor out a separate external decoder (AMP) is required.</td></tr>
<tr><td>I set Mute on but sound is still outputting.</td><td>The volume buttons and MUTE buttons do not operate when the Speaker Select is set to External Speaker. Please set the volume on your Home theater.</td></tr>
</table>

Troubleshooting

Others

Question	Answer
	■ Speaker Settings ● Speaker Select (External Speaker / TV Speaker) A sound echo may occur due to a difference in decoding speed between the main speaker and the audio receiver. In this case, set the TV to External Speaker. ☞When Speaker Select is set to External Speaker, the volume and MUTE buttons will not operate and the sound settings will be limited. ☞When Speaker Select is set to External Speaker. ● TV Speaker: Off, External Speaker: On ☞When Speaker Select is set to TV Speaker. ● TV Speaker: On, External Speaker: On ☞If there is no video signal, both speakers will be mute.
When I set Digital NR level(Off - Low - Medium - High - Auto - Auto Plus), there is no change in picture quality.	
There is a vertical line(red,green,blue) on picture.	This occurs when TV set has a defect on one line from DATA SOURCE DRIVER IC. Contact Samsung Service centre to resolve this problem.
When I use the unit as a monitor, the image seems blurry.	Blurry images can occur when the resolution is other than those recommended in the user guide or if the signal is unstable. In order to resolve this, please change the resolution of the PC to one of those which are recommended.
When I changed PC resolution, "Not supported mode" OSD is displayed.	When the resolution of the input signal exceeds the operating range of the display, "Not supported mode" OSD will displayed. In order to resolve this, please change the resolution of the PC to one supported by the display unit.
I can not hear any sound from speaker in HDMI mode when using a DVI-HDMI conversion cable.	If the input signal is DVI RGB signal through an HDMI conversion cable, there is no digital sound data, you can not hear any sound. A DVI connection does not carry any sound data. You should connect an audio cable to the appropriate input jack for a seperate audio channel.
Although the TV caption shows HD, the visual quality is not satisfactory.	The HD caption that appears when switching channels or when pressing the Information button on the remote control means the selected channel is simply a digital channel. If the broadcasting station converts an analog signal into digital and transmits the signal, the visual quality may not be perfect.

Troubleshooting

Others

Question	Answer
The visual qualities of digital channels vary	The visual qualities of digital channels may vary depending on the original production method(analog or digital) → Grouping displayed information when switching channels. → If the original production method is digital: High visual quality program. → If the original production method is analog: The digital program displayed on the screen is originally an analog program which has been converted. The visual quality is of an SD grade.
HDMI Black Level does not work on HDMI device that is output by YCbCr.	This function is active only when the an external device (DVD player, STB etc.) is connected to the TV via HDMI(RGB Signal).
There is no sound when using HDMI mode.	If you use external equipment that support low HDMI version, sound may not be output at TV that support new HDMI version(HDMI1.3). → If sound does not work, use HDMI2 IN for video input and DVI IN(HDMI1) port[R(red) - AUDIO - L(white)] for audio input.

New Function

<table>
<tr><th></th><th>Question</th><th>Answer</th></tr>
<tr><td></td><td>I lost the 'PC Share Manager' install CD</td><td>You can download E-manual and DLNA install program in samsung's web site.
(www.samsung.com - support - download cener - enter your model name.</td></tr>
<tr><td>Sound of HDMI1/DVI</td><td>No sound in HDMI/DVI mode.</td><td>In HDMI/DVI input, set judge source type(HDMI or DVI), and select sound automatically.
But a part of PC graphic card transemits HDMI source that doen't contain sound.
So, you can select sound input yourself. Refer to below edit name chart.
* This table apply to HDMI1/DVI port only
<table>
<tr><th>Edit Name</th><th>Sound Input</th><th>Picture mode</th></tr>
<tr><td>PC</td><td>Auto</td><td>PC setting</td></tr>
<tr><td>DVI</td><td>DVI R/L</td><td>Normal setting</td></tr>
<tr><td>DVI PC</td><td>DVI R/L</td><td>PC setting</td></tr>
</table></td></tr>
<tr><td>Auto Motion Plus</td><td>Judder / Blur is seen on TV.</td><td>With Auto Motion Plus, you can see more clear image without blur and judder, but there are some side-effect.
So, It is available to choose Auto Motion Plus 120Hz mode.
(Off/Clear/Standard/Smooth/Custom/Demo)
Using custom mode, you can set level(0~10) of 'Judder reduction' and 'Blur reduction' finely.
You choose 10, the highest performance of Auto Motion Plus is working.
<table>
<tr><th>Function (OSD)</th><th>120Hz FRC</th><th>Judder reduction
(only 24p source)</th><th>Blur reduction</th></tr>
<tr><td>Off</td><td>Off
(repeat)</td><td>Off</td><td>Off</td></tr>
<tr><td>Clear</td><td>ON
(interpolation)</td><td>Off</td><td>High</td></tr>
<tr><td>Standard</td><td>ON
(interpolation)</td><td>Medium</td><td>Medium</td></tr>
<tr><td>Smooth</td><td>ON
(interpolation)</td><td>High</td><td>High</td></tr>
<tr><td>Custom</td><td colspan="3">Level variable
(0~10)</td></tr>
<tr><td>Demo</td><td colspan="3">Demo
(Standard/off)</td></tr>
</table></td></tr>
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New Function

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<tr><td>Sound of HDMI1/DVI</td><td>No sound in HDMI/DVI mode.</td><td>In HDMI/DVI input, set judge source type(HDMI or DVI), and select sound automatically.
But a part of PC graphic card transmits HDMI source that doesn't contain sound.
So, you can select sound input yourself. Refer to below edit name chart.
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<tr><th>Edit Name</th><th>Sound Input</th><th>Picture mode</th></tr>
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<tr><td rowspan="2">Auto Motion Plus</td><td>Judder / Blur is seen on TV.</td><td>With Auto Motion Plus, you can see more clear image without blur and judder, but there are some side-effect.
So, It is available to choose Auto Motion Plus 120Hz mode.
(Off/Clear/Standard/Smooth/Custom/Demo)
Using custom mode, you can set level(0~10) of 'Judder reduction' and 'Blur reduction' finely.
You choose 10, the highest performance of Auto Motion Plus is working.
<table>
<tr><th>Function (OSD)</th><th>120Hz FRC</th><th>Judder reduction (only 24fps source)</th><th>Blur reduction</th></tr>
<tr><td>Off</td><td>Off (Interpolation)</td><td>Off</td><td>Off</td></tr>
<tr><td>Clear</td><td>ON (Interpolation)</td><td>Off</td><td>High</td></tr>
<tr><td>Standard</td><td>ON (Interpolation)</td><td>Medium</td><td>Medium</td></tr>
<tr><td>Smooth</td><td>ON (Interpolation)</td><td>High</td><td>High</td></tr>
<tr><td>Custom</td><td colspan="3">Level variable (0~10)</td></tr>
<tr><td>Demo</td><td colspan="3">Demo (Standard/Off)</td></tr>
</table></td></tr>
<tr><td>Even though I set the 'Auto Motion Plus 120' on, display @60Hz in information OSD.</td><td>Displayed frequency in information OSD is information of input source, not of output image
Samsung 120Hz model display always 120Hz picture. The method of 'Frequency Rate Conversion'(FRC) is different according to Auto Motion Plus option you select.</td></tr>
</table>

Troubleshooting

Anynet+

Question	Answer
Anynet+ does not work.	•• Check if the device is an Anynet+ device. The Anynet+ system supports Anynet+ devices only. •• Only one receiver (home theater) can be connected. •• Check if the Anynet+ device power cord is properly connected. •• Check the Anynet+ device's Video/Audio/HDMI cable connections. •• Check whether Anynet+ (HDMI-CEC) is set to On in the Anynet+ setup menu. •• Check whether the TV remote control is in TV mode. •• Check whether the remote control is Anynet+ compatible. •• Anynet+ doesn't work in certain situations. (Searching channels, operating Smart Hub or Plug & Play (initial setup), etc.) •• When connecting or removing the HDMI cable, please make sure to search devices again or turn your TV off and on again. •• Check if the Anynet+ Function of Anynet+ device is set on.
I want to start Anynet+.	•• Check if the Anynet+ device is properly connected to the TV and check if the Anynet+ (HDMI-CEC) is set to On in the Anynet+ Setup menu. •• Press the TOOLS button to display the Anynet+ menu and select a menu you want.
I want to exit Anynet+.	•• Select View TV in the Anynet+ menu. •• Press the SOURCE button on the TV remote control and select a non- Anynet+ device. •• Press z and PRE-CH to change the TV mode. (Note that the channel button operates only when a tuner-embedded Anynet+ device is not connected.)
The message "Connecting to Anynet+ device..." appears on the screen.	•• You cannot use the remote control when you are configuring Anynet+ or switching to a view mode. •• Use the remote control when the Anynet+ setting or switching to view mode is complete.
The Anynet+ device does not play.	•• You cannot use the play function when Plug & Play (initial setup) is in progress.
The connected device is not displayed.	•• Check whether or not the device supports Anynet+ functions. •• Check whether or not the HDMI cable is properly connected. •• Check whether Anynet+ (HDMI-CEC) is set to On in the Anynet+ setup menu. •• Search Anynet+ devices again. •• You can connect an Anynet+ device using the HDMI cable only. Some HDMI cables may not support Anynet+ functions. •• If connection is terminated because there has been a power interruption or the HDMI cable has been disconnected, please repeat the device scan.
The TV Program cannot be recorded.	•• Check whether the antenna jack on the recording device is properly connected.
The TV sound is not output through the receiver.	•• Connect the optical cable between TV and the receiver.

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Troubleshooting

AllShre

Question	Answer
Deleted phone number appear in device list again.	Because rebooting or trying to access of deleted device. -> Move to Message menu, select re_registed device and set 'denied'
I find over two same TV names.	You can change your TV name in 'Home Network Center - Menu'
Unkown phone number's Message or Media arrived.	Move to Message menu, Unknown device set 'denied'.
OSD of message is small.	OSD of message is small except for TV mode.
I can not play video file that is available in phone.	Supported format is same as Media Play(DLNA). Refer to Media Play section.
How to set Ad-hoc setting?	1. Connect wireless USB dongle to TV. 2. Select 'Wireless' in Setup-Network Type menu. 3. Move to Setup-Wireless Network Setup menu. 4. Select between 'Auto' and 'Manual'. 5. In case of Manual setting, input value of IP Address, Subnet Mask, Gateway and DNS Server manually. At this time, IP Address of TV and wireless network device must use same band. 6. In 'Select a network' menu, select registered 'Ad-hoc network', or search a new Ad-hoc device.(Blue key) 7. Set IP, SSID, password in Mobile phone setting, referring SSID, password displayed on TV.
I see no device connected to AllShare.	To use a device connected to All Share, the device must be connected to PC Share Manager which is the DLNA server for Media Play and to a cell phone that has the Connected Home or Screen Share function which are found on Samsung Smart phones. Check that the PC Share Manager is enabled, the Samsung TV is set to allow connections and the Screen Share function on the connected cell phone is enabled. To use the cell phone's Connected Home function, check that the shared folder is set and the Share mode is 'On.'
I tried to play a video from my cell phone using the Connected Home function on the Samsung TV but the video would not display on the TV.	When a video is transmitted from Connected Home to a TV for the first time, the settings screen that allows transfer to a TV is displayed. Check that the transfer was not set to be rejected on this settings screen. If you have set the cell phone to 'Blocked' in the 'Media' options of the All Share settings, please change the setting to 'Unblocked' and retry.

Troubleshooting

AllShre

Question	Answer
A video that can be played on my cell phone cannot be played on my TV.	Please check the resolution and display format provided by Media Play of the TV.
I cannot resume playback of a video using Connected Home.	The resuming function is not supported for a video played on a cell phone.
When I play a video through Connected Home, I get intermittent picture loss.	An 801.11b/g bandwidth network is used between a cell phone and a sharing device. There may be frequent buffering for HD quality videos, this also depends on the condition of the wireless connection. Please optimize your wireless Internet environment settings (avoid using wireless Internet or bluetooth altogether if possible) or lower the picture quality of the video.
Can all devices with the DLNA function be recognized through Notification?	Only Samsung software and devices with the DLNA server function can be recognized through Notification.
Can I use all the services related to DLNA?	Presently, you can only use the services related to ScreenShare and MediaPlay. We will launch a new DLNA service in the future.
The notification screen that appears after a device connects disappears within a few seconds. How can I access this connected device again?	The DLNA Notification is only displayed when a device is first connected to a TV. To access the device again, please use the AllShare menu.
I cannot find the RUIS on my cell phone.	1. Check that the cell phone is connected to the wireless sharing device correctly. 2. Check that the DTV is connected either using a network cable or wirelessly to the wireless sharing device correctly. 3. Confirm the IP address and subnet mask to ensure that the cell phone and DTV are connected to the same network. 4. Check that the RUIS on the cell phone is enabled. 5. If the RUIS on the cell phone is enabled, please disable it and then enable it again.

Troubleshooting

AllShre

Question	Answer
I cannot find the remote control service provided by the ScreenShare Server from the ScreenShare Client.	1. Check that the ScreenShare Client device is correctly connected to the network of the sharing device that the DTV is connected to. 2. Run network test in the network setup menu and confirm that MAC Address, IP Address, Subnet, Gateway, DNS Server and Gateway Ping each shows a success message. 3. In the network setup menu, check that the ScreenShare Client and ScreenShare Server are on the same subnet. You can confirm they are on the same subnet by checking the IP address, subnet mask and gateway address of the TV and ScreenShare Client as follows: - If the IP address of the DTV is 10.88.83.4 and the subnet mask is 255.255.255.0, the first six digits of the ScreenShare Client's IP address must be the same (10.88.83) as that of the DTV, and the subnet mask and gateway address must be the same as the DTV. - If the IP address of the DTV is 10.88.83.4 and the subnet mask is 255.255.0.0, the first four digits of the ScreenShare Client's IP address must be the same (10.88) as that of the DTV, and the subnet mask and gateway address must be the same as the DTV. 4. Move from the Allshare screen to the Setup screen, and open the Setup menu to check if the ScreenShare Client is connected to the same ScreenShare Server as the TV name shown in the Setup options. 5. Move from the Allshare screen to the Setup screen, and open ScreenShare to check that the device, ScreenShare Client, is found on the list at the right side and is set to "Allowed."
The DTV did not update after pressing buttons on the remote control that uses the remote control service on the ScreenShare Client.	Check that the TV is turned on. You cannot turn on the TV using the remote control service (on the ScreenShare) when the TV is turned off.

Troubleshooting

Media Play (USB & DLNA)

Question	Answer
I tried to set up BGM in Media Play. I can select a file but I cannot configure the Mood settings.	The BGM shuffle and Mood settings are only available when the Music DB configuration is complete. Enter the Music category and compelete the Music DB configuration first.
I cannot enter Photos or Music after running Media Play.	Check if the USB memory contains MP3 or JPEG files.
Photo thumbnails are not displayed in the Photo category.	This may occur when the photo format is not supported by the TV or the JPEG files do not include thumbnails.
I don't find 'Color Category' in photo view.	You can select on/off of 'use color view' menu in Media Play Setup menu. Color view is on, set may be slow. Default value is 'off'.
I can not open photo file.	Supported resolution is up to '15360 X 8640'
The Photo is not fine.	If the photo is progresive type and too large size, The photo may not fine.
Video thumbnails are not displayed in the Movie category.	A video thumbnail is only displayed when the video has been played at least once.
The JPEG files on the USB memory are not in the list.	Files with a path longer than 256 characters will not be displayed.
I have connected a digital camera, but I cannot browse the folders.	When a device is connected in PTP mode, a browsing folder is not supported.
I cannot play the currently highlighted file.	Check if another file is selected (checked). The selected file will be played.
I want to know about supported photo color formats.	The RGB, YUV, YCbCr, CMYK, YCCK, GRAY formats are supported.
I want to know about the maximum supported photo resolution.	The maximum resolution is 15360x8640 pixels.
I want to know about supported music sampling frequencies.	Supported frequencies are 8, 11.025, 12, 16, 22.05, 24, 32, 44.1, 48 Khz
I want to know about supported USB devices.	The TV only supports devices that do not support the Mass Storage Class or PTP Class. Devices are not supported when they are connected to the TV via a USB hub. Supporting USB devices that require external power such as an external-type HDD is not guaranteed. Supporting USB devices that require an additional device driver installation is not guaranteed.

Troubleshooting

Media Play (USB & DLNA)

Question	Answer
The supported photo play is slow.	Since the TV does not use caching unlike for a PC, it make take some time to display a high-resolution photo.
I cannot play paid MP3 files.	If the MP3 file is a DRM (Copy Protected) file, the file will not be played.
I cannot play Divx VOD.	The DRM protected file that is bought or rented by another people can not be played. You must go through registration procedure to play the file. <The method of registration> Move to [Media Play] -> [Setup] -> [Get Divx VOD registration code], you can see your registration code. Register your code to your account in Divx homepage(www.divx.com), you can download registered VOD file. After playing this file in your TV, registration is completed.
I cannot play a digital camera that supports PTP.	Check the PTP mode of the digital camera. It will not work in Printer Connection mode.
I cannot use the morning call function with a digital camera that supports PTP.	A morning call cannot be set with a PTP device.
I have changed the device settings to MSC connection mode after connecting PTP or during an operation, but the device is not recognized.	Switching the connection mode between MSC and PTP after a connection is made or during an operation is not supported. You can only change the digital camera connection mode after disconnecting it.
The WLAN does not work.	The WLAN USB stick supplied by Samsung Electronics work only. And the wireless internet sharer must support IEEE 802.11 a/b/g/n.
Where can I buy the WLAN USB stick?	The WLAN USB stick supplied by Samsung Electronics work only. (Model name : WIS09ABGN) You can buy it in the Samsung electronics shop or service center.
I cannot find Internet Sharer in the Wlan settings menu.	If multiple sharers are being used, configure them so that they do not use the same channel. Set up the sharer to not control the ICMP so that it answers the Ping test.
The WLAN data rate is slow.	If the distance from the sharer is too far, the operation may slow or the sharer may not be found. If there is an obstacle, wall or electronic device between the TV and the sharer, the operation may slow or the sharer may not be found due to a difficulty in communication. We recommend using wireless sharer that support 801.11n.

Media Play (USB & DLNA)

Question	Answer
What is the advantage of IEEE 802.11n	IEEE 802.11a/g/n is wireless networking standard. IEEE 802.11n is the fastest wireless protocol, and cover the widest range. And following chart is comparison of specifications.
The DLNA server that I could see on the TV has suddenly disappeared. What should I do?	1. Check if the PC is turned off. 2. Check if the Samsung TV is set to reject connections in the access control menu of the Samsung PC Share Manager. If so, change the setting to allow connections. 3. Check if the LAN cable is connected to the PC and the TV.
Although the Samsung PC server is on, a message pops up informs you that the Samsung server is off.	When the shared folder of the server is reconfigured, the DLNA server function stops temporarily and then resumes after the reconfiguration is completed. When the server is renamed, the DLNA server function also temporarily stops and then resumes .
I have registered a file with the Samsung PC Share Manager to watch it on the TV, but I cannot find the file on the TV. What should I do?	1. The Share function is not provided for every file. Files in a format that is not supported by DLNA are not displayed on the TV even if they are displayed on a PC. Please accept our apologies, we are working on this. 2. Check if the folder with the files registered to Samsung PC Share Manager is shared. The folder should be also shared. 3. Check if you have clicked the Apply button after sharing the folder including the file. If you are unsure about this, please click the button again and recheck if the file is displayed after a while.
I can see the folders shared through the PC Share Manager, but I cannot see the files.	Since it shows only files corresponding to the Image, Music, and Movie categories, files that do not correspond to these categories may not be displayed.
The 2x and 3x Fast Forward video function on the PC connected to the network does not work.	The function that supports playing a video on a PC connected over the network does not support the 2x and 3x Fast Forward functions.
Video is played intermittently.	Check if the network is stable. Check if the network cable is properly connected and if the network is not overloaded. If there is a wireless network section between the server and the DTV, the communications environment may be unstable.
Pressing the Pause key while a video or music file is playing does not work. The Seek function does not work either.	The Pause function may not be supported depending on the content provided by the DLNA server or the server. The Seek function is also. Refer to Question. #60

Protocol	Freq. (GHz)	Bandwidth (MHz)	Max bit rate (Mbps)	Cover range (feet)
802.11b	2.4	20	11	115
802.11g	2.4	20	54	125
802.11n	2.4 5	40	600	230

Troubleshooting

Media Play (USB & DLNA)

Question	Answer
I cannot move folders and files or cannot copy them by Dragging & Dropping them in the PC Share Manager program.	The PC Share Manager program provides file sharing with a PC and the TV and does not provide those functions.
I changed DTV replacing older one. However, after changing the DTV, I can not discover PC Server, though I use same IP address which I used before.	You should set new DTV as "accept" in PC share manager Menu->SHARE->Set Device Policy
I cannot play a video file. In Media Play (USB & DLNA)	Only videos recorded by specific Samsung camcorders and digital cameras can be played. Other videos may or may not be played depending on the resolution and format. Refer to 'Play' row of following table.
I can see visuals but I cannot hear audio when playing a video.	If the audio format is not supported or the file is a non-interleaved file, only video is played.
I cannot use the 20 second Seek function while playing at 2x Fast Forward	To use the Seek function while playing at 2x Fast Forward, press the Play button to first make the playing speed normal. After that, you will be able to use the Seek function.
Although I can play some files, I cannot play others even if they have the same resolution and format.	For unsupported videos, some videos at a certain resolution and format may be played.
How can I show captions?	Only the first language of the supported caption file is displayed. Supported caption file : SMI, SRT, SUB, TXT, TTXT

Troubleshooting

Internet TV in Smart Hub

Question	Answer
Internet @ TV or DLNA is not work. (cable)	Check user's network environment, and select cable in the Setup menu. And select 'Network Status' menu. 'Mac address' is ff:ff:ff:ff:ff:ff → Main board change to write Mac address. Check the not connected point, in OSD.
internet@TV or DLNA is not work. (wireless)	Check user's network environment, and select wireless in the Setup menu. And select 'Network Status' menu. 'Mac address' is ff:ff:ff:ff:ff:ff → Main board change to write Mac address. Check the not connected point, in OSD. Check the nunber of antena strangth of AP in OSD.
Some application contents only appear in English. How can I change the language?	The Application content language may be different from the application user interface language. The ability to change the language depends on the service provider.
Some application services do not work.	Check with the service provider. Refer to the help website for application service provider information.
When a network error occurs, I can only use the setting menu.	If network connection doesn't work, your service might be limited, as all functions except the setting menu are needed to connect to the internet.
I can net play internet@TV function	If setting of 'Auto Motion Plus 120Hz' is 'Demo', Internet@TV is not working.
How to create a Smart HUB ID	1. Press the Red button. The Login screen appears. 2. Select New Account. The Generate Account screen will appear. 3. Press the ENTERE button to enter a new Smart Hub ID. The Keypad screed will appear. 4. Using the keypad screen, enter a Smart Hub ID. * Smart Hub ID must be created in "sample@sample.com" form.
Pop up OSD of request yahoo ID.	You can make ID in yahoo homepage.

Internet TV in Smart Hub

Question	Answer
I can't use flickr widget	Account of Flicker is different from Yahoo's. So you want to use 'Flicker', make an account of Flicker, separately.
Navication and loading is very slow using internet@TV.	Check the environment of network. If the quality of network is not good, TV may response slowly.
I want to get new widget.	You can add your widget using 'Samsung Apps' in SMART HUB , just choose widget and click 'Add widget My Profile'. Additional widget will be updated continuous.
I forget my profile password.	It is impossible that reset password only. So reset 'Internet @ TV' service. In Profile system setting menu, you can restore factory setting. Note that All of your information of 'Internet @ TV' is reset.
When I enter internet@TV, the "Connecting to the service..." warning message box appears where I can select either Retry or Cancel, and I cannot enter internet@TV. (The Panel Bar is not displayed.)	This happens when normal information is not received from the internet @ TV after purchasing the TV. In this case, connect the Internet cable and then try again.
Although I can enter internet@TV, I cannot connect to the service.	This happens when internet@TV has been properly connected at least once but the Internet is not currently connected. In this case, connect the Internet cable and try again.
When the network is connected, I cannot connect to some of the information.	This happens when the CP sends incomplete information. In this case, reconnect to the Internet and try again.
Photos are not displayed or are displayed intermittently in the Detailed News View.	This may occur due to a slow Internet speed. Retry and ask your Internet Service Provider about the low data rate problem.
The Mode information of the News changes. (E.g. 'Entertainment' was in the News mode list, but it has been removed from the list.)	The Mode information of the News is simply displayed as it is provided by the CP and is not relevant to the TV.
The displayed stock price is different from the current price.	The corresponding information is supplied by CP and is not relevant to the TV. The information provided by the CP is delayed information and the announcement informing the viewer that the information is delayed information is displayed in the service.
I want to select another song in the slideshow.	Only the default song provided in the widget is available.
The "Recent Photos" change continuously.	The corresponding information is received from the CP and is irrelevant to your TV. The "Recent Photos" are updated in real time.
The same news articles are always shown (The list of articles is not updated.)	The corresponding information is received from the CP and is irrelevant to your TV. New data can only be received if the data provided by the CP is updated.

Troubleshooting

Internet TV in Smart Hub

Question	Answer
After I have created my account and logged into the system, when I enter My Apps or My Cyber Cash on My Page, the message "Your login account has a problem." is displayed.	This occurs because you are not connected to your partner account for Samsung Apps. Connect to your partner account on the Settings page using your actual PC-website account and then try again.
The Goods List icons disappear temporarily.	Since the goods information including the icons is downloaded via the Internet to be displayed on the screen, they may be shown with a delay depending on your network status.
When I select this operation and press "Enter" on my remote control, I am not moved to the proper page and a detailed advert page is displayed.	To use the Internet@TV normally, you must connect to the Internet and agree to the User License Agreement.
I cannot find the city for which I want to view weather.	The CP provides weather information for a limited number of cities.
How many cities can I add to My Interest Cities?	You can add up to 20 cities.
How frequently is weather information updated?	Weather information is real-time information but there may be a slight time difference. If the Widget is run continually, the weather information is updated every 30 minutes.
No traffic information is shown.	Traffic information for countries and areas is limited. As of December 2009, traffic information is only provided for the USA, England, France, and China (some big cities).
What are the differences between the map types?	MAP: Normal street map. Satellite: Satellite photo. Hybrid: Satellite photo + street map
No map is displayed.	1. Check whether the map is magnified too much. Try to change to a middle zoom ratio. 2. There may be no map data for a location in an ocean. Try to use the Search function to search the map using a location name. 3. Connect to the Google Maps website (ht
What is the difference between when I use the widget after logging in and when I use the widget without logging in?	When you enter the widget after logging in, you can save the video you are watching in the storage space assigned to your login account. You can also view the videos added as your favorites from the Favorites category or from the favorites of your YouTube

Troubleshooting

Internet TV in Smart Hub

Question	Answer
What is the difference between when I use the widget after logging in and when I use the widget without logging in?	When you enter the widget after logging in, you can zzim (select) the video you are watching and save it in the storage assigned to your login account. From the My Zzim category, you can also view the videos you zzimed (selected) on the KBS zzim website (
How many videos can I save on the TV Box?	You can save up to 40 videos.
Where can I create my login ID and charge my cyber money?	You can create your ID and charge your SBS cyber money account on the SBS website (http://www.sbs.co.kr).
I cannot log into Twitter.	To use Twitter, you must log in to it first. Create your account on the Settings page, register your created account on the Twitter website (www.twitter.com), and then log in to Twitter using your registered ID. If you cannot access Twitter after you hav
I logged into the system with a different user account. But the interests do not change.	It is not supported to have different interests for each login user. You can set up to 20 interests.
The current time does not change.	The current time is designed to be updated every hour.
How can I view the weather after a week?	The weather information is only provided for a week from today.

Network Setup

Question	Answer
How do I setup the network?	Click the [Menu] button and open [Setup] to select [Network]. Configure wired or wireless network settings. For details, please refer to the IB.
How do I check the network status?	Select [Menu] -> [Setup] -> [Network] and run [Network Test] to see test results and check the network status.
In a network test over a wired connection, the second items which include the IP address, subnet, gateway and DNS server fail.	If the IP address, subnet mask and gateway address were typed in manually, check that valid values were entered. (For example, 0.0.0.0 is not valid for an IP address, subnet mask or gateway address.) If the IP address the user entered in is invalid, change it to a valid IP address.
In a network test over a wired connection, the third item, gateway ping fails.	1. Check that the network cable is connected to the TV correctly. 2. If the TV is connected correctly, check whether the IP address is automatic or manual. 3. If the IP is automatic and connected to a sharing device, check the settings of the sharing device (AP) that is using a cable connection, or consult the corresponding Internet service provider. 4. If the IP is manual, check if the IP address is entered correctly. (Here, the user should confirm if the manual IP address entered in is valid.)
In a network test over a wired connection, the fourth item, Internet service test fails.	Please consult the corresponding Internet service provider (an Internet network service provider the user has subscribed to such as KT).
I do not know how to connect to a wireless network.	Please set up a connection referring to the IB. (Give details in the IB.)
When using a wireless network, the user's wireless sharing device cannot connect to the PBC (WPS).	1. Check if the sharing device of the user supports WPS. (Refer to the manual of the sharing device.) 2. Check if the user pressed the PBC button on the sharing device. 3. If there is another sharing device with WPS running nearby, a connection cannot be made. Please retry after 2 minutes. 4. Reset the sharing device and retry. 5. If the sharing device of the user is not Wi-Fi certified, it may not be able to connect using WPS.
The auto-configuring sharing device cannot be connected to automatically through a wireless dongle. (Here, the user's sharing device must support auto-configuration.)	1. Check if the sharing device of the user supports auto configuration. (For a list of sharing devices, refer to the IB or website.) 2. If the sharing device of the user supports auto configuration, place the sharing device as close as possible to the wireless dongle on the TV and try to re-establish the connection. (Must be placed close to the TV to establish a connection.)

Troubleshooting

Network Setup

Question	Answer
cannot connect to a wireless network.	1. If an encryption key must be entered in to connect to a sharing device, please check that the correct password set for the sharing device is entered. 2. Search surrounding sharing devices to see if there is a sharing device with the same SSID by selecting [Wireless Network Setup] and [Select Network]. If there is a sharing device with the same SSID, try to connect to this device. 3. If the IP address is set to automatic and you cannot connect to the sharing device using option 1 or 2, check the settings of the sharing device to see if the DHCP server function on the sharing device is enabled. If disabled, activate the function. (For details on how to set up the sharing device, see the manual for the corresponding sharing device.) 4. If you still cannot connect to the sharing device after confirming options 1, 2 and 3, reset the sharing device and try again. 5.There could be several causes of the connection failure. Check the AP settings to see if the following condition is found: The Pure high-Throughput 802.11n mode (or Greenfield 802.11n mode) is selected and the Encryption type is set to WEP, TKIP or TKIP-AES, Under the conditions stated above, Samsung TVs will not support a connection in compliance with new Wi-Fi certification specifications. This is intended to maximize the performance of the AP, TV and TV network. To connect to the AP, set the Encryption type to AES. If Pure High-Throughput 802.11n mode (or Greenfield 802.11n mode) is selected and the Encryption type is set to AES, your Samsung TV will connect to the AP providing you with optimum performance.
Although the TV is placed close to the AP and the dongle is inserted into the TV, the sharing device cannot be connected to using auto-configuration.	Select [Menu] -> [Setup] -> [Network] and check if SWL is Off.
Although the TV is placed close to the AP and the dongle is inserted into the TV, the sharing device cannot be connected to using auto-configuration and a message that it is connecting is displayed only.	Check if the AP is not turned off during connection. If the AP is turned off, the TV will try to re-establish a connection for 2 minutes.

Troubleshooting

Network Setup

Question	Answer
When using a wireless network, the user's sharing device cannot be found in a search. (When [Wireless Network Setup] -> [Select Network] is selected or the Search button is pressed in the Wireless Network Setup screen)	If Samsung Wireless Link is On, a 5G-bandwidth wireless sharing device may not be found in a search (restriction). If Samsung Wireless Link is Off or the product does not have the Samsung Wireless Link function, please retry searching to find the sharing device. (May not be found in a search depending on the settings of the wireless connection.)
In a network test over a wireless connection, the second items which include the IP address, subnet, gateway and DNS server fail.	If the IP address, subnet mask and gateway were typed in manually, check that valid values were entered. (For example, 0.0.0.0 is not valid for an IP address, subnet mask or gateway address.) If the IP address the user entered in is invalid, change it to a valid IP address.
In a network test over a wireless connection, the third item, gateway ping fails.	1. If the IP address is automatic and connected to a sharing device, check the settings of the sharing device (AP) that is using a cable connection, or consult the corresponding Internet service provider. 2. If the IP address is manual, check that the IP address is entered in correctly. (Here, the user should confirm if the manual IP entered in is valid.)
In a network test over a wireless connection, the fourth item, Internet service test fails.	Please consult the corresponding Internet service provider (an Internet network service provider the user has subscribed to such as KT).
In order to use the Samsung Auto Configuration function, I did as the user manual instructed. I get a message that connecting to an external network has failed.	The Samsung Auto Configuration feature is designed to establish an auto connection between the TV and the gateway of the AP. It performs a connection test if the AP is connected to an external network. If the AP is not connected to an external network, a message that establishing a connection to an external network has failed is displayed. In this case, connect the AP to an external network. After a connection to the external network is established through a network test, you can use the network without any problem. Check if the AP is connected to an external network. If you perform a test when a connection to an external network is established through a LAN cable, you will obtain successful test results.

2013 Samsung TV
Training Course

Samsung SMART TV

Samsung 2013 LED TV Training Course

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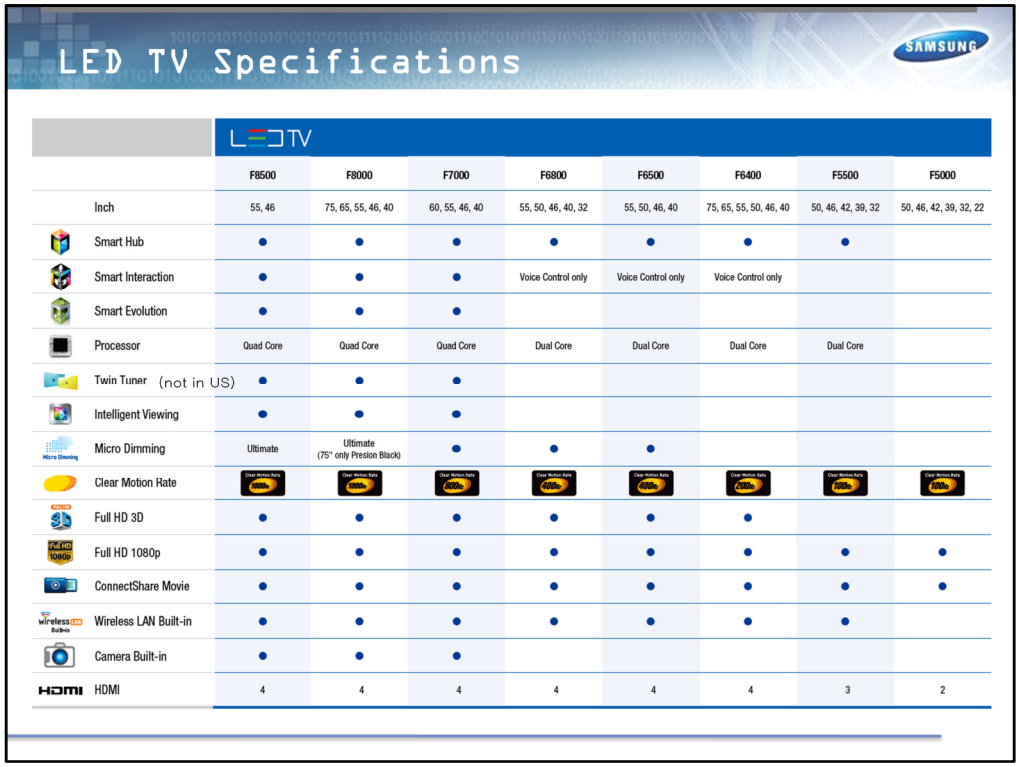
Introducing the 2013 TV line up.



LED TV Specifications

SAMSUNG

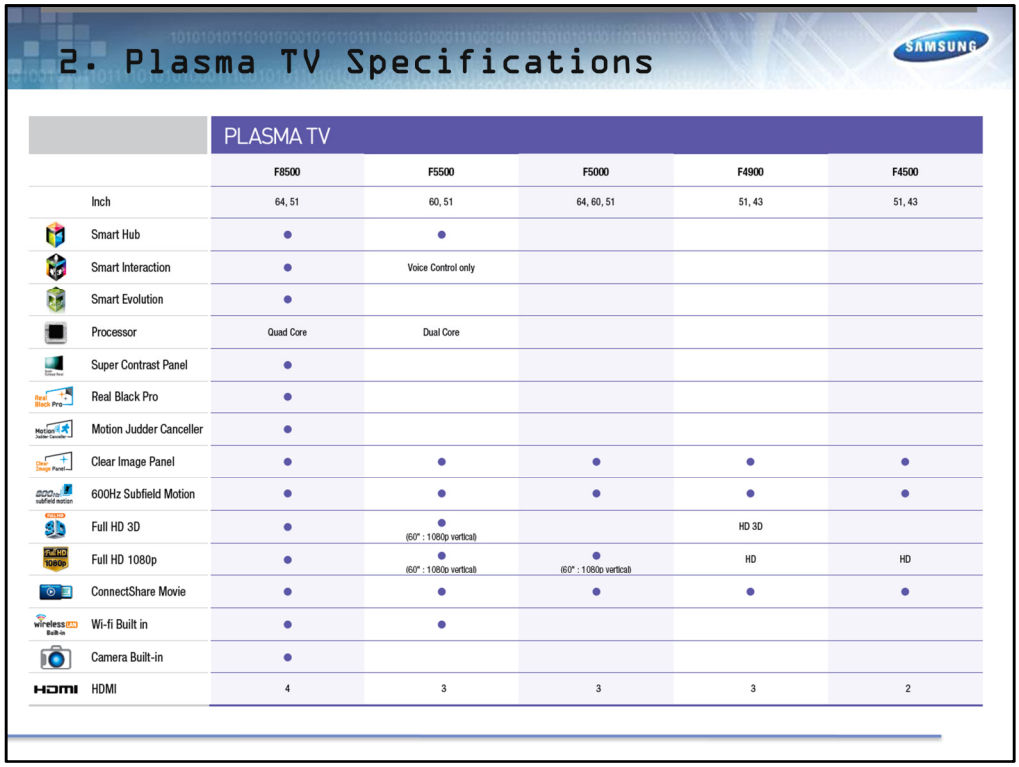
LED TV

	F8500	F8000	F7000	F6800	F6500	F6400	F5500	F5000
Inch	55, 46	75, 65, 55, 46, 40	60, 55, 46, 40	55, 50, 46, 40, 32	55, 50, 46, 40	75, 65, 55, 50, 46, 40	50, 46, 42, 39, 32	50, 46, 42, 39, 32, 22
Smart Hub	●	●	●	●	●	●	●	
Smart Interaction	●	●	●	Voice Control only	Voice Control only	Voice Control only		
Smart Evolution	●	●	●					
Processor	Quad Core	Quad Core	Quad Core	Dual Core	Dual Core	Dual Core	Dual Core	
Twin Tuner (not in US)	●	●	●					
Intelligent Viewing	●	●	●					
Micro Dimming	Ultimate	Ultimate (75" only Presion Black)	●	●	●			
Clear Motion Rate	800	800	800	800	400	400	400	400
Full HD 3D	●	●	●	●	●	●		
Full HD 1080p	●	●	●	●	●	●	●	●
ConnectShare Movie	●	●	●	●	●	●	●	●
Wireless LAN Built-in	●	●	●	●	●	●	●	
Camera Built-in	●	●	●					
HDMI	4	4	4	4	4	4	3	2

For your reference here is the LED Line Up for 2013

- Some key items include Smart Hub , Smart Interaction , Smart Evolution , intelligent viewing, Quad Core processor, Micro Dimming, .

please note that Twin Tuner is not available in the US.



2. Plasma TV Specifications

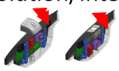
	PLASMA TV				
	F8500	F5500	F5000	F4900	F4500
Inch	64, 51	60, 51	64, 60, 51	51, 43	51, 43
Smart Hub	●	●			
Smart Interaction	●	Voice Control only			
Smart Evolution	●				
Processor	Quad Core	Dual Core			
Super Contrast Panel	●				
Real Black Pro	●				
Motion Judder Canceller	●				
Clear Image Panel	●	●	●	●	●
600Hz Subfield Motion	●	●	●	●	●
Full HD 3D	●	● (60" : 1080p vertical)		HD 3D	
Full HD 1080p	●	● (60" : 1080p vertical)	● (60" : 1080p vertical)	HD	HD
ConnectShare Movie	●	●	●	●	●
Wi-fi Built in	●	●			
Camera Built-in	●				
HDMI	4	3	3	3	2

The Plasma TV Line Up includes
Voice Control , Quad Core Processor , Smart Interaction , Smart Evolution , Smart Hub and more.

2013 Samsung TV Additions

LED & PLASMA TVs:

- New Quad Core "Fox" Processor for expanded user operations and processing.
- New 5 Panels selections ("Golden Bridge") and new Smart Evolution/Interaction.
- New MoIP Module with retractable 5 MPixel Camera
- New "Evolution Kit" for 2012 TV Upgrade to 2013



- Added Customer Self Diagnostics info. including Test Patterns from T-Con (LED)
- New Service Mode Diagnostics for Hardware Check (Wi-Fi, BT, Voltages, etc.)

PLASMA:

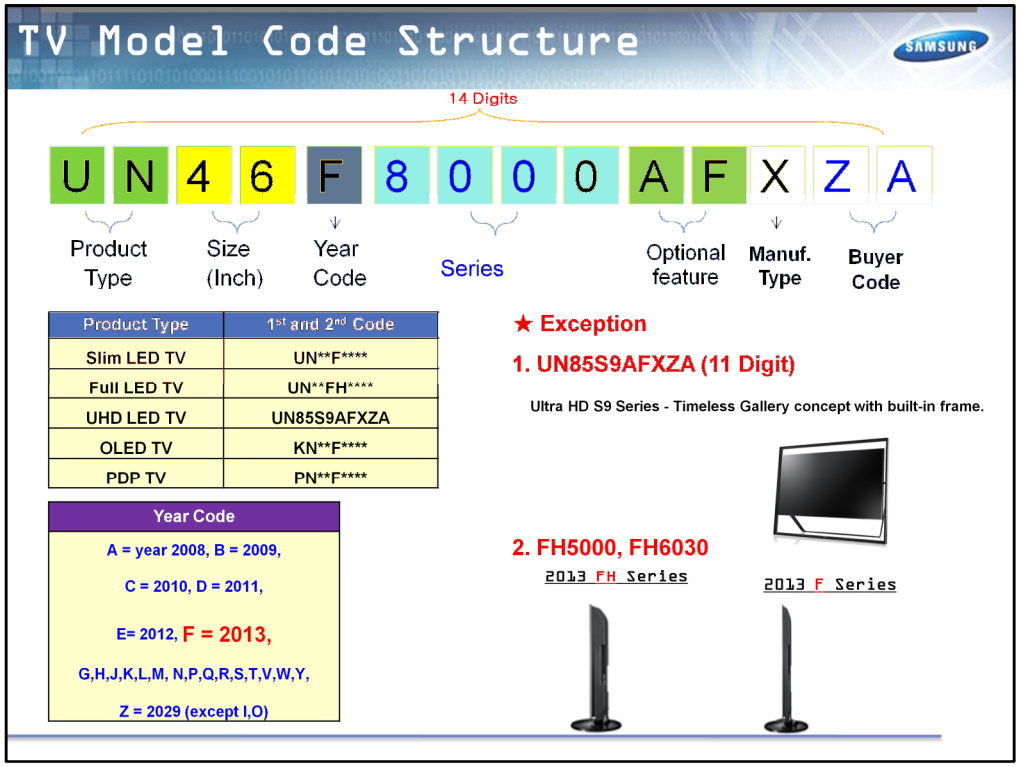
- New PNF8500 "Reference" TV
- New combined Main/Logic Board on all Plasma Model TVs
- New combined X/Y Main /Y Buffer Board and SMPS/X Buffer Board TVs
- New Failure Flashing Error Codes on Logic Board and Standby LEDs

LED TVs:

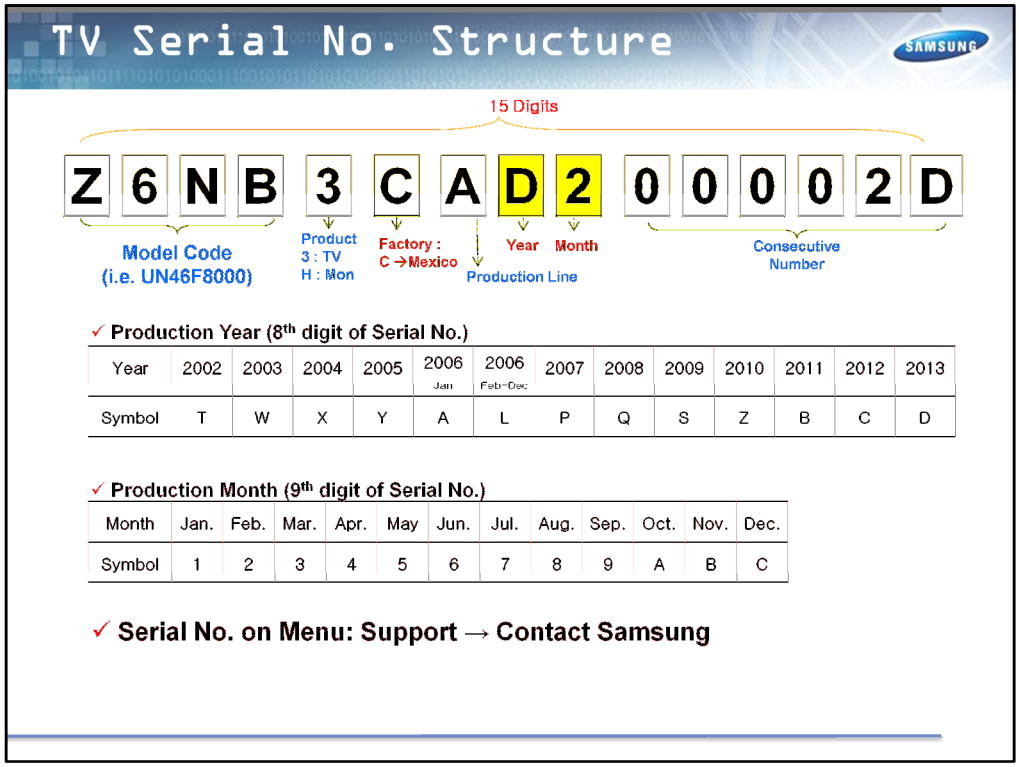
- New OLED TVs
- New Curved OLED
- New 85 inch UHD LED TVs (2160p 3840 X 2160 Res)

(Note: OLED Projected for '2013 release but subject to change)

2013 Highlights are listed for
Both the LED and Plasma TVs, Plasma Only, the new OLED TVs & Curved OLED TVs for later release and the 85 inch UHD LED TVs already available.



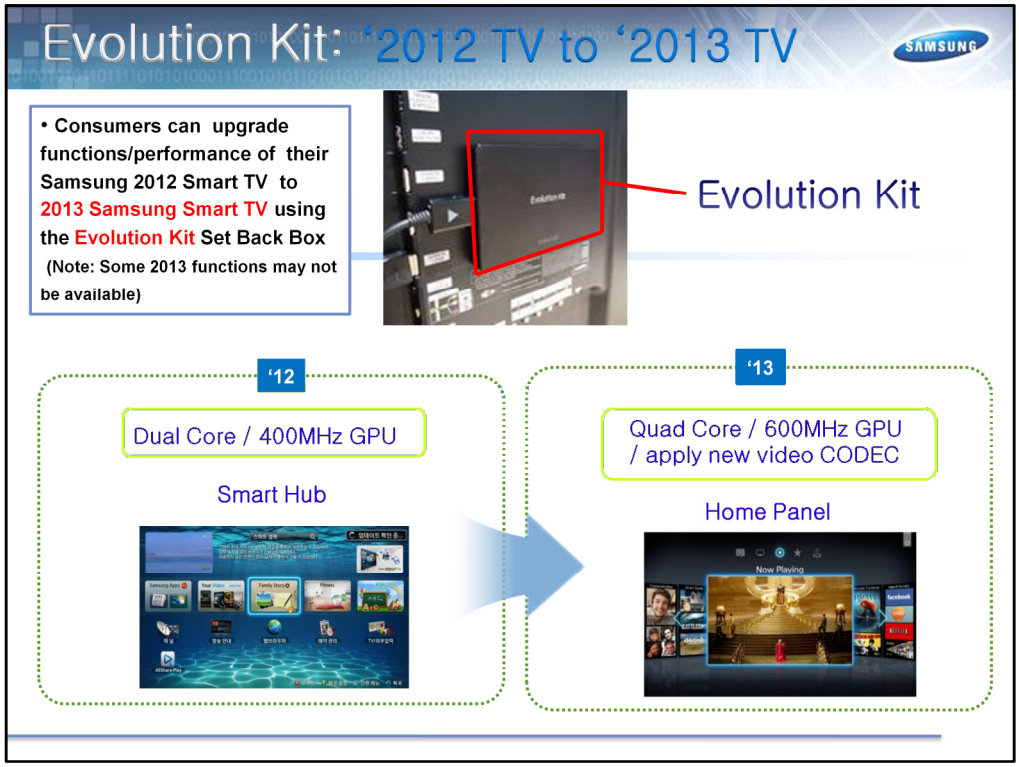
The 14 digit model code structure is listed here for your reference. New is the "F" Year Code for 2013



Important Serial Number structure is listed:
Model Code, Product, Factory, Production Line, Year/Month… and **“D” for 2013**

-

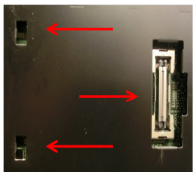
Key Features for 2013



-Evolution kit: Consumers can update functions and performance of their Samsung 2012 smart TV to the 2013 model using the Evolution kit set back box. Some 2013 Functions may not be available.

Evolution Kit Procedure

1.Remove Label



2. Attach **Evolution Kit** first into tabs than into the Connector

3. Push **Evolution Kit** into the panel until the **Release Button** on the side Clicks to a locked position.

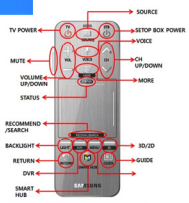
(To release the Evolution Kit first press this Release button.)

4. Attach **the Wired LAN Adapter** and customer Cable for Network.

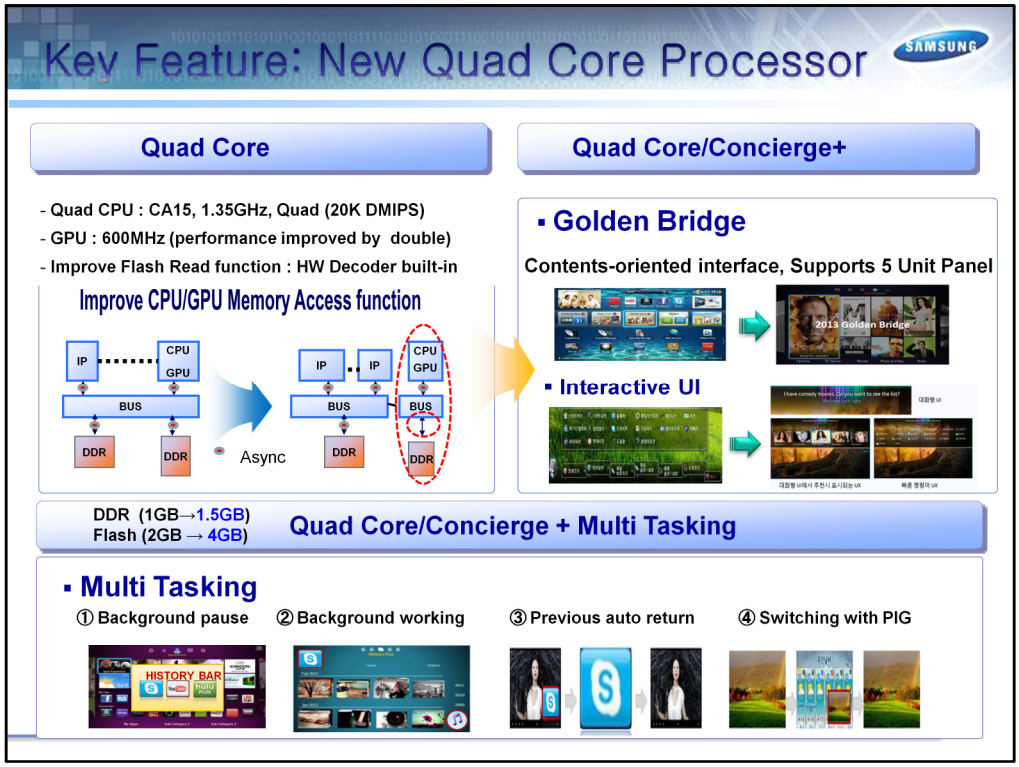
(Not required If using a Wireless Network)

5. Turn On the TV & follow Instructions.

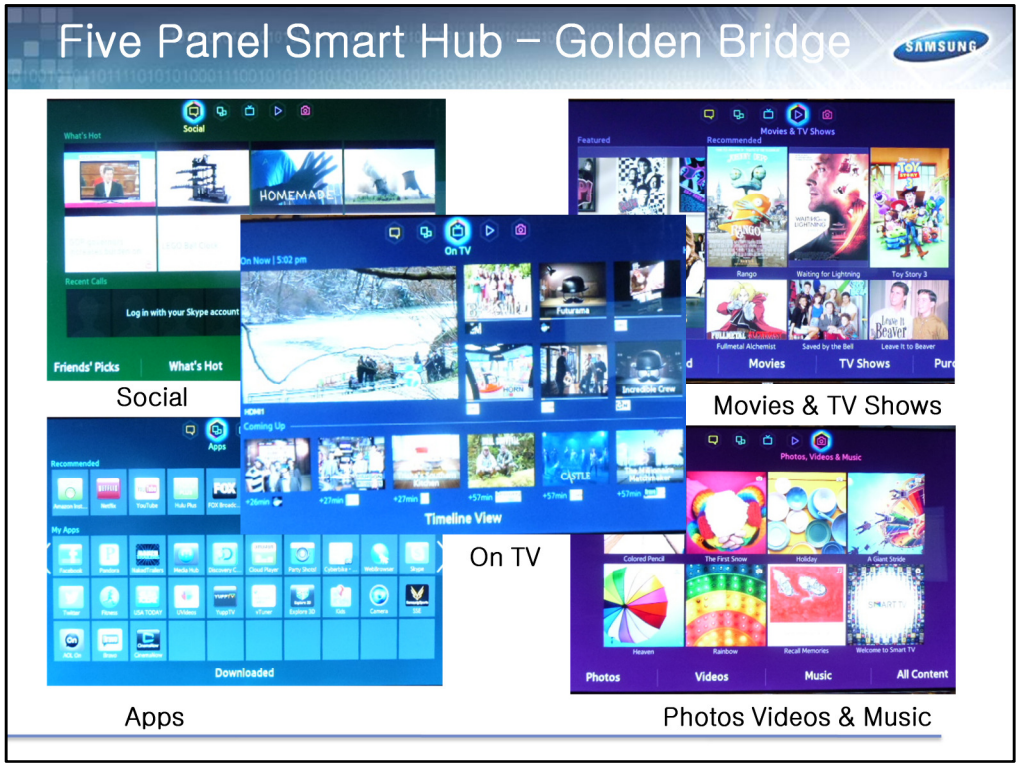
Pair & use Smart Remote



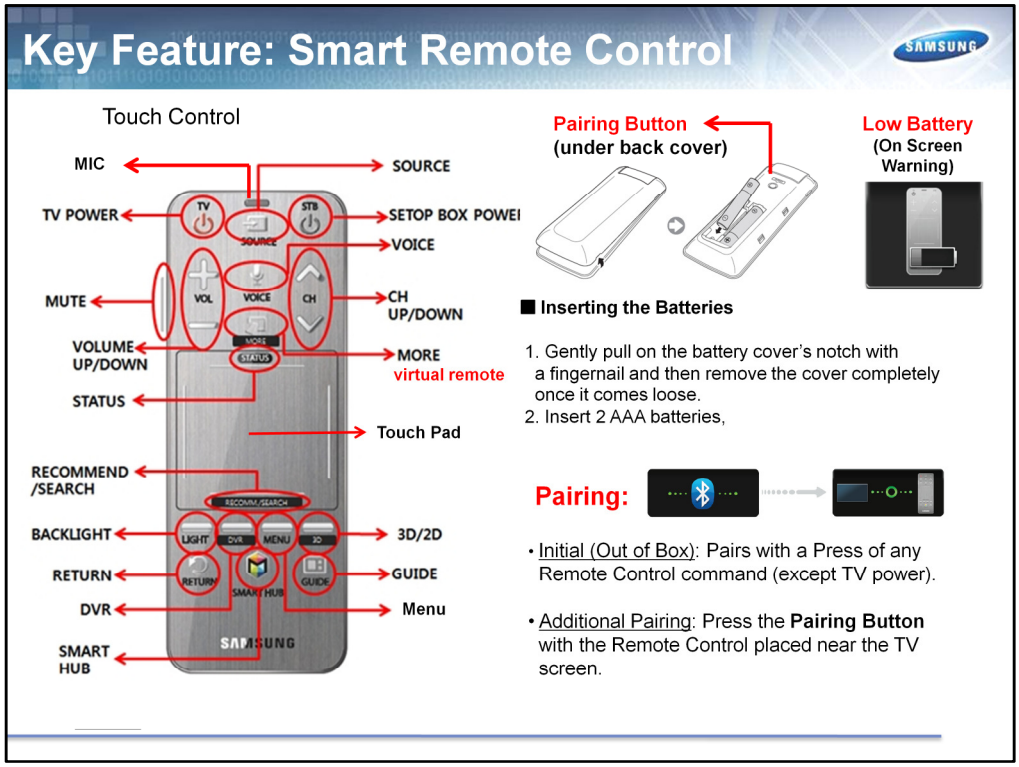
To add the Evolution Kit on a 2012 TV…



The new Quad Core FOX Processor doubles the performance allowing for expanded screens and important Multi Tasking. The Quad CPU runs at 1.35GHZ GPU now has 600MHZ for improved video performance.

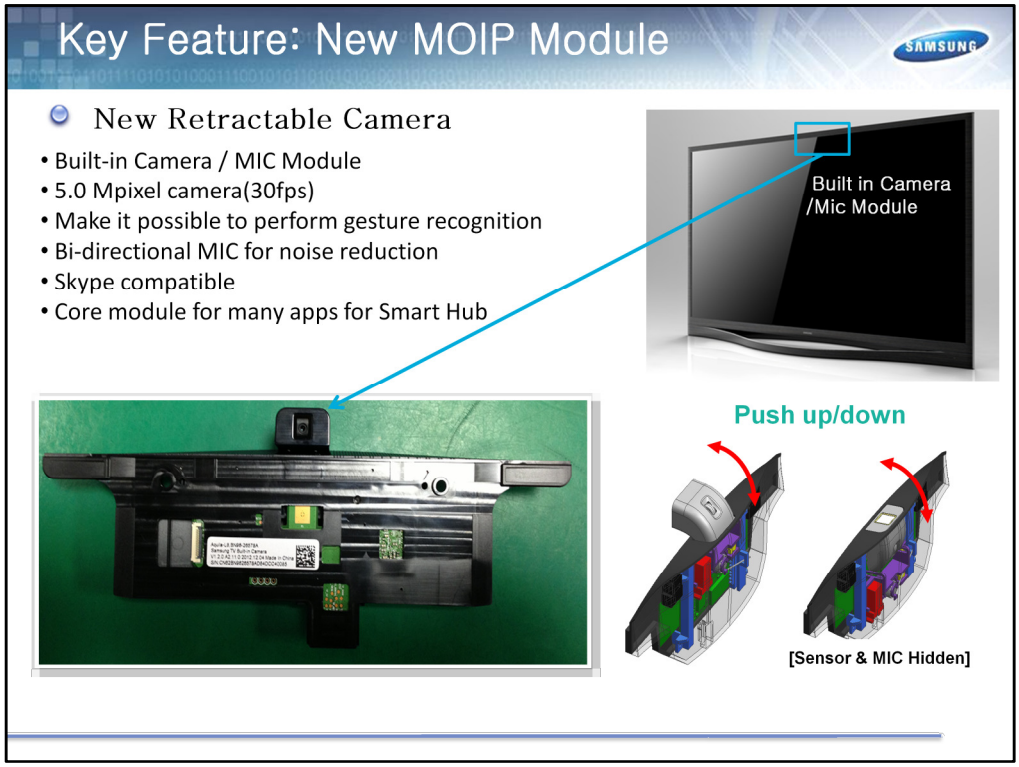


1. **On TV**: Listing of programs that are currently airing and are scheduled to air.
2. **Movies & TV Show**: Purchase and watch movies and series without a separate external device.
3. **Photo, video, and music**: Play back photo, video, and music files from an external storage device.
4. **Apps**: Download and install applications such as Web Browser and Family Tree.
5. **Social** : Watch YouTube videos and you and your friends' video posts on Facebook and Twitter. You can also make video calls (Skype)

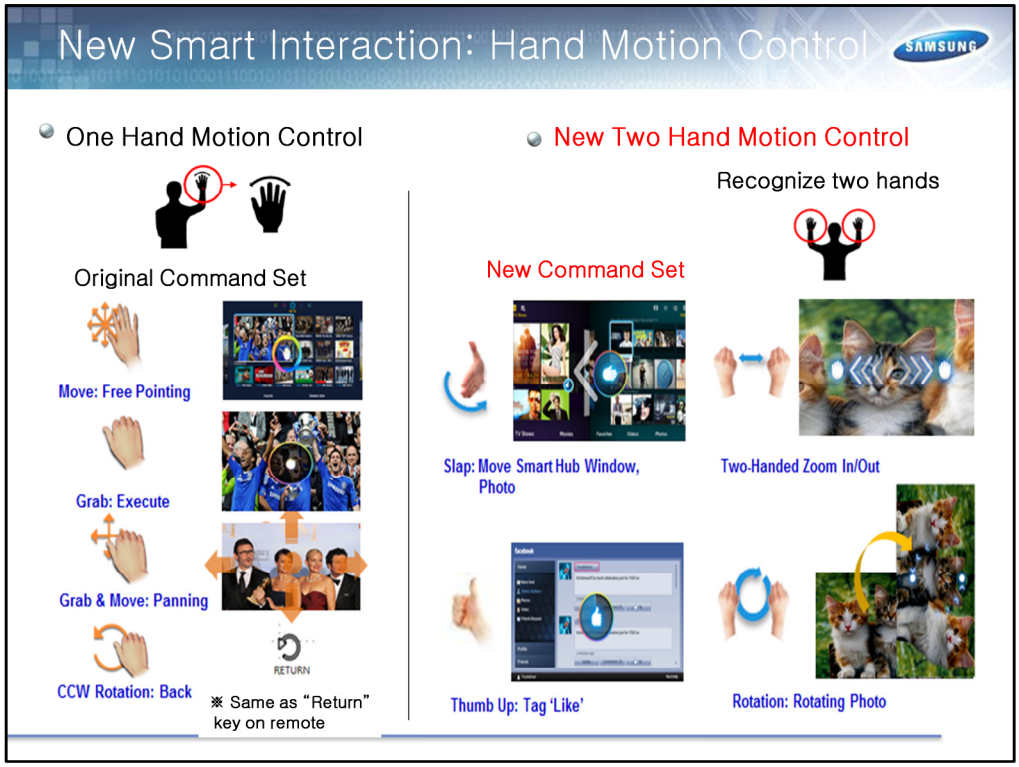


2013 Smart Remote Control operation is seen on the left. TV Power command is IR while the rest operate by Bluetooth. The pairing for initial out of the Box is triggered by pressing any command other than TV power. Manual pairing requires removing the rear cover, pressing the Pairing button for about 5 sec within 2 feet of the TV aimed at the IR detector. New TV screen confirmation includes battery status. It will re-appear on the TV when it becomes too low.

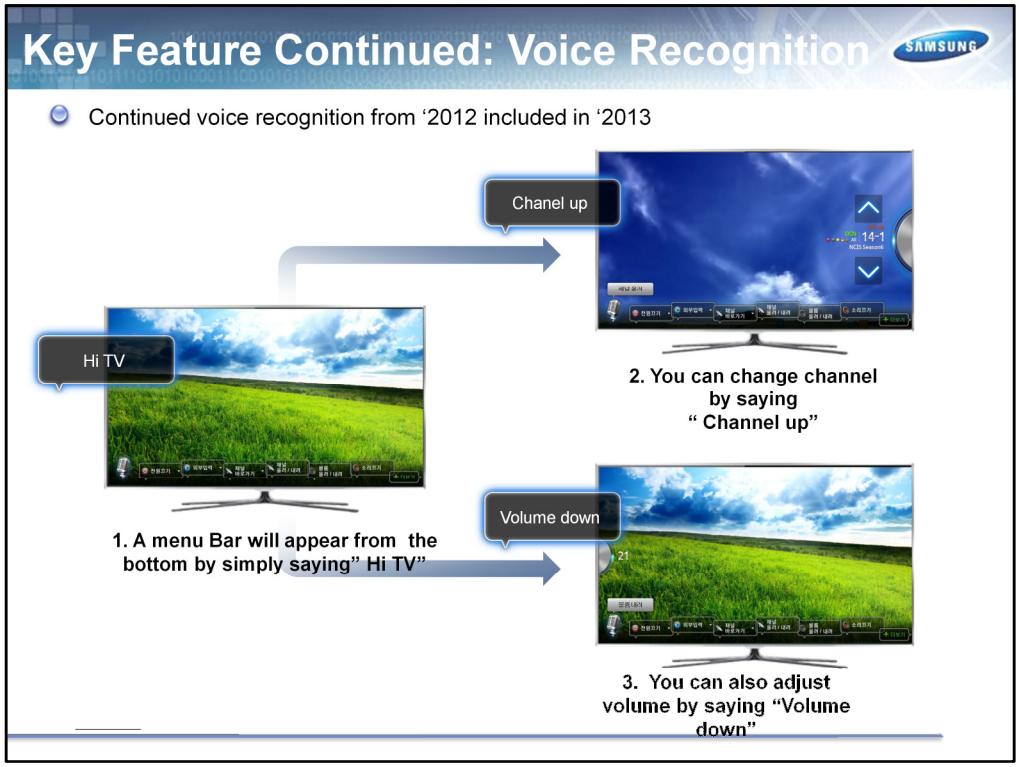
Seen on the left… The IR Blaster can be Wired, using an external IR Blaster Cable/Emitter that connects through a mini jack on the TV. The Remote/TV correspond via Bluetooth and the TV sends corresponding IR commands through the Wired Blaster to the device (like an external Set Top Box). It can also be a Wireless Blaster, seen on the right, utilizing the Remote as the IR Blaster while corresponding to the TV via Bluetooth. The TV then sends the commands back to the Remote which then sends it out as IR to the devices. The remote has additional IR emitters for better transmitting coverage of the IR signal to the external devices.



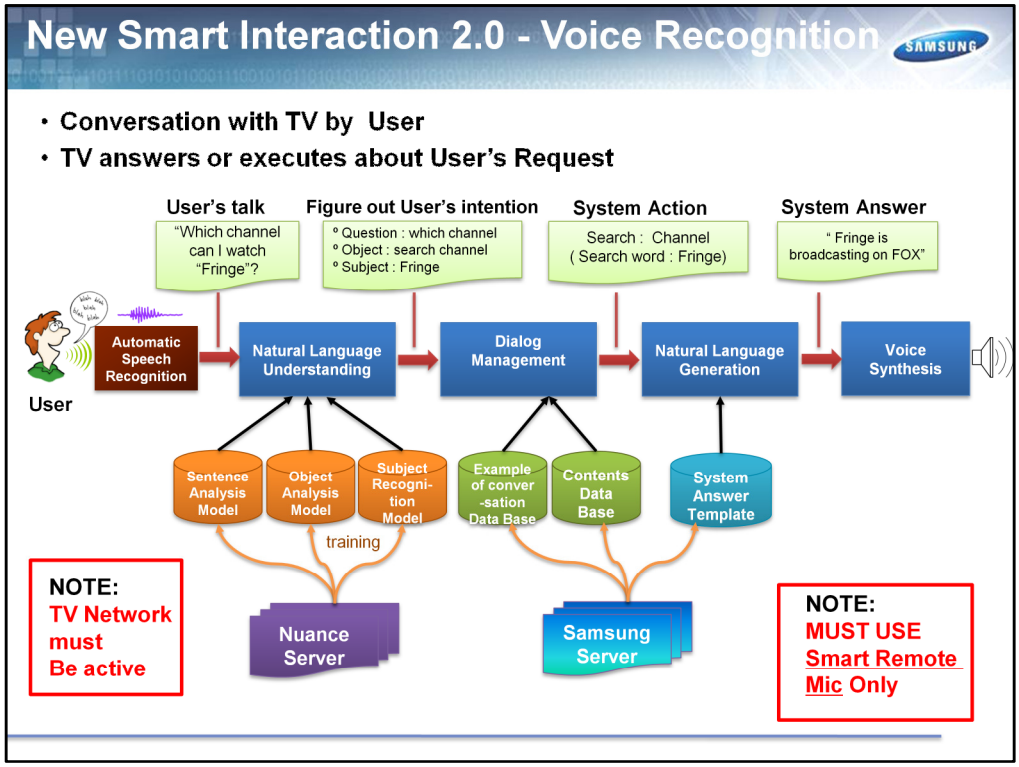
The new MOIP Module has a Retractable built in camera
-Key features include
- 5 mega pixel camera Bi Directional Mic for noise reduction



-Hand Motion control has expanded with Slap control to move Smart Hub Window, Two Hand Zoom on Photos, Thumbs Up for selection OK, and two rotation for photos…

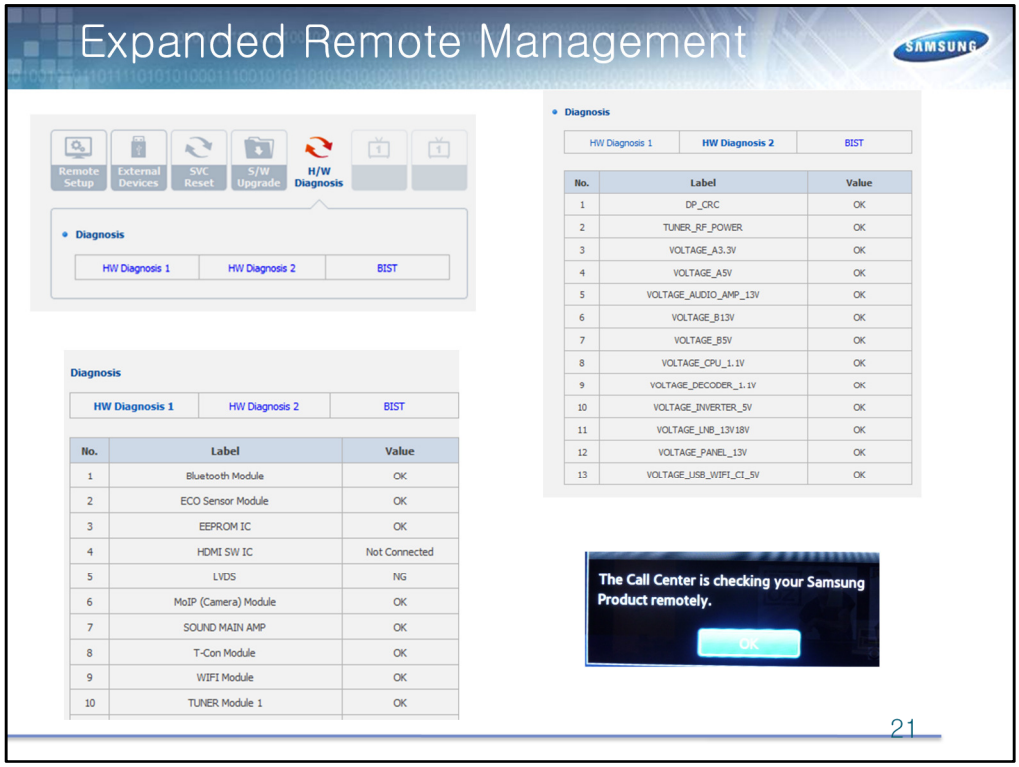


Continued voice commands from 2012 include Hi TV, triggering menu & Hi TV Power On for turning on the TV. Volume and Channel Up/Down. These basic commands can be done using the MOIP Mic or Smart Remote Mic.



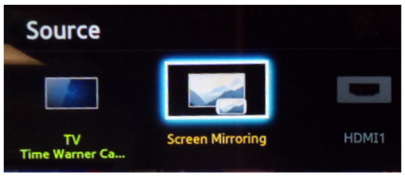
New Smart Interaction 2.0 Voice recognition. Operation must be with the Smart TV Mic Remote (MOIP Mic will not work!) TV MUST have Network Connection as well.
-The TV will execute the users request.
- EXAMPLE: Press Smart Remote Mic, release & say '' Which Channel can I watch Fringe ? ''
- The TV process info and sends to external 3rd party Nuance Server if necessary. The Nuance Server trains the Samsung Server and info is placed into content data base. Command is processed and a natural language response than goes to the Voice Synthesizer and outputs "System Answer Fringe is Broadcasting on Fox".
-The Samsung Server continues to gather personal data base for the TV making it "smarter" for use.

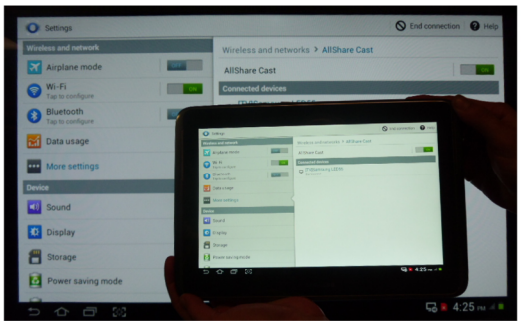
Remote Management introduced in 2011 has been expanded and allows remote TV access testing/diagnosis by the Samsung Call Center which now includes Hardware Test (Wi-Fi, Bluetooth, SMPS/Main Board Voltages, etc)



Expanded Remote Management operating voltage status screens are displayed.

New "Screen Mirroring"

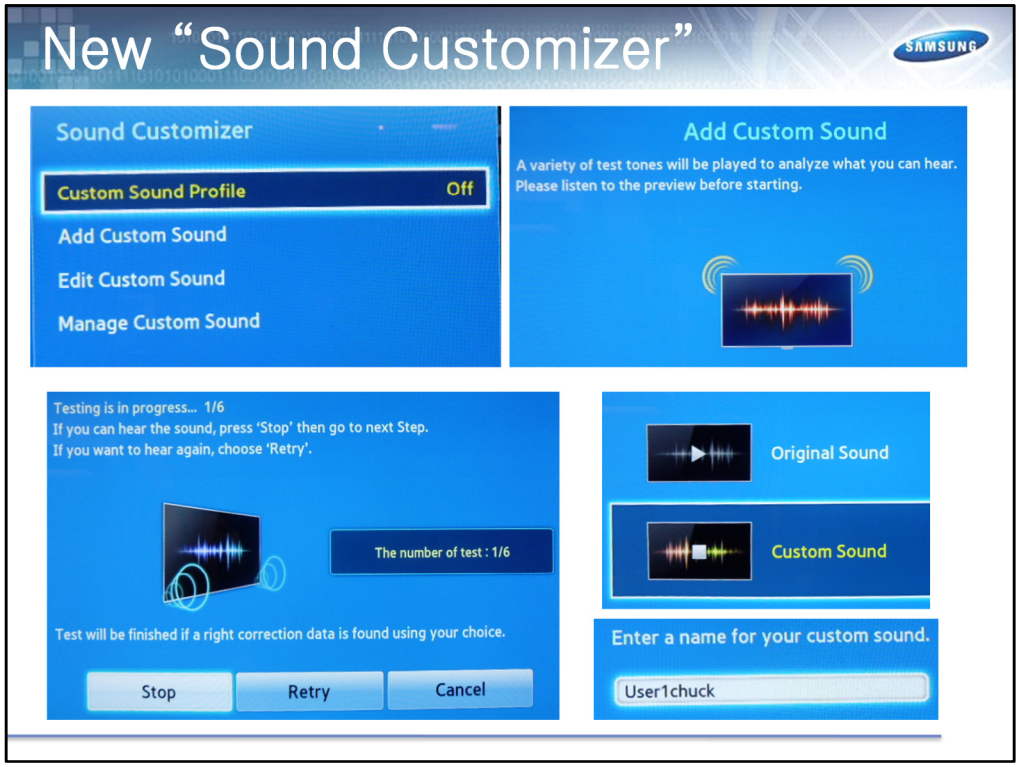




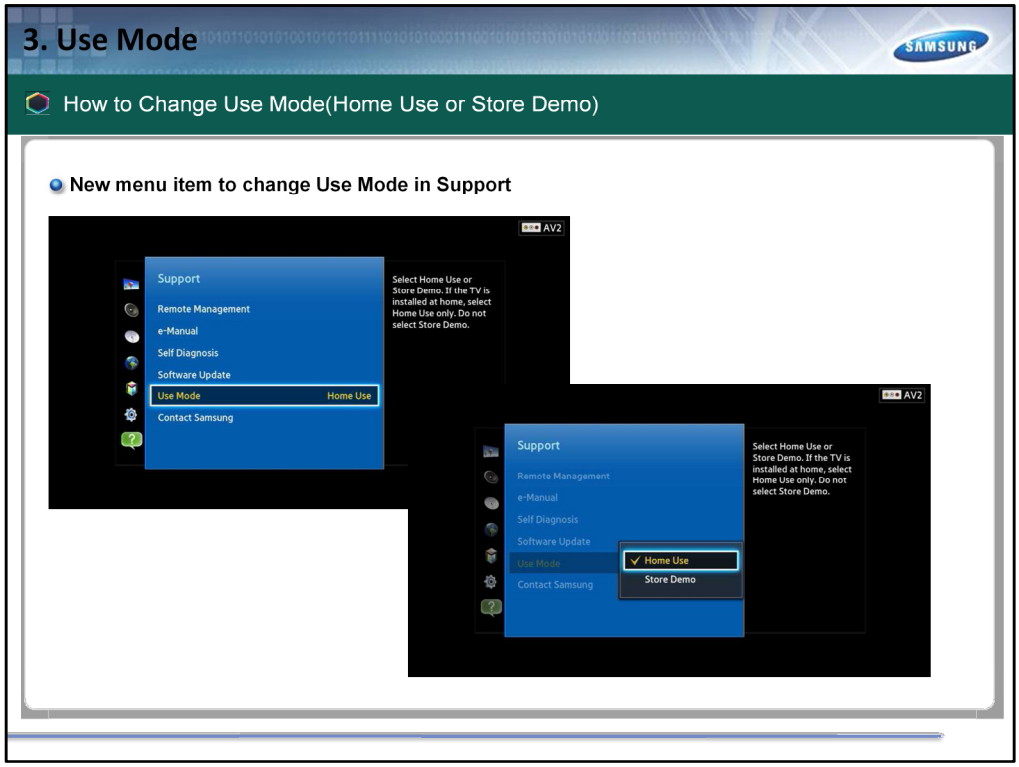
1. Select "Screen Mirroring" Input Source on TV.
2. Launch "AllShare Cast" or "Wireless Mirroring" on device (i.e. Tablet, S3 Cell Phone, etc)
3. Select connecting device i.e. LED55 in example
4. TV will display

Screen Mirroring allows you to display the screen of your Samsung Tablet or S3 smart phone on to the TV.

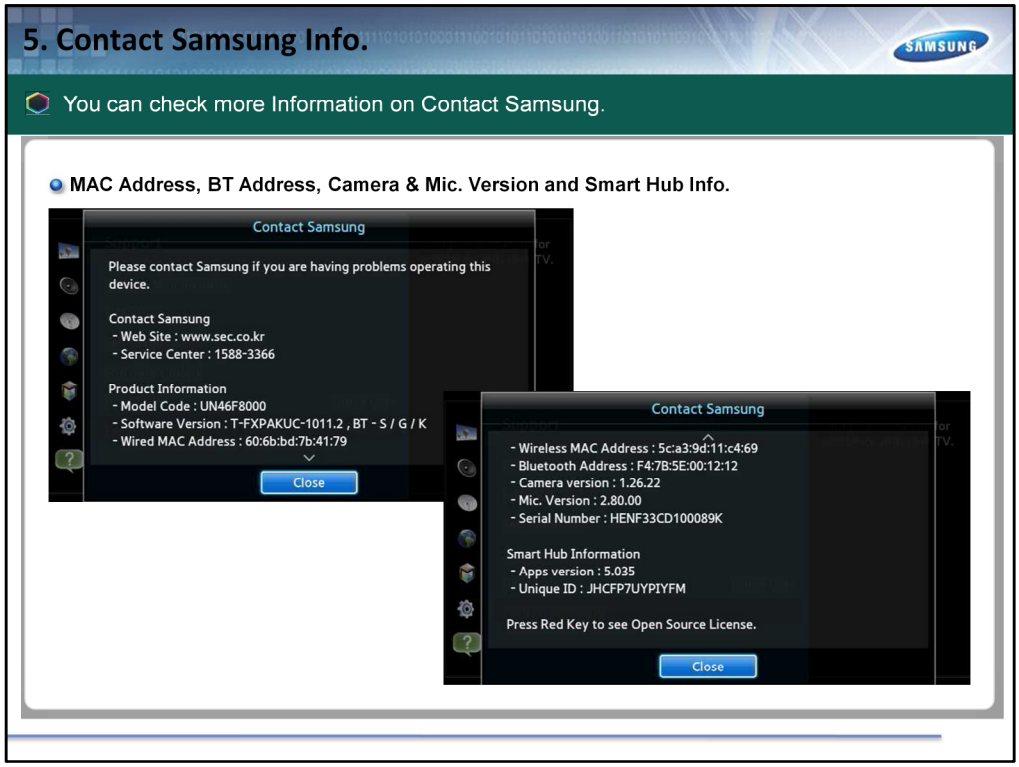
* note some older devices will not have this feature *



The new sound Customizer, will allow you to customize Audio preference in 6 steps. The sound will be set to your preferred individual hearing.
- Multiple users could be entered and preference settings could be switched.



A new menu item under support will allow you to change the use mode, from HOME MODE or STORE DEMO.



2013 Contact Samsung will give you the Mac address, BT Address, Camera & Mic, as well as the Version and Smart hub info.

1. Picture Test

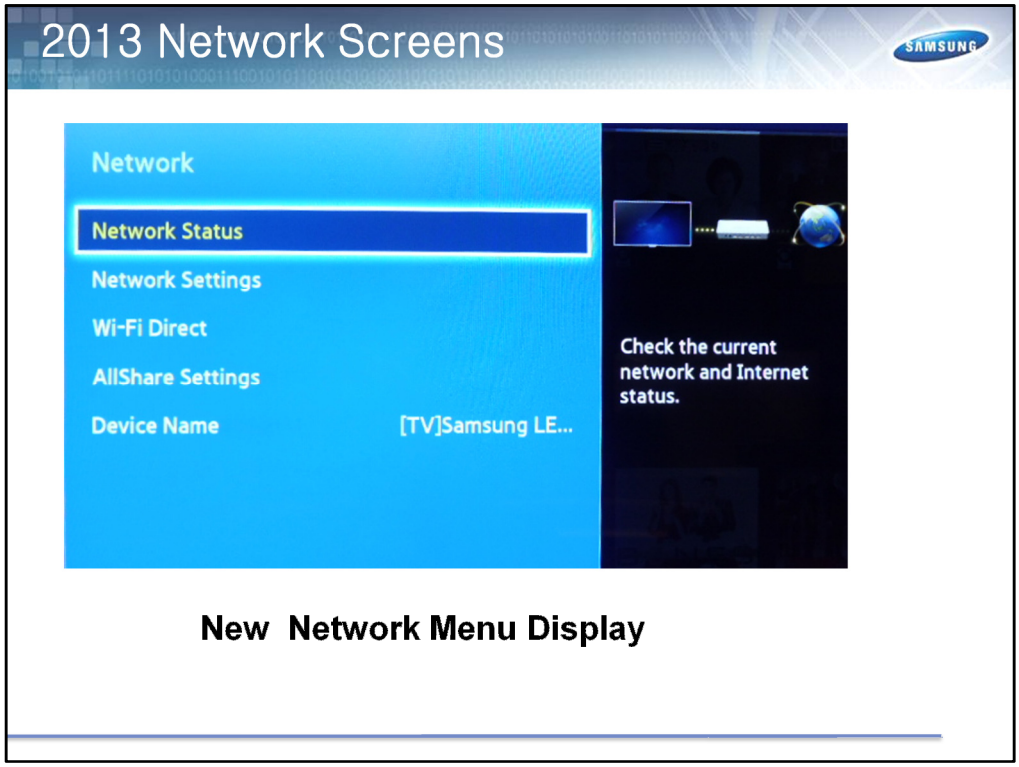
New Customer Picture Test for LED Models

More Test Pattern to check T-Con. defect

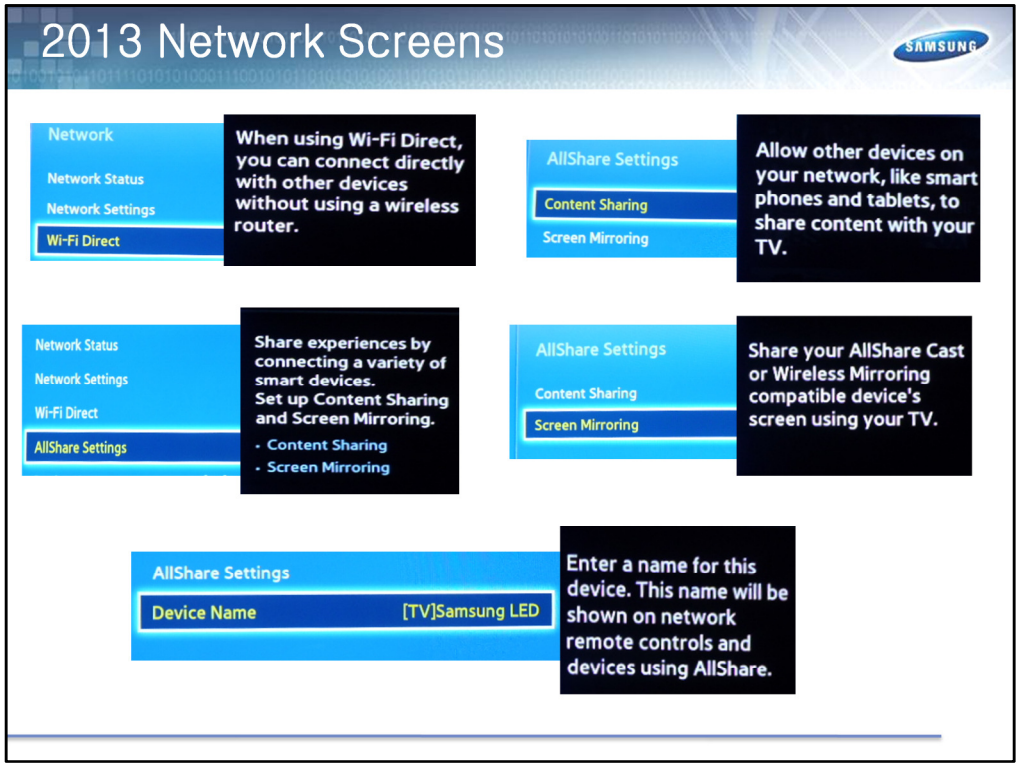
Main Board	Pre-T-Con.	Post T-Con.	Test Result	Problem
Pass	Pass	Pass		Signal Source
Fail	Pass	Pass		Main Board or LVDS
Fail	Fail	Pass		T-Con. Board
Fail	Fail	Fail		T-Con or Panel

Picture test will allow the customer to test the Main board, Pre-T-con and Post T-con.

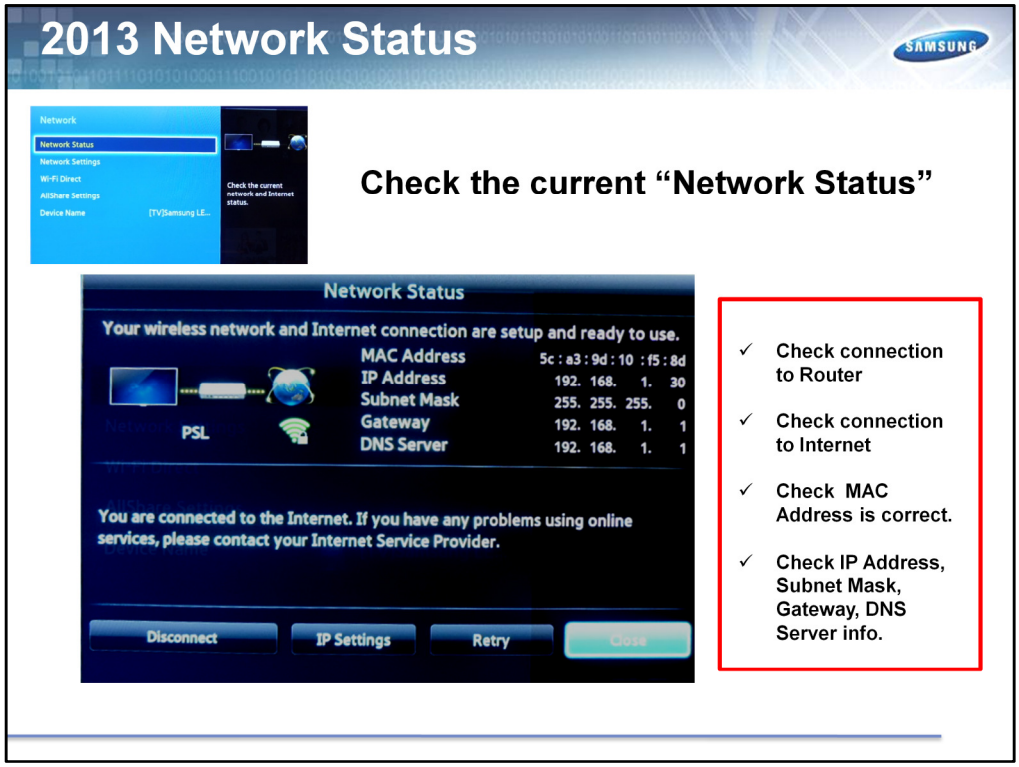
2013 Network Operation & Troubleshooting



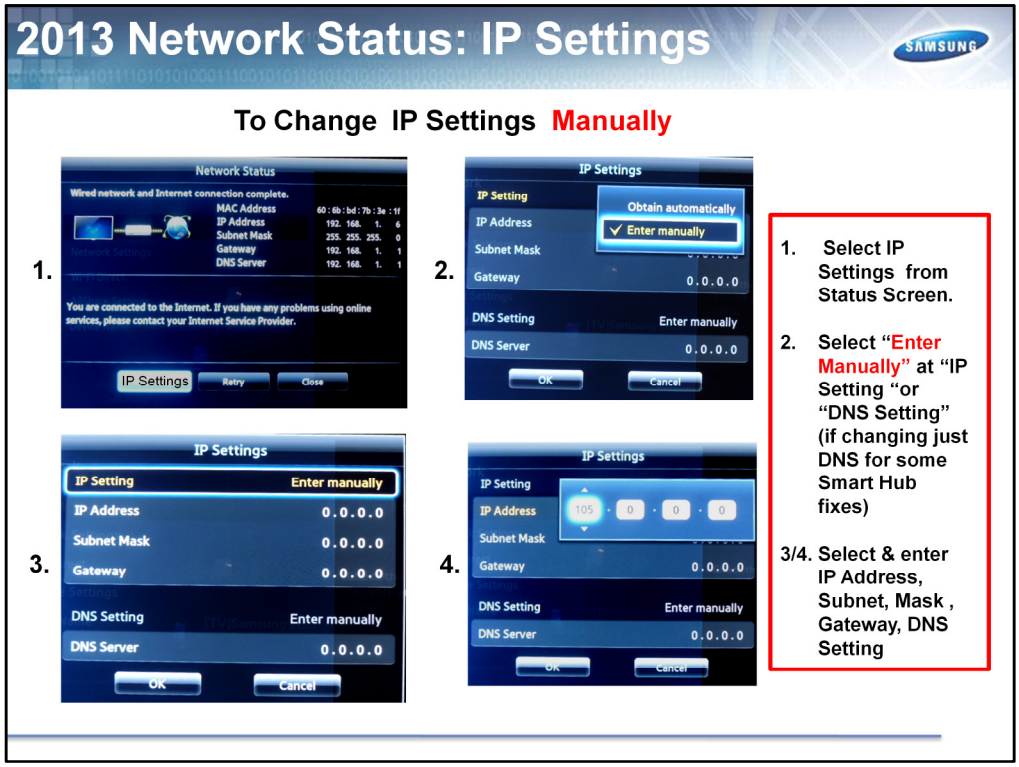
The 2013 Network Menu is similar to 2012 with Soft AP feature removed.



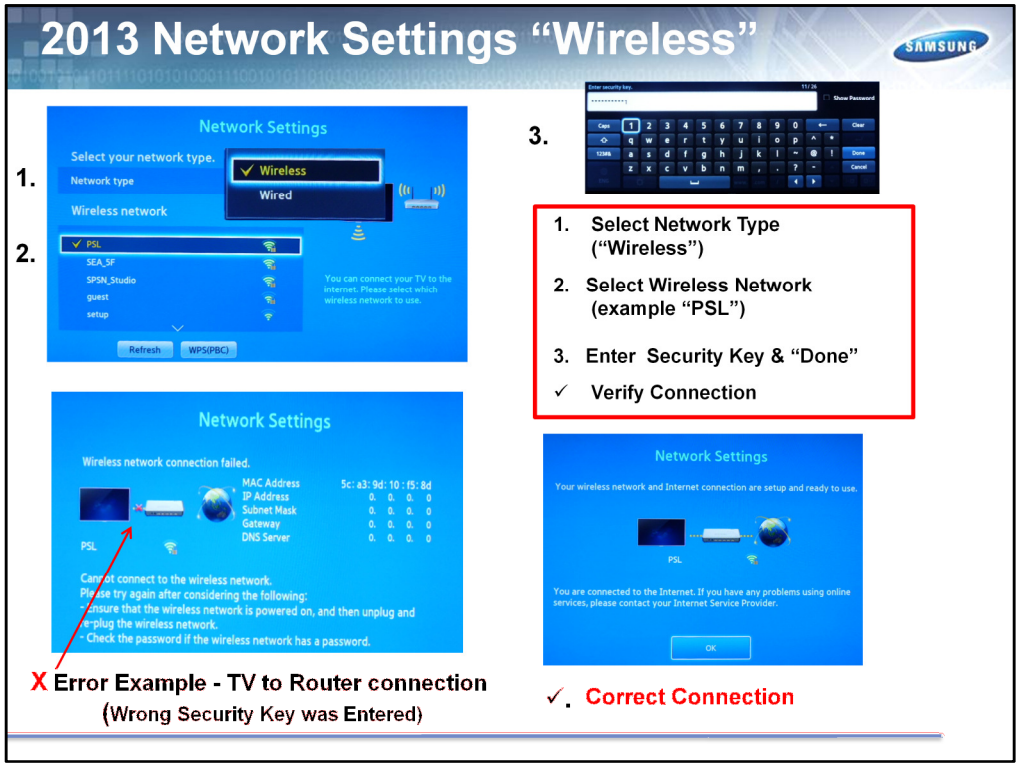
Functions of each item are listed with on screen side bars highlighted:
Wi-Fi Direct: For connecting directly to devices without a wireless router
All Share: For Sharing content with selected Devices on the same network
Content Sharing: Smart Phone, Tablets, etc, share with TV
Screen Mirroring: Share “All Share Cast” or “Wireless Mirroring” . Limited to Smart Phone or Tablet having the selection available. Same Network not required.



- ✓ Use important Network Status screen to:**Check connection to Router , Check connection to Internet**
- ✓ **Check MAC Address is correct, Check IP Address, Subnet Mask, Gateway, and DNS Server info.**



To change IP settings Manually… First **Select IP Settings from Status Screen.,** Second**: Select "Enter Manually" at "IP Setting "or "DNS Setting" (if changing just DNS for some Smart Hub fixes) 3&4 Select & enter IP Address, Subnet, Mask , Gateway, DNS Setting**



For Wireless Settings:

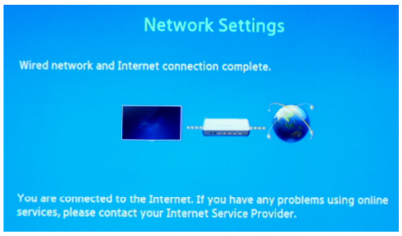
1. **Select Network Type (“Wireless”)**
2. **Select Wireless Network (example “PSL”)**
3. **Enter Security Key & “Done”**
4. **Verify Connection**

2013 Network Settings “Wired”

1.

2.

✓.



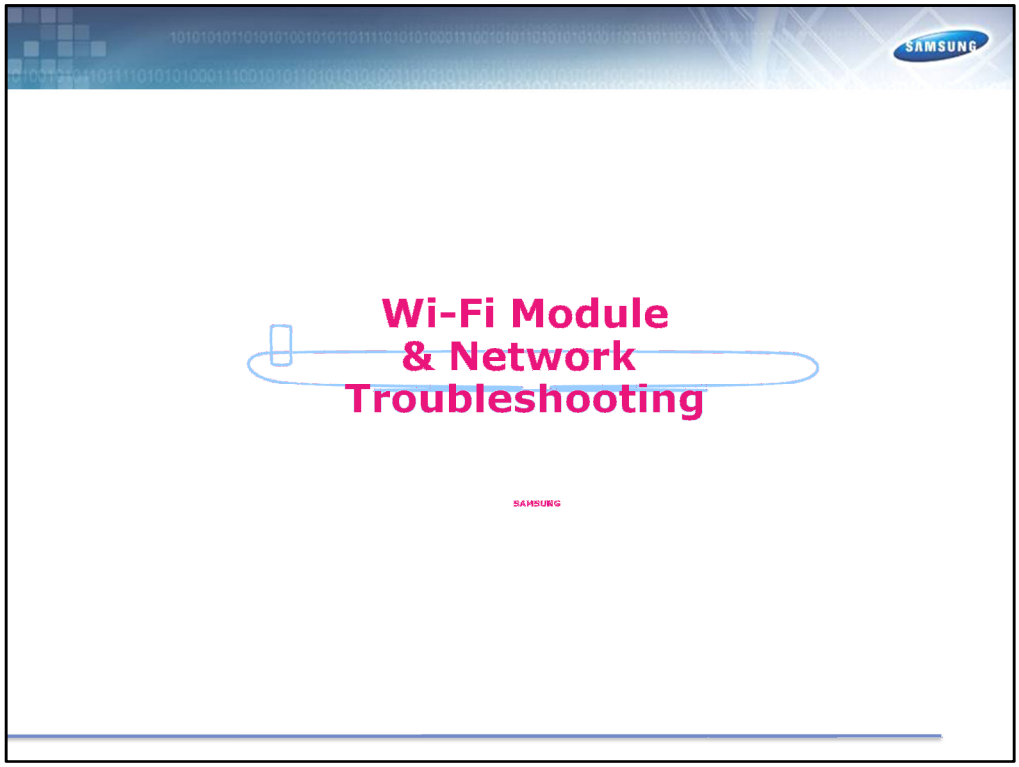
1. Select Wired for Network Type
2. Select “Connect”

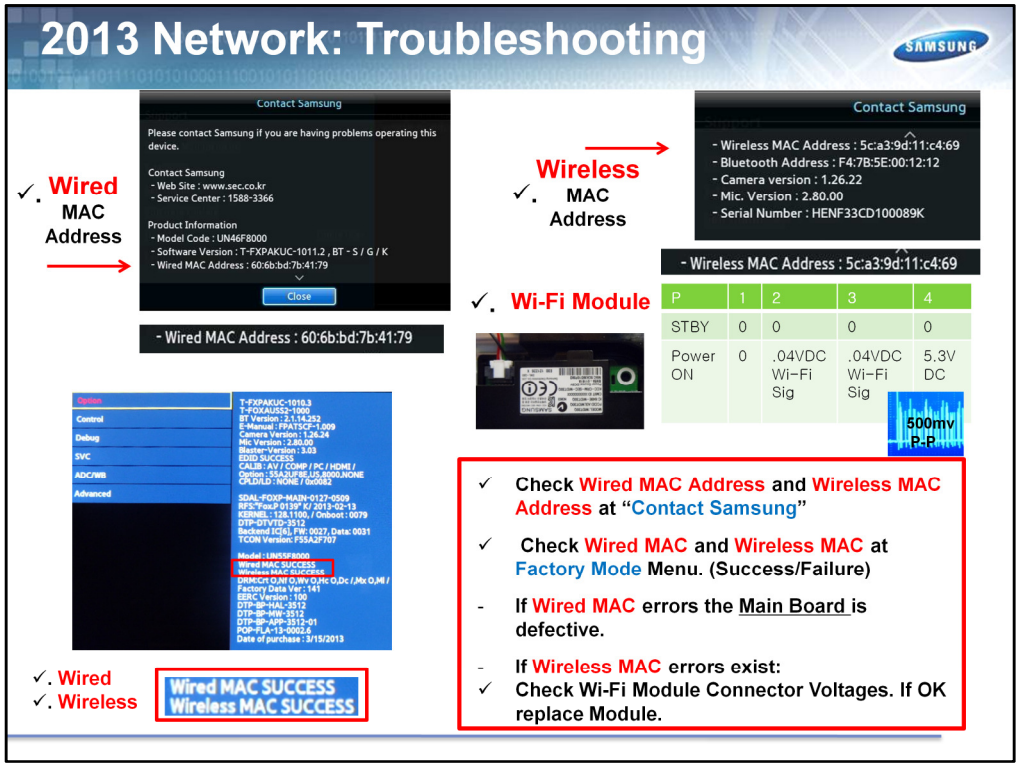
(Cannot select “Connect “ without a correctly wired & operating LAN connection)

✓ Confirm “Wired network & Internet connection complete”

✓ Can verify further in “Network Status”

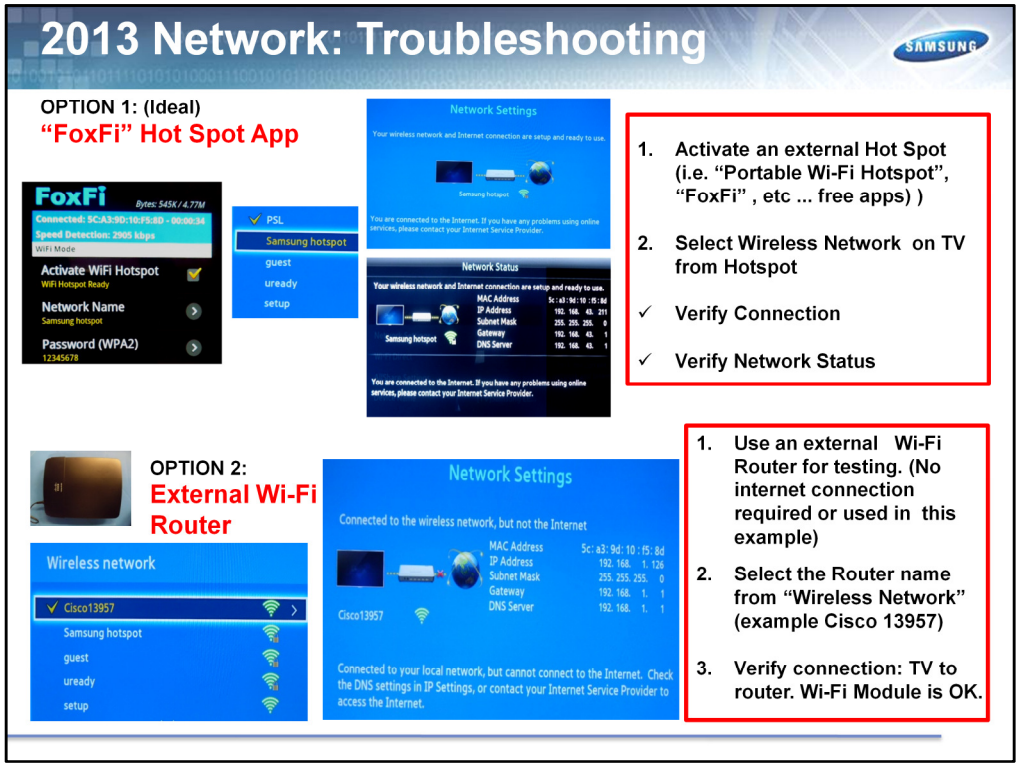
✓.


SAMSUNG
Wi-Fi Module
& Network
Troubleshooting
SAMSUNG



To Troubleshoot the Network with 2013 informational screen advances

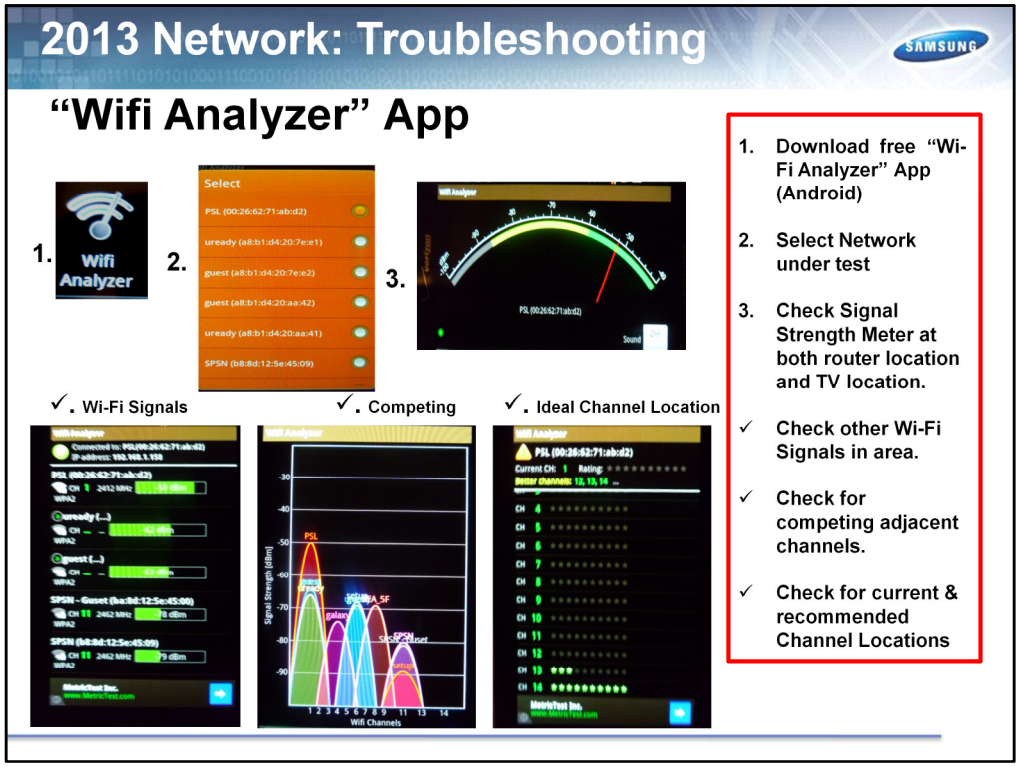
✓ **Check Wired MAC Address and Wireless MAC Address at "Contact Samsung"**
✓ **Check Wired MAC and Wireless MAC at Factory Mode Menu. (Success/Failure)**
- **If Wired MAC errors the Main Board is defective.**
- **If Wireless MAC errors exist:**
✓ **Check Wi-Fi Module Connector Voltages. If OK replace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



You can download Free apps on Droid and other compatible phones:

1. **Activate an external Hot Spot (i.e. "Portable Wi-Fi Hotspot", "FoxFi" , etc ... free apps))**
2. **Select Wireless Network on TV from Hotspot**
✓ **Verify Connection**
✓ **Verify Network Status**

1. **Use an external Wi-Fi Router very helpful and low cost for testing. (No internet connection required or used in this example)**
2. **Select the Router name from "Wireless Network" (example Cisco 13957)**
3. **Verify connection: TV to router. Wi-Fi Module is OK.**



Download a free app from your Android called Wifi Analyzer.

1. **Download free "Wi-Fi Analyzer" App (Android)**
2. **Select Network under test**
3. **Check Signal Strength Meter at both router location and TV location.**

✓ **Check other Wi-Fi Signals in area.**

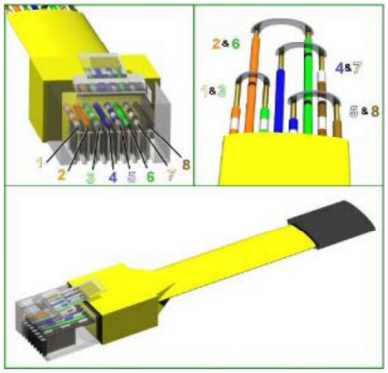
✓ **Check for competing adjacent channels.**

✓ **Check for current & recommended Channel Locations**

Loopback Tester – Wired LAN Test

Use a Loopback Tester to verify that
The Wired LAN Connection is operational

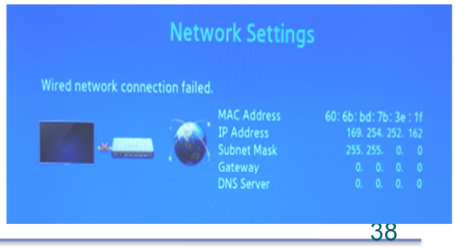
Making a Loopback Tester



Pin 1 (orange/white) with pin 3 (green/white)
Pin 2 (Orange) with pin 6 (Green)
Pin 4 (Blue) with pin 7 (Brown/white)
Pin 5 (Blue/white) with pin 8 (Brown)

Loopback Jig allows **"Connect"** to activate
If the TV LAN Input is Operational.

The TV will not display any connection to the Router.



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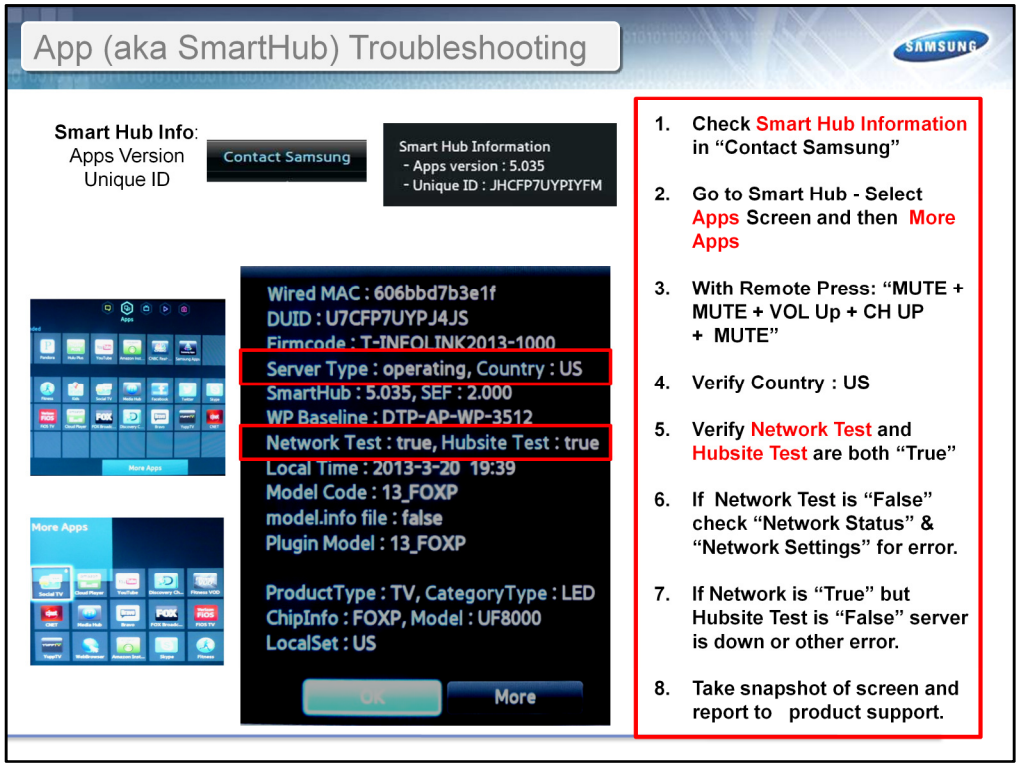
You can use a Loop Back Tester to determine that the Wired LAN Connection is working. Loopback Jig allows **"Connect"** to activate proving if the TV's LAN Input is Operational.

The TV in this test will not display any connection to the Router. The "Connect" is the proof it's OK.

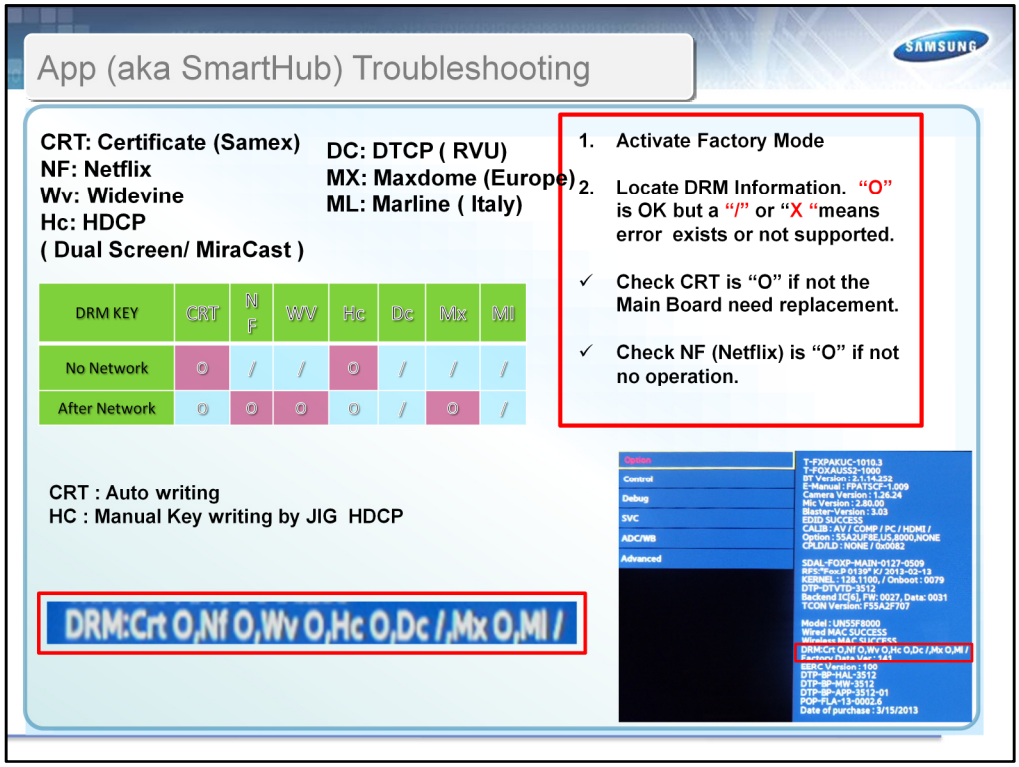


Testing important Apps Operation Screens

1. **Check Smart Hub Information in "Contact Samsung"**
2. **Go to Smart Hub - Select Apps Screen and then More Apps**
3. **With Remote Press: "MUTE + MUTE + VOL Up + CH UP + MUTE"**
4. **Verify Country : US**
5. **Verify Network Test and Hubsite Test are both "True"**
6. **If Network Test is "False" check "Network Status" & "Network Settings" for error.**
7. **If Network is "True" but Hubsite Test is "False" server is down or other error.**
8. **Take snapshot of screen and report to product support.**

Troubleshooting Netflix Problems by ISP "Internet Service Provider"

1. **Problem: Cannot launch Netflix or other video streaming apps.**
2. **Possible Cause: ISP is blocking Streaming access.**
3. **Go to IP Settings and change DNS setting manually to 8.8.8.8**
✓ **Verify Steam Operation**
✓ **If verified inform customer to contact ISP and report findings.**
4. **Return DNS back to auto settings.**



To verify apps activation using Factory Mode:

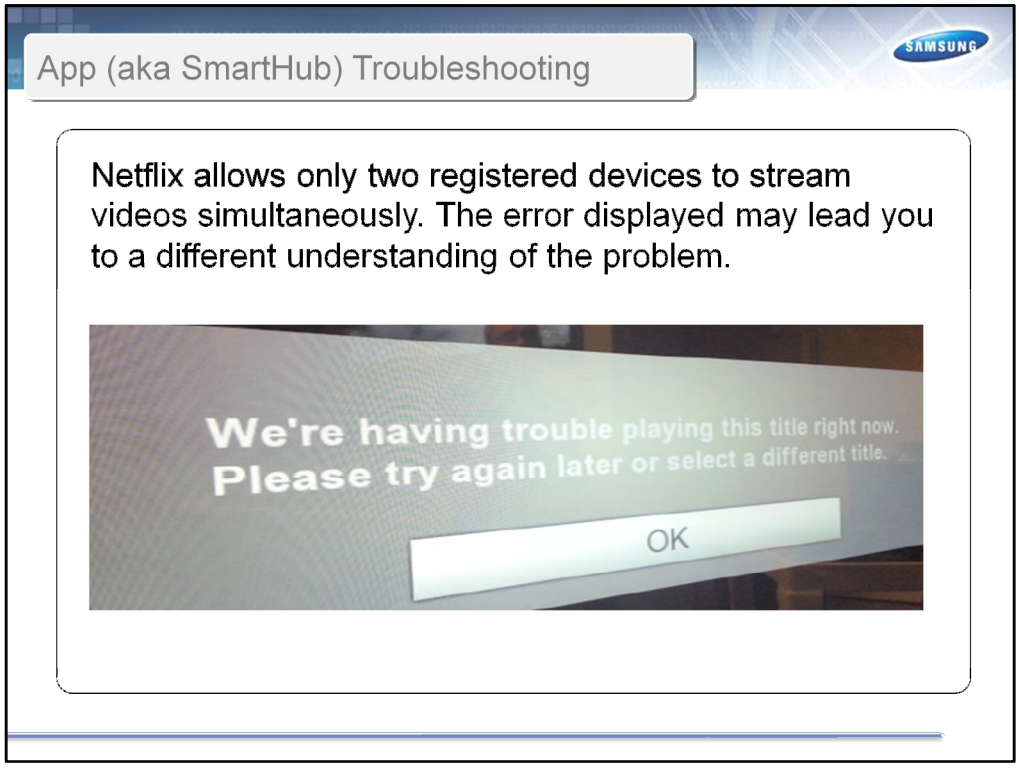
1. **Activate Factory Mode**
2. **Locate DRM Information. "O" is OK but a "/" or "X "means error exists or not supported.**

✓ **Check CRT is "O" if not the Main Board need replacement.**

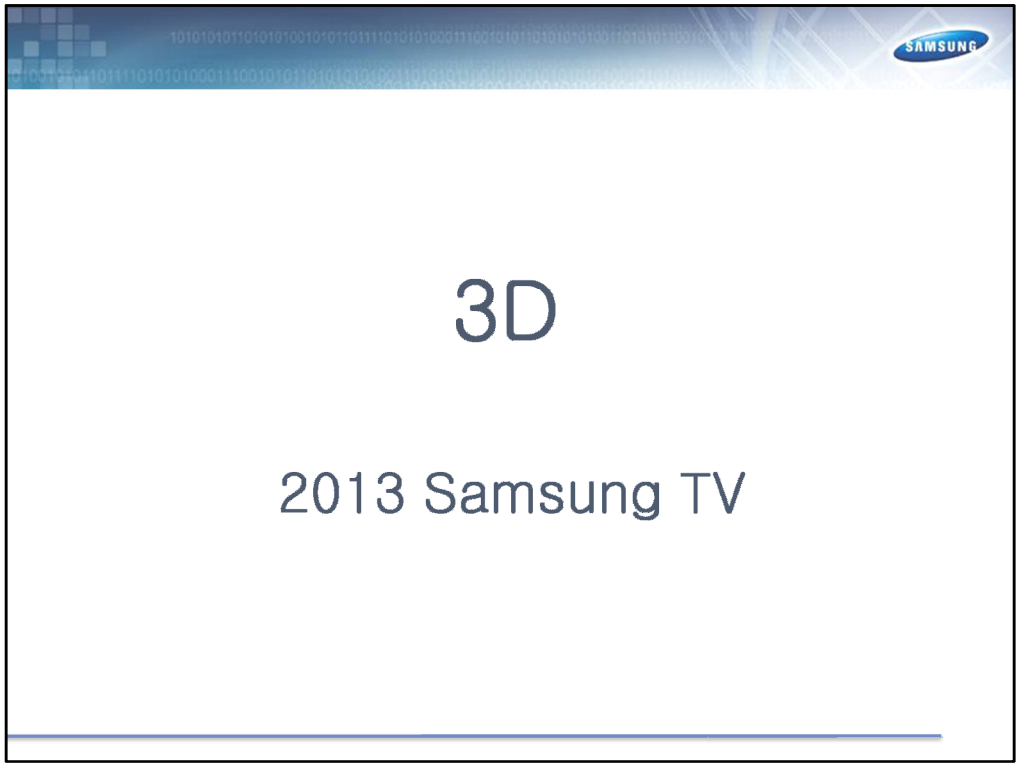
✓ **Check NF (Netflix) is "O" if not no operation.**

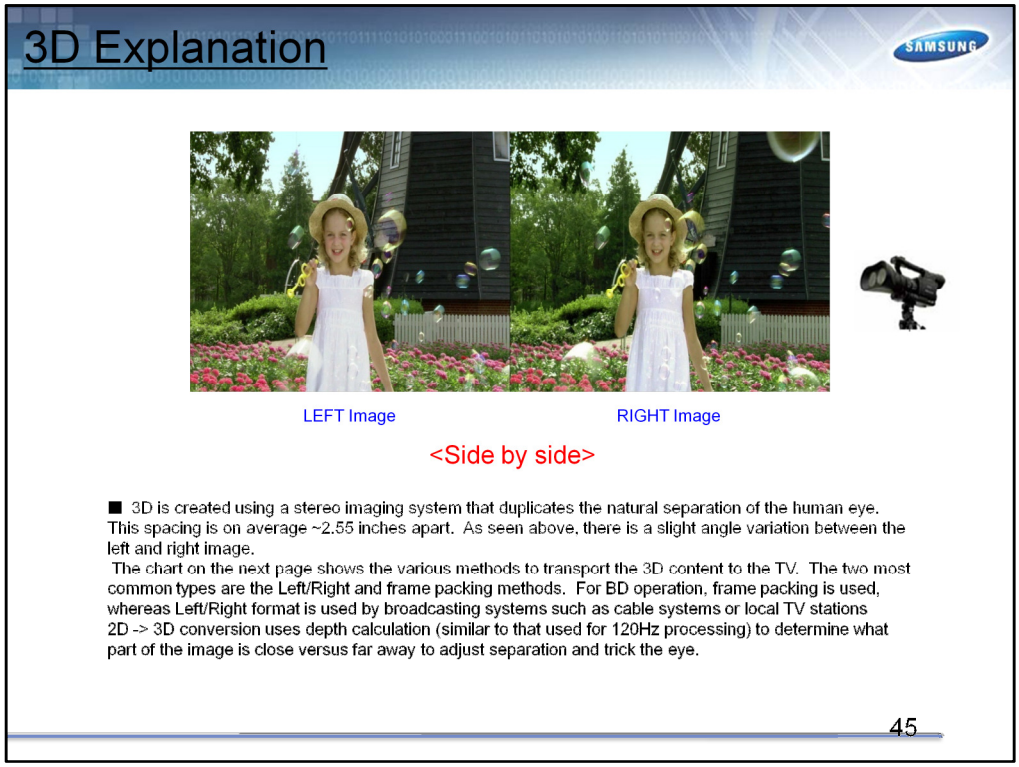
To Verify Netflix ESN & other Important Info:

1. **Main Menu to "Smart Settings"**
2. **Select "Apps Settings"**
3. **Select "Properties"**
- ✓ **Check "Apps Version", "Memory Usage", "Unique ID"**
- ✓ **Check "Netflix ESN"**



Netflix allows only two registered devices to stream videos simultaneously. The error displayed may lead you to a different understanding of the problem.


SAMSUNG
3D
2013 Samsung TV



■ 3D is created using a stereo imaging system that duplicates the natural separation of the human eye. This spacing is on average ~2.55 inches apart. Seen here above labeled left image and right image where you can see the bubbles in the photos in slightly different distances and position.

3D Formats:

Format	Input images	explanation	Input source	notes
Frame Packing		**•Inserting Blink Active Space between Left and Right images. •* Full resolution : 1920x1080x2(Left and Right each) + Blink = 1920x2205**	HDMI 1.4	1. HDMI 1.4 standard format 2.Automatically activating (Not in the menu or UI) 3. BD format
Top & Bottom		•In 1 frame , Left image on the upper half , Right image on the bottom half . * Vertically half resolution	HDMI, USB, DTV(VOD), PC	3D Broadcasting Format
Side by Side		* In 1 frame , Left image on the left half , Right image on the right half. * Horizontally half resolution	HDMI, USB, DTV(VOD), PC	3D Broadcasting Format
Line by Line		• In 1 frame , every horizontal line, Left and Right image in turn. * Vertically half resolution	PC	1. MPEG encoding impossible 2. Only in PC
Vertical Stripe		* In 1 frame , every vertical line, Left and Right image in turn. * Horizontally half resolution	PC	1. MPEG encoding impossible 2. Only in PC
Checker Board		* In 1 frame , every pixel , Left and Right image in turn. * Half resolution both vertically and horizontally	PC	1. MPEG encoding impossible 2. Only in PC
Frame Sequential		• Left And Right image in turn in every frame • Full resolution spatially but Half resolution timely.	PC	

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- Samsung uses frame packing method (left image over right image with an added blinking period or shutter at full HD resolution)
- The 3D HDMI format is 1.4 but does not require any special HDMI Cable
- Top and bottom and side by side are used for broadcast 3D (NOT FULL HD) where Vertical or Horizontal resolution is lost to maintain broadcast specifications.
-The 3D Mode Menu, seen on the bottom right, is used to manually activate and select the 2D to 3D mode, side by side or top & bottom. Normal auto 3D sensing is performed without the need for manual selections.

2013 3D Menu is shown

3D Mode Selection

1.

2.

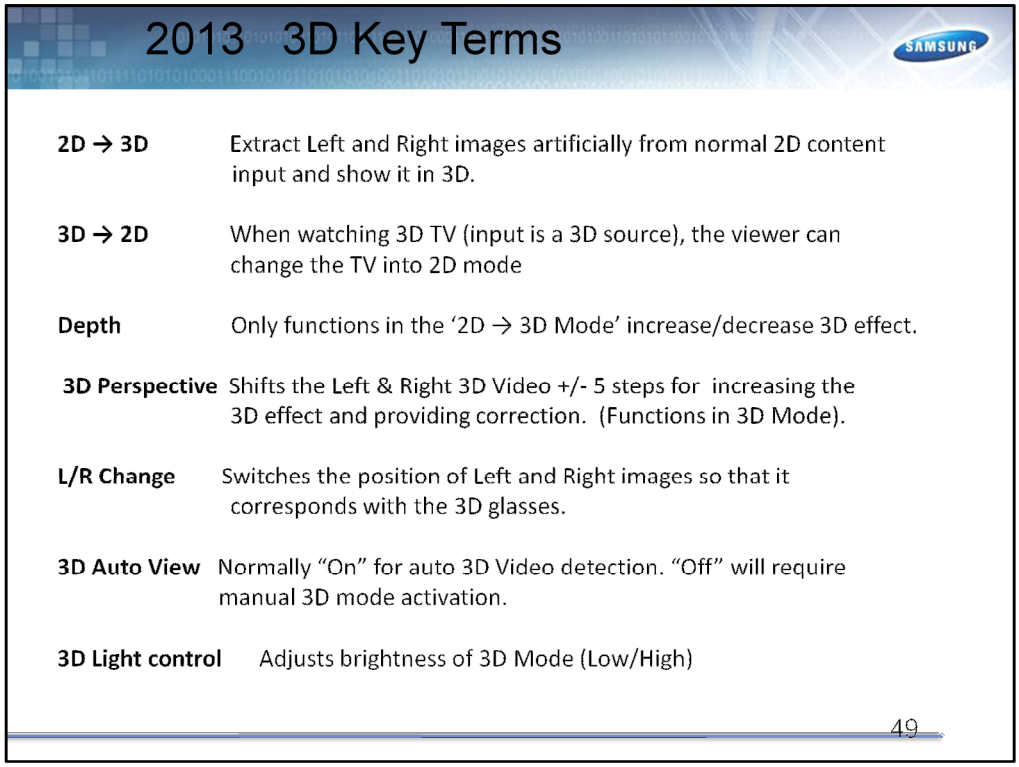
3D Mode

Although normally detected automatically, In some situations it may be necessary to manually select the correct 3D Mode:

1. Observe the 3D Video
2. Select the 3D Mode that matches the video Format.

Although normally detected automatically, In some situations it may be necessary to manually select the correct 3D Mode:

1. **Observe the 3D Video**
2. **Select the 3D Mode that matches the video Format.**



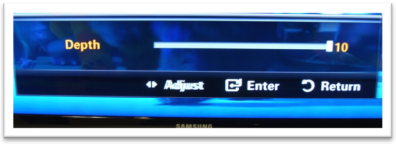
3D terms appearing in the menus are listed

-**2D to 3D** Any 2D source is artificially changed to 3D
-**3D to 2D** Option of shutting off 3D when automatically activated.
Depth Control – Increases/Decreases the 3D effect **available only in 2 to 3D Mode**
3D Perspective Also Increases/Decreases the 3D effect in 3D Mode
L/R Correction – Adjusts Left / Right images to correspond with 3D glasses.
3D Auto View Normally "On" for auto 3D Video detection. "Off" will require manual 3D mode activation.

3D Circuit Troubleshooting

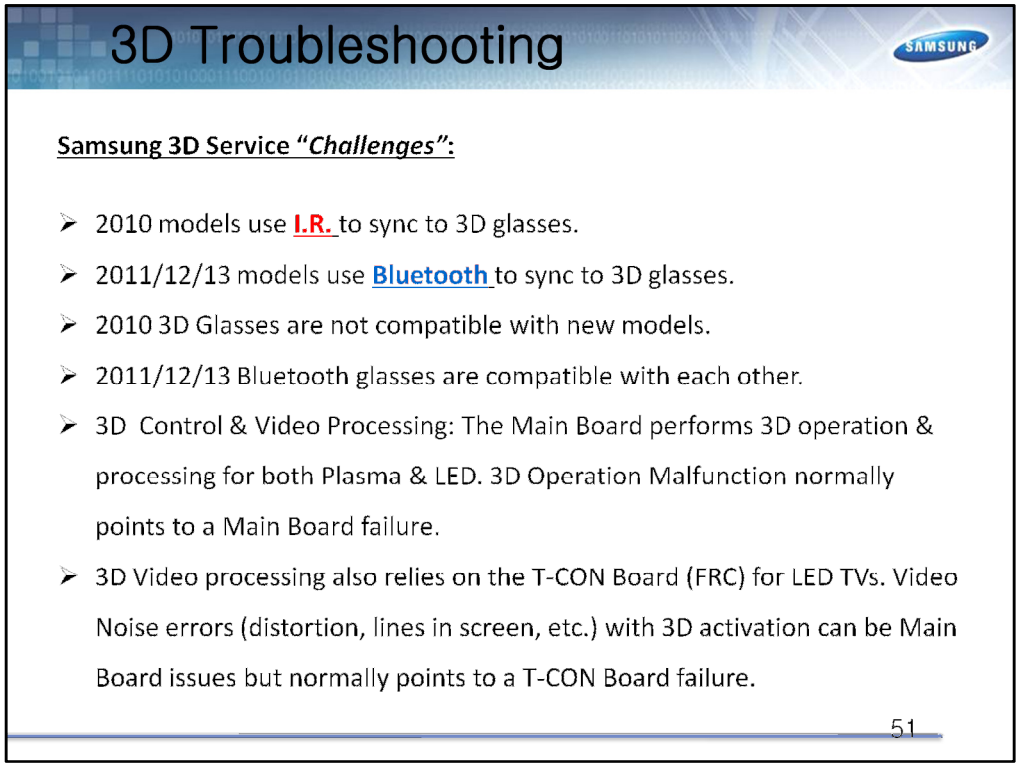
- The 3D functionality may be checked by varying the depth in the user menu
- This function is controlled by the Main PCB and is only available in the “2D -3D Mode)
- The lowest depth setting (0) will not display a “double” image
- The highest setting (10) will display the maximum 3D effect

Maximum 3D Effect

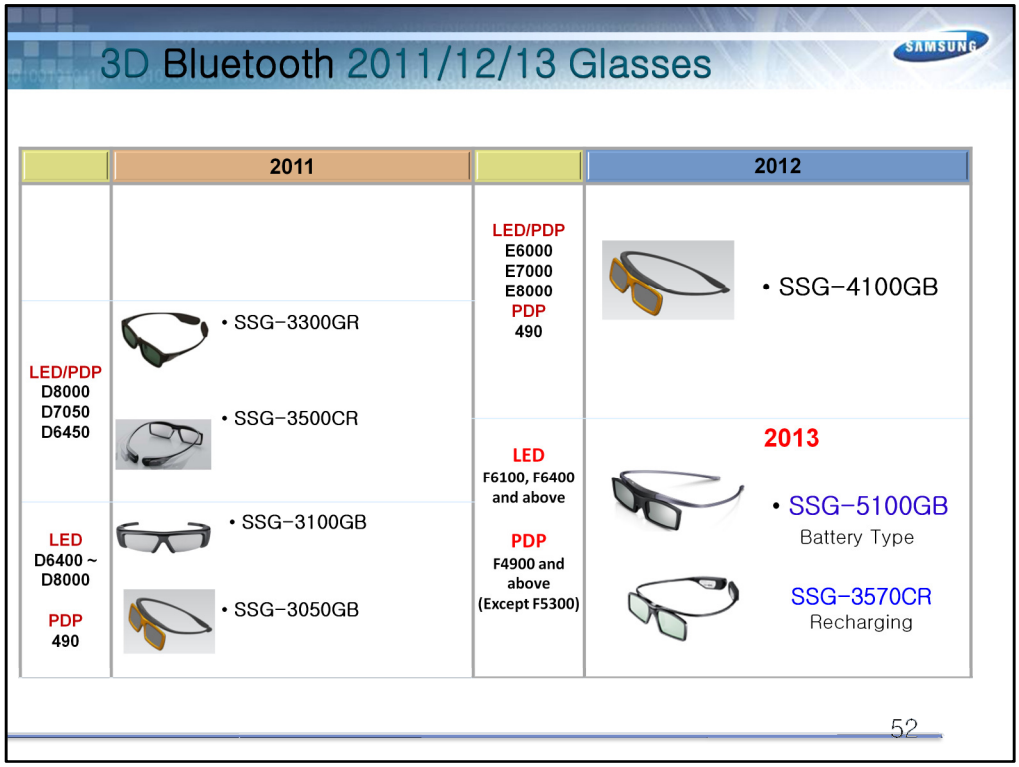


Depth Variation

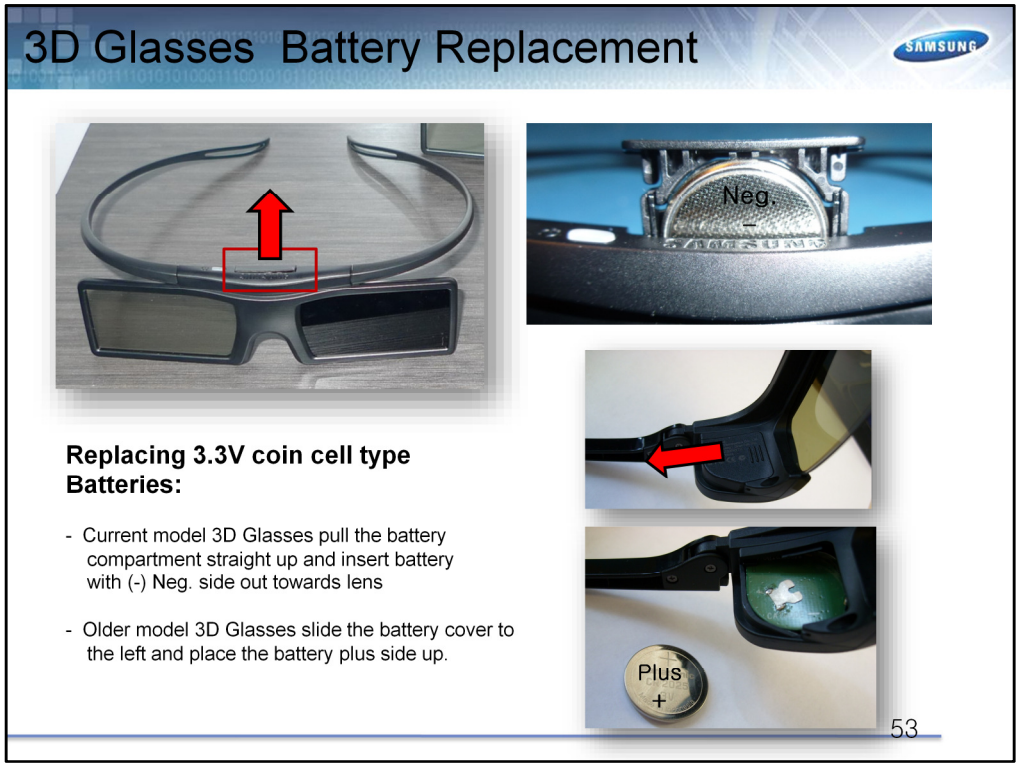
Check functionality of 3D circuit on Main PCB.
- 0: No double image
- 10: Maximum 3D effect



3D Troubleshooting challenges from previous years.



2011 2012 2013 Bluetooth Model 3D Glasses are listed. All Bluetooth Model 3D glasses are compatible. The 2010 IR 3D Glasses are not compatible.



4. AS you see here, some of the Samsung 3D Glasses have replaceable 3V Coin –Cell Type Batteries.

Samsung – Bluetooth – 3D Glasses

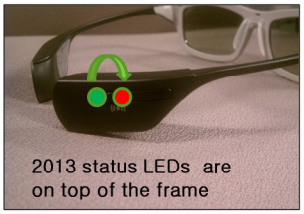
How to pair BT glasses:

1.) Insure fully charged battery in glasses, then bring BT glasses near the set (within 2 feet)

2.) Press & hold power button on glasses until red and green LEDs alternately blink (2-3 sec.) New battery type Glasses have LEDs on top of the frame.

3.) Message appears in lower left corner of TV screen when paring is successful.

New for 2013 TVs are the 3D glasses icon along with a battery icon displaying the current battery power when pairing.



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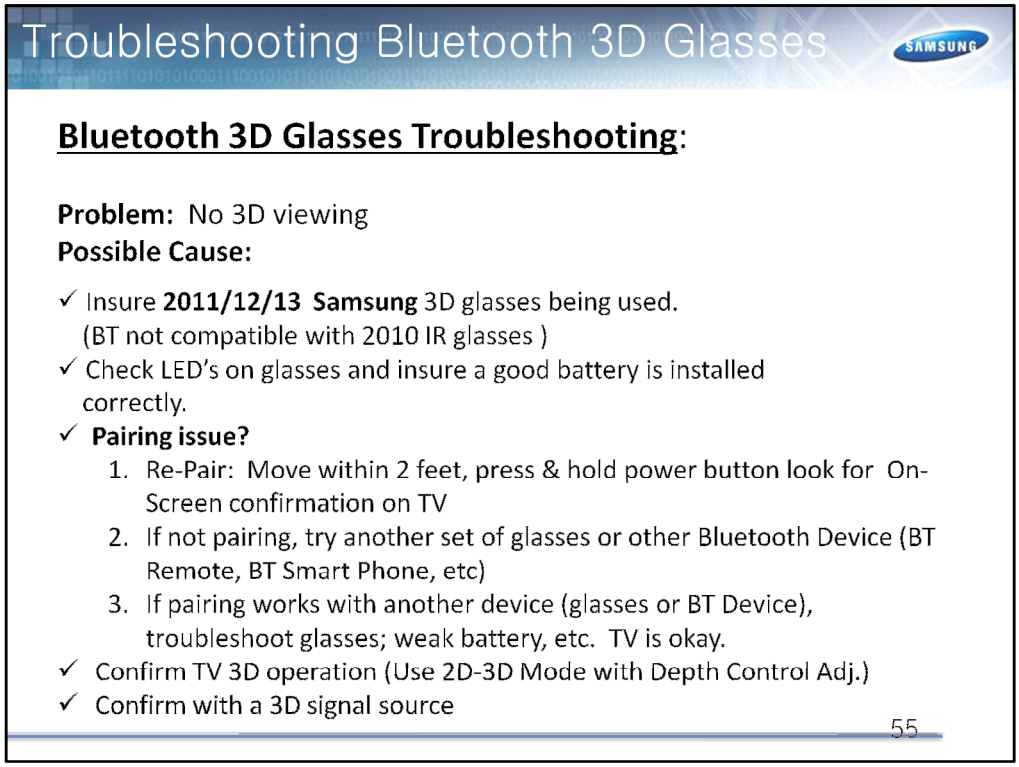
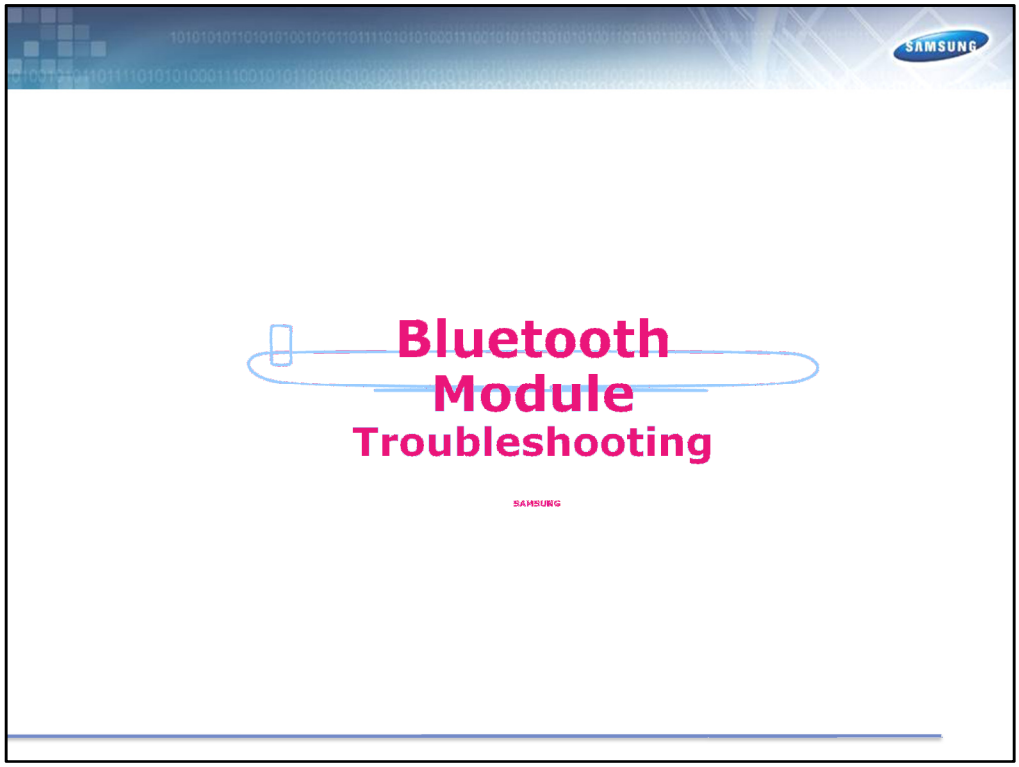
Pairing 2013 Bluetooth Glasses is the same as 2011 & 2012 Bluetooth models…
New pairing icon displayed including current Battery Power condition.



Bluetooth 3D Glasses Troubleshooting: Problems listed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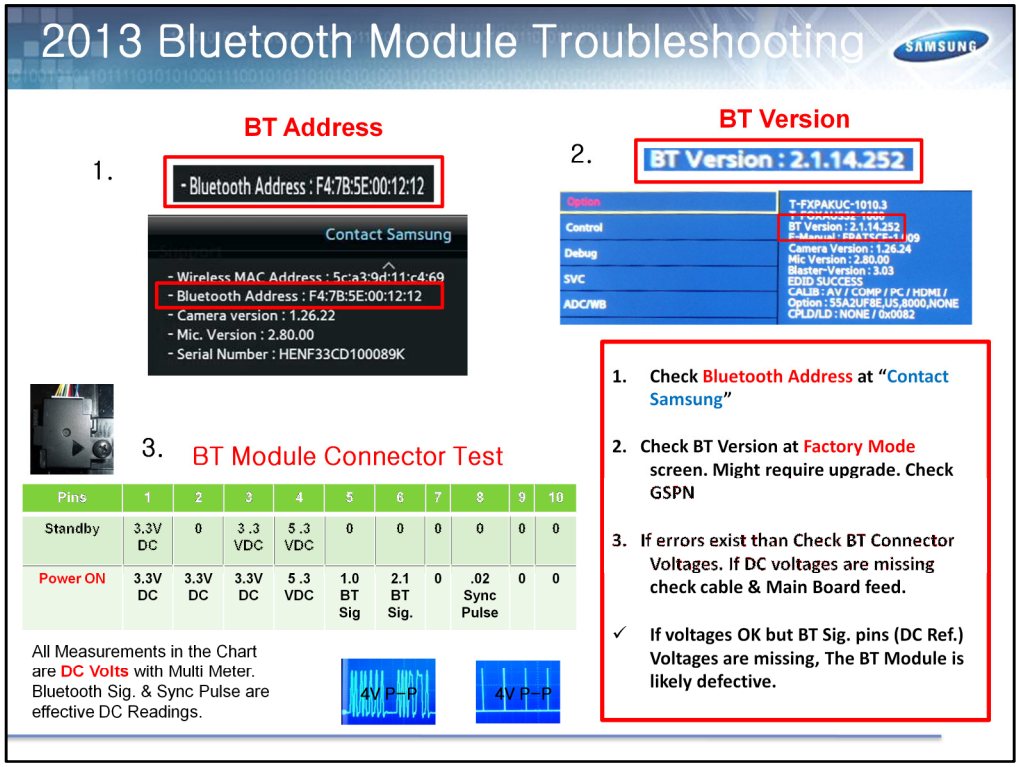
SAMSUNG

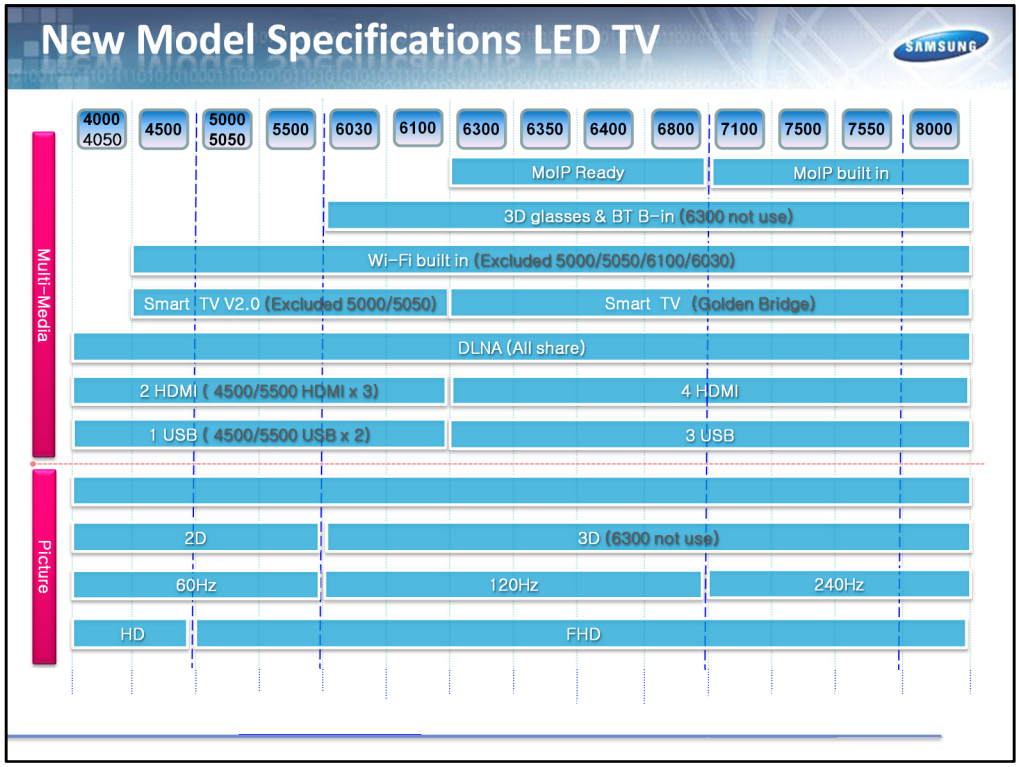


Important 2013 Bluetooth Module Troubleshooting:

1. **Check Bluetooth Address at "Contact Samsung"**
2. **Check BT 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.**

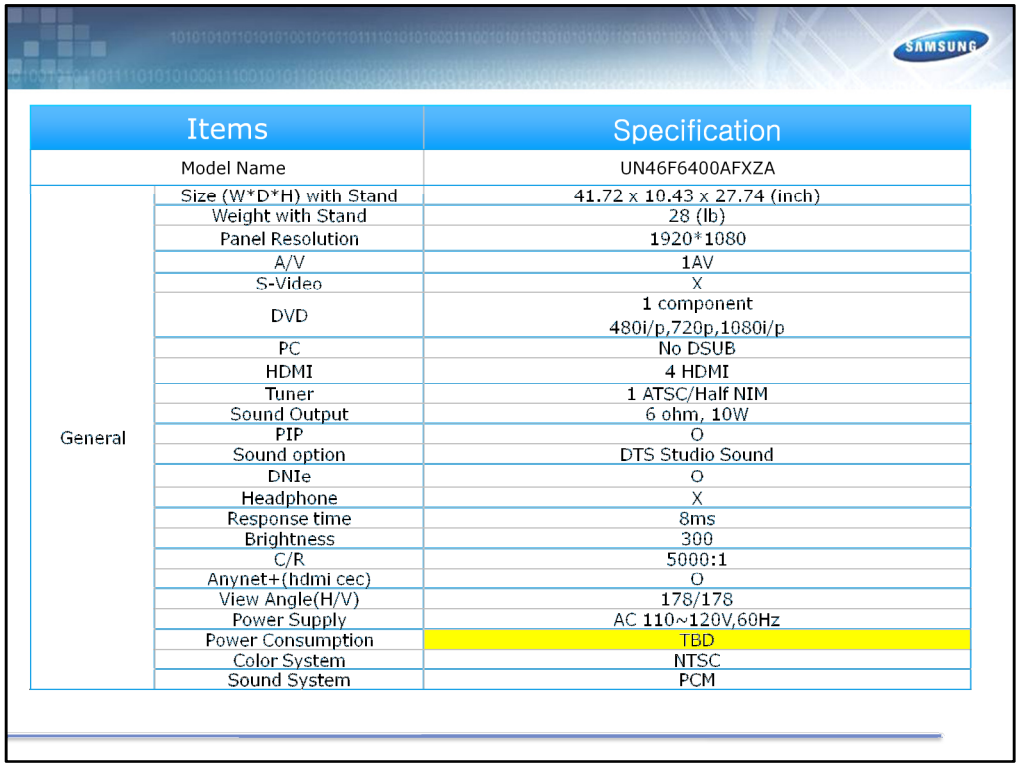
✓ **If voltages OK but BT Sig. pins (DC Ref.) Voltages are missing, The BT Module is likely defective.**

LED



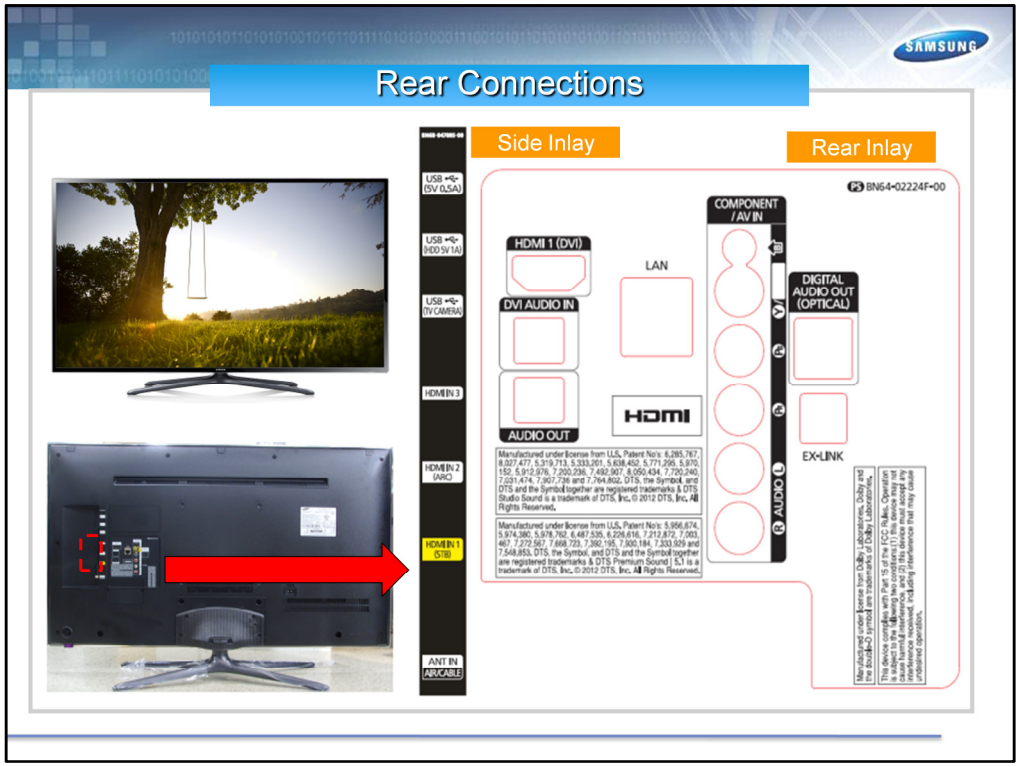
New model Specifications for 2013 LED TVs are listed. Use this reference to verify operation abilities of the model TV you are testing.

UNF6400

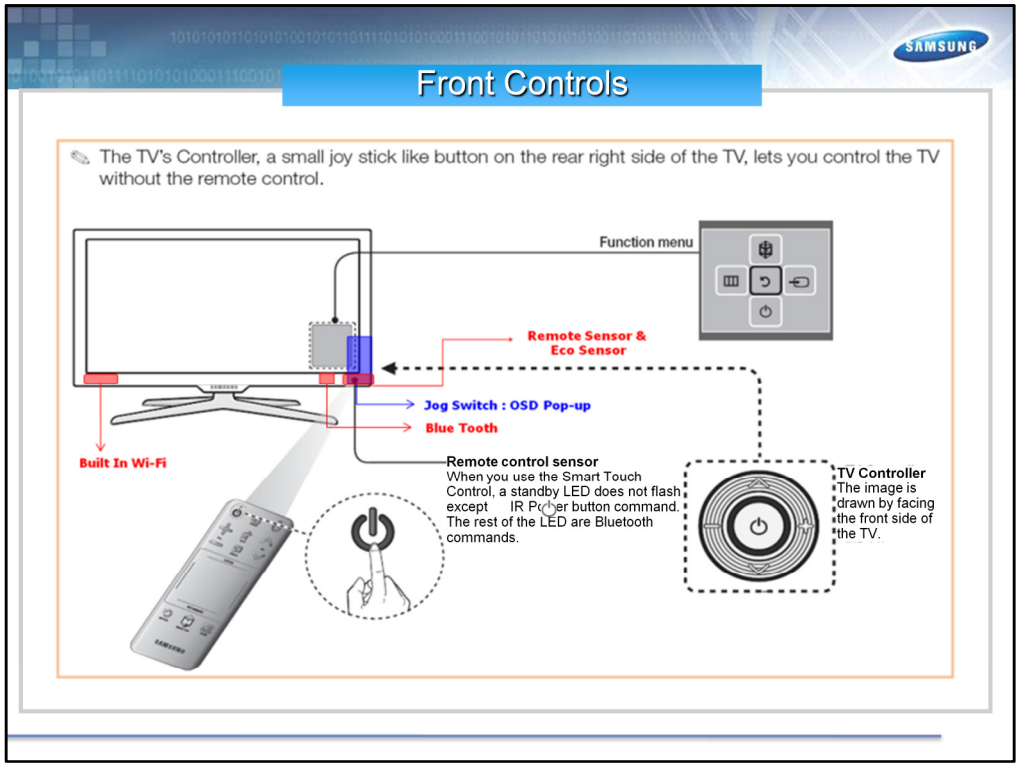


Items		Specification
Model Name		UN46F6400AFXZA
General	Size (W*D*H) with Stand	41.72 x 10.43 x 27.74 (inch)
	Weight with Stand	28 (lb)
	Panel Resolution	1920*1080
	A/V	1AV
	S-Video	X
	DVD	1 component 480i/p,720p,1080i/p
	PC	No DSUB
	HDMI	4 HDMI
	Tuner	1 ATSC/Half NIM
	Sound Output	6 ohm, 10W
	PIP	O
	Sound option	DTS Studio Sound
	DNIe	O
	Headphone	X
	Response time	8ms
	Brightness	300
	C/R	5000:1
	Anynet+(hdmi cec)	O
	View Angle(H/V)	178/178
	Power Supply	AC 110~120V,60Hz
	Power Consumption	TBD
	Color System	NTSC
	Sound System	PCM

Specifications for 46 inch F6400 LED TVs

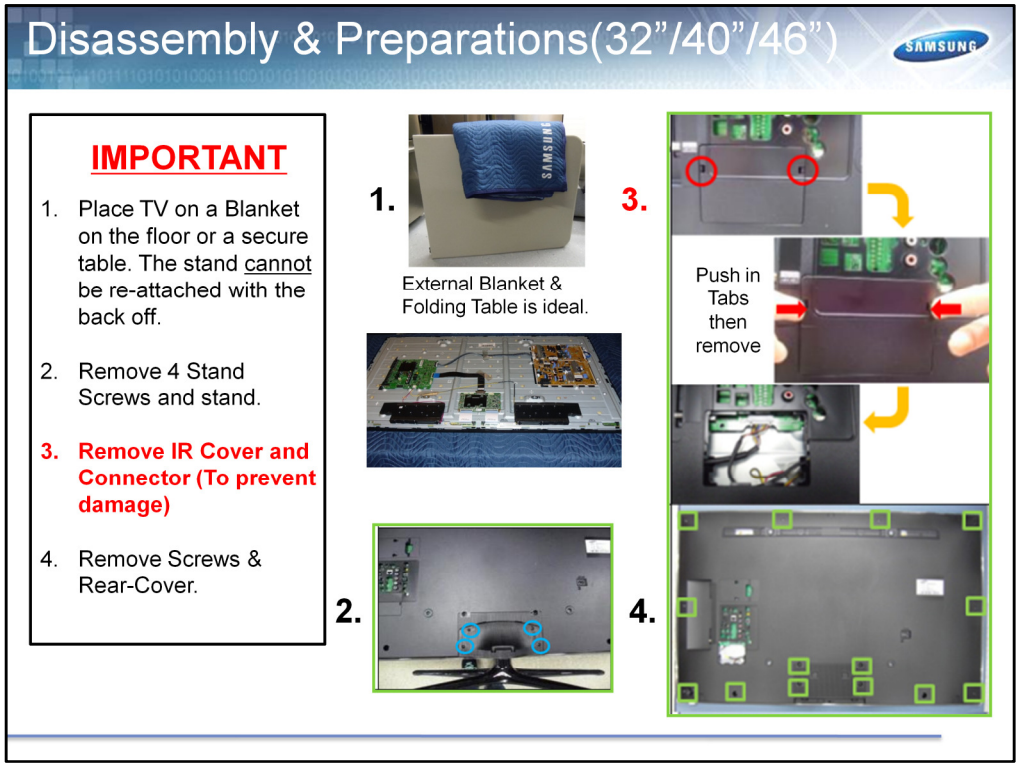


Rear Connections – Side Inlay and rear Inlay



Front Panel Control Locations

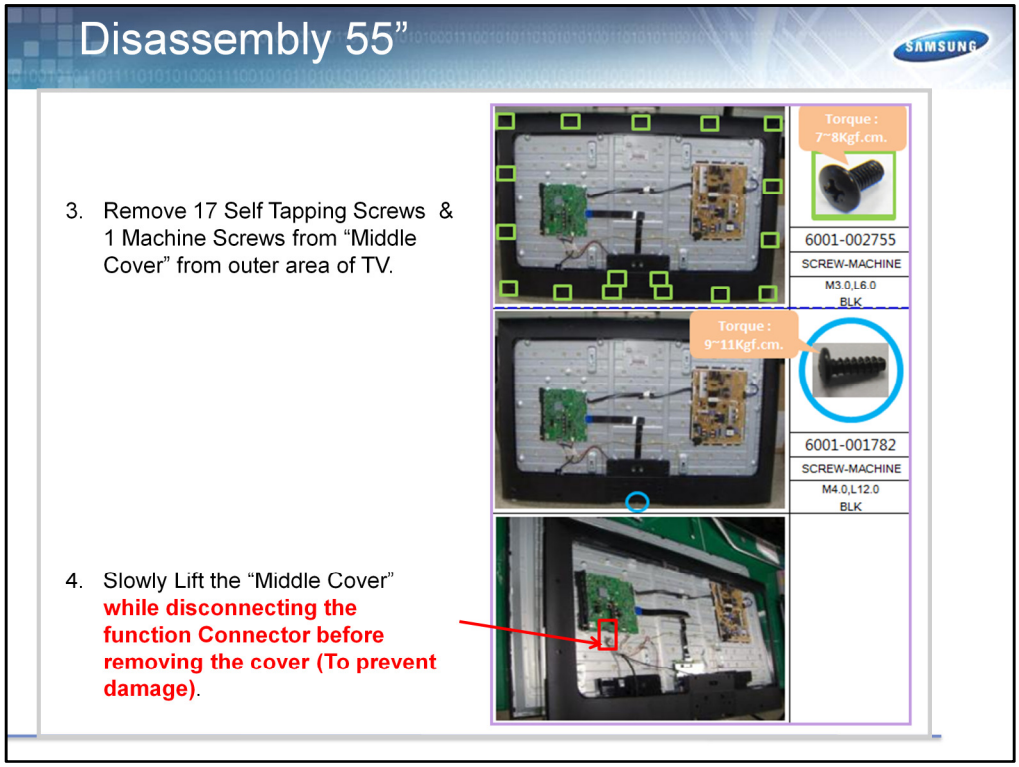
Remote is similar to F8000 series. Important Mic "Voice" not pictured, is included and necessary for natural voice commands for smart TV interaction operation.



Disassembly & Preparations 32, 40 and 46.

1. Place TV on a Blanket on the floor or a secure table. The stand cannot be re-attached with the back off.
2. Remove 4 Stand Screws and stand.
3. **Remove IR Cover and Connector (To prevent damage)**
4. Remove Screws & Rear-Cover.

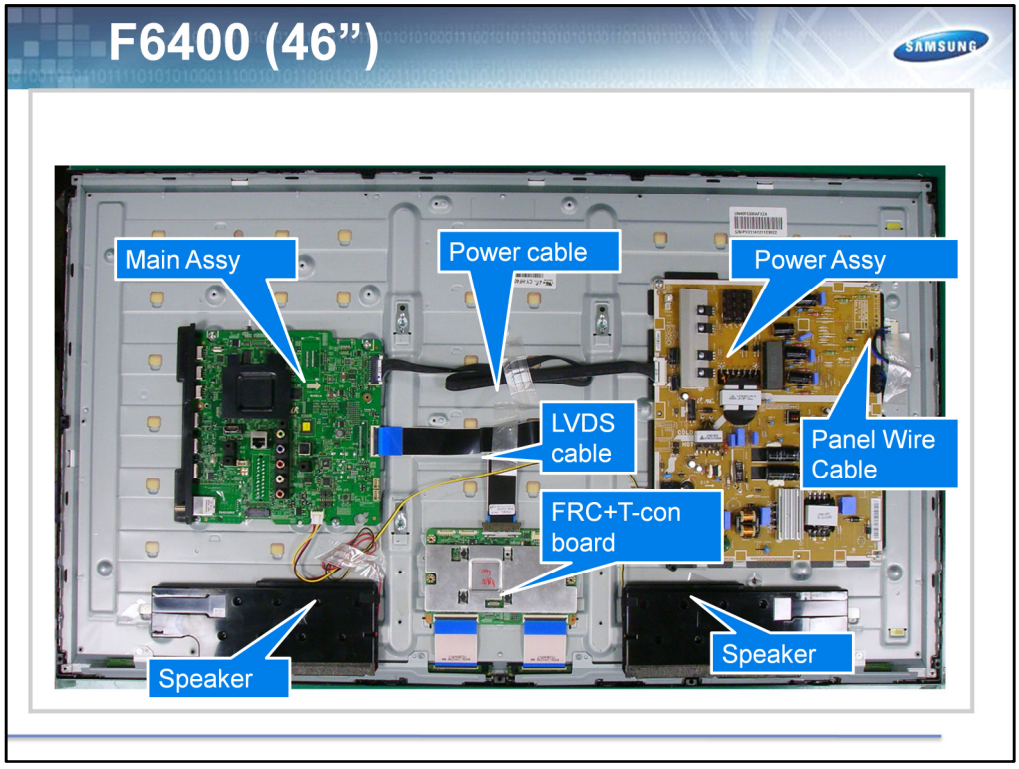
Disassembly 55inch.
Remove 4 stand screws and Stand – Remove 4 machine screws and 4 self tapping screws. – Remove Rear Cover from the Center of the TV.



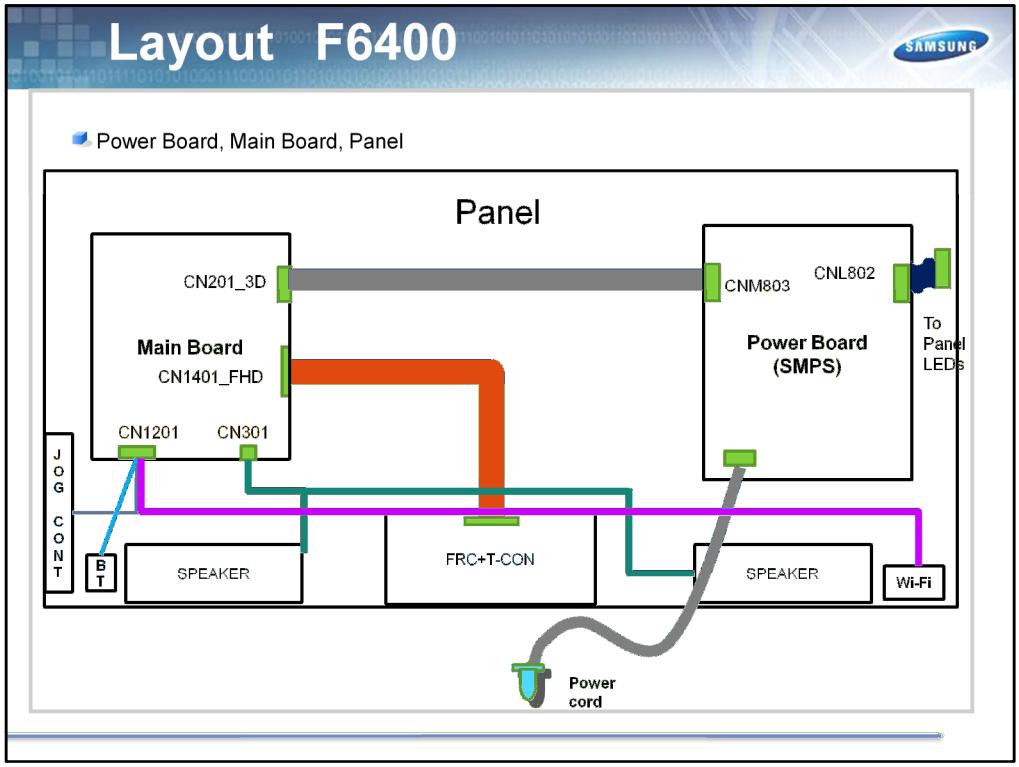
Disassembly 55 inch.

. Remove 17 Self Tapping Screws & 1 Machine Screws from “Middle Cover” from outer area of TV

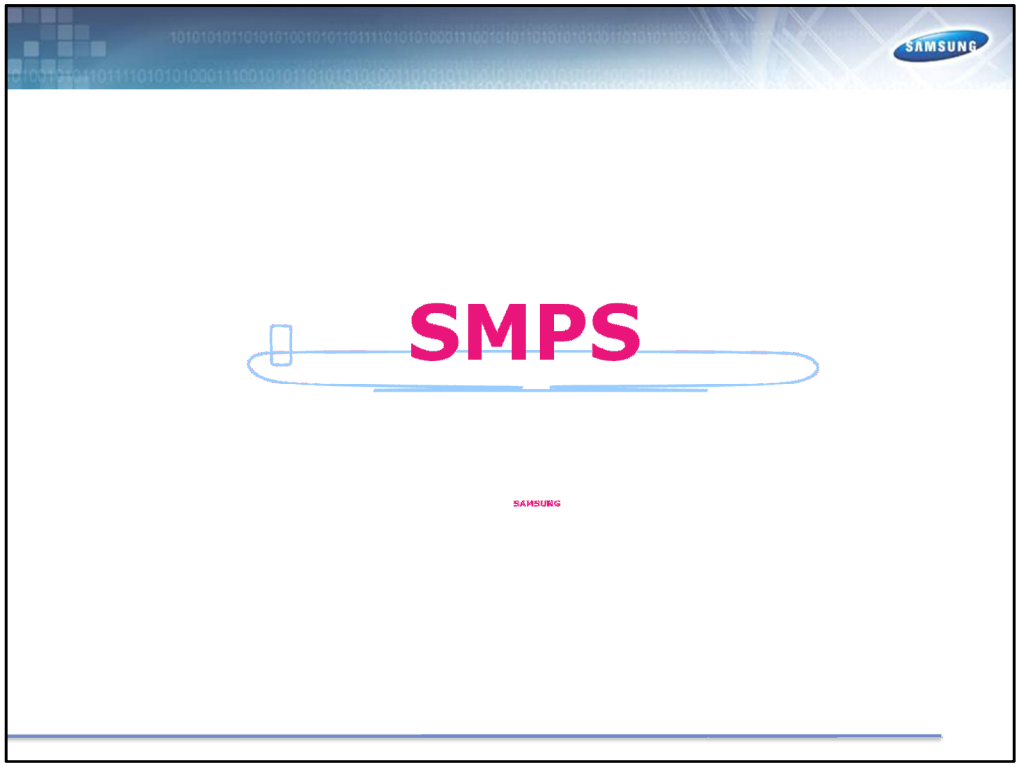
Slowly Lift the “Middle Cover” **while disconnecting the function Connector before removing the cover (To prevent damage**

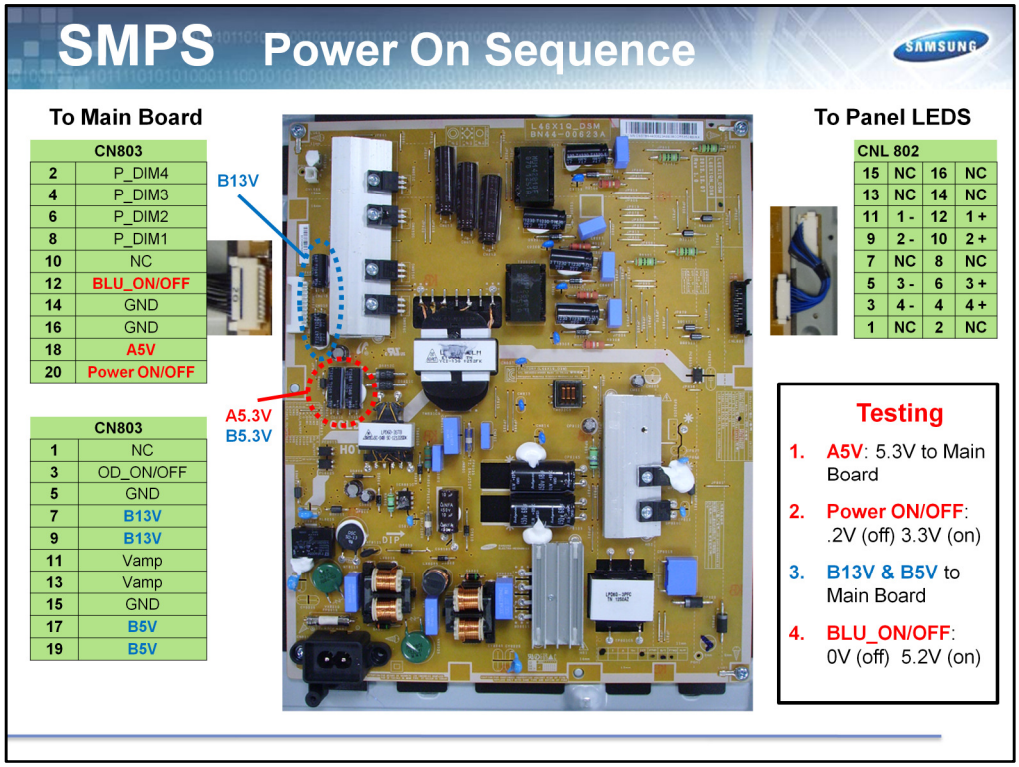


F6400 on the 46inch



Layout for F6400 Panel includes Main Board, SMPS, FRC/TCON, Jog Function, Speakers, Wi-Fi & Bluetooth Modules

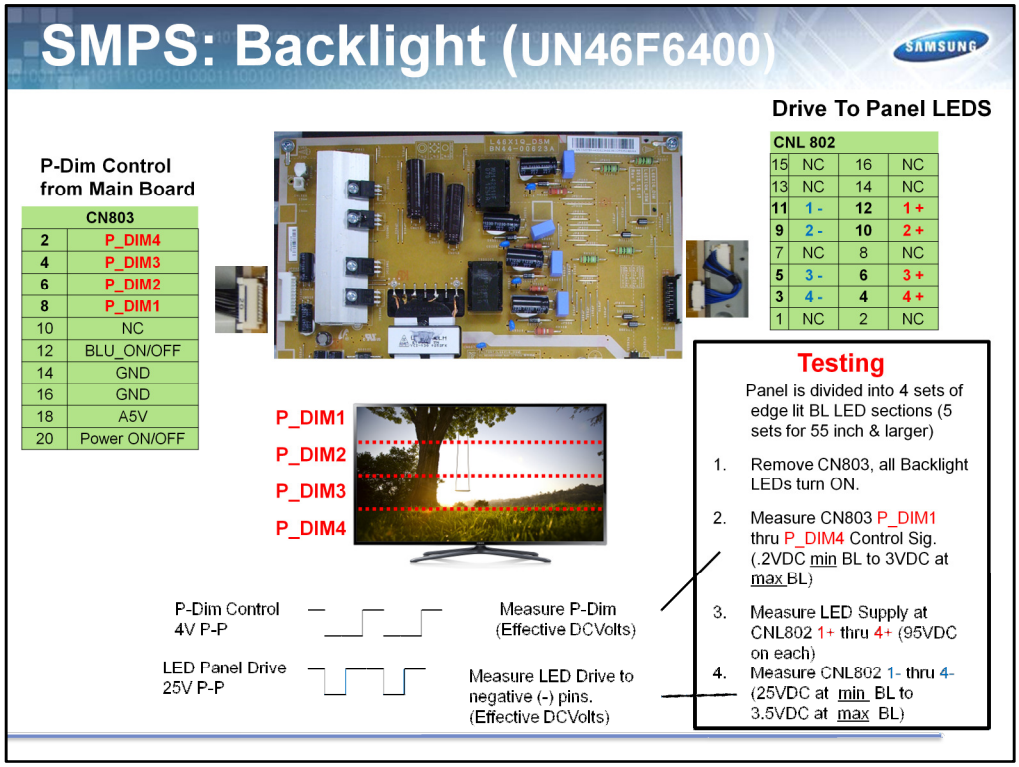

SAMSUNG
SMPS
SAMSUNG



Power on Sequence:

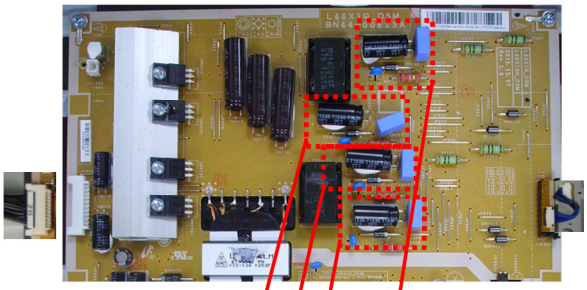
Testing:

1. **A5V**: 5.3V to Main Board
2. **Power ON/OFF**: .2V (off) 3.3V (on)
3. **B13V & B5V** to Main Board
4. **BLU_ON/OFF**: 0V (off) 5.2V (on



55 inch & larger actually has 5 P-Dim Controls & Sections

SMPS: Backlight (UN46F6400)



C9206 (95VDC)
(DIM1 Supply)

C9406 (95VDC)
(DIM2 Supply)

C9106 (95VDC)
(DIM4 Supply)

C9306 (95VDC)
(DIM3 Supply)

P_DIM1
P_DIM2
P_DIM3
P_DIM4

If an LED string Opens the LED Drive Supply voltage will go high to approx.150V and may flash BLs on & off with Over Voltage Protection

Testing

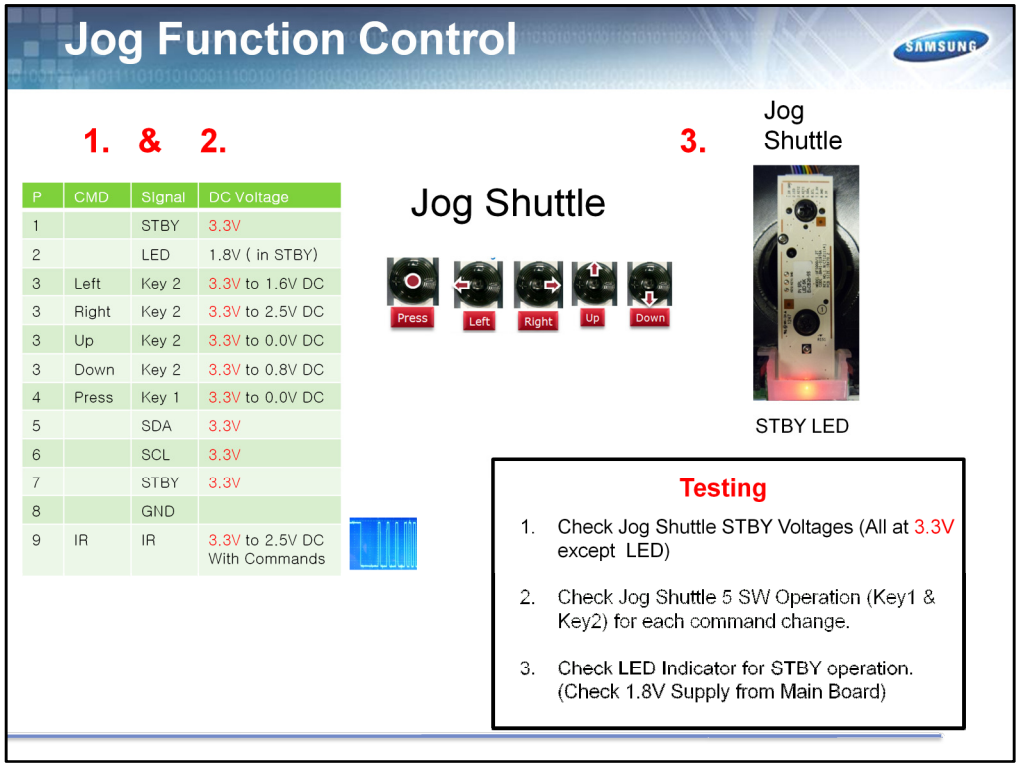
1. Remove CN803, all Backlight LEDs turn ON.
2. Carefully Measure the voltage at C9206 plus side of Electrolytic Capacitor for Dim1 Supply. (approx 95VDC, higher for larger panels)
3. Measure voltages at C9406 for Dim2 supply, C9306 for Dim3 supply, and C9106 for Dim4 supply.

If a Voltage is high (approx 150VDC) a string of Panel LEDs is likely open.

If a voltage is low remove the LED panel connector and retest. If voltage stays low the SMPS is likely defective. If Voltage goes high a string of Panel LEDs is likely shorted.

55 inch & larger actually has 5 P-Dim Controls & Sections

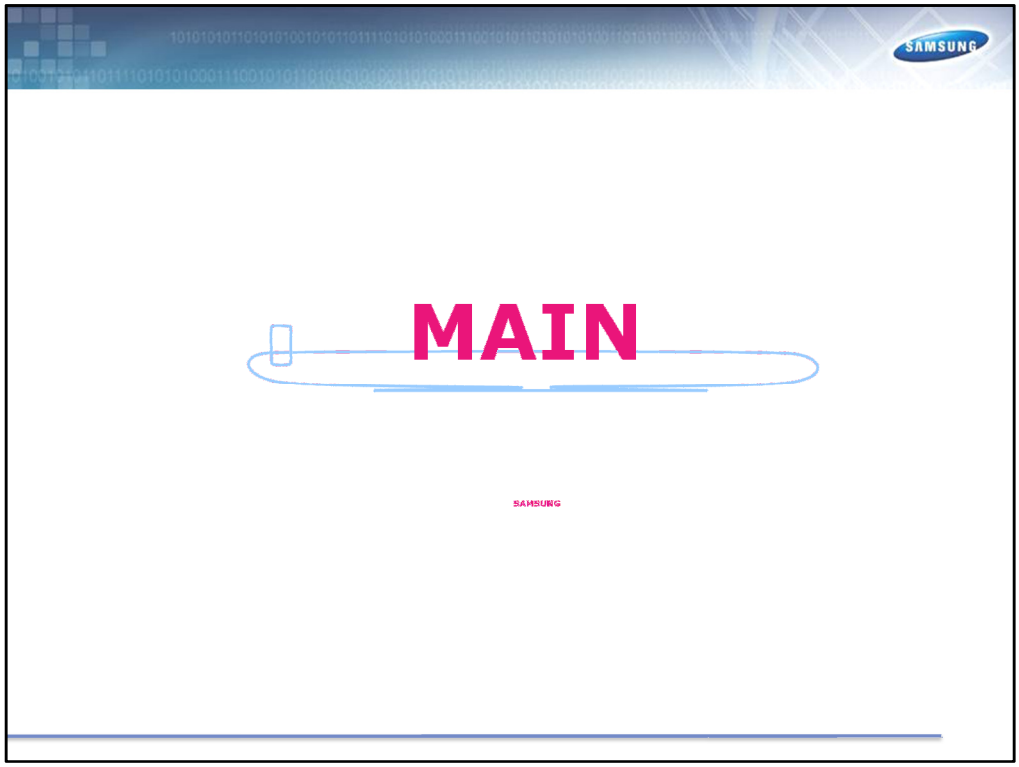

SAMSUNG
Jog Function Control
SAMSUNG

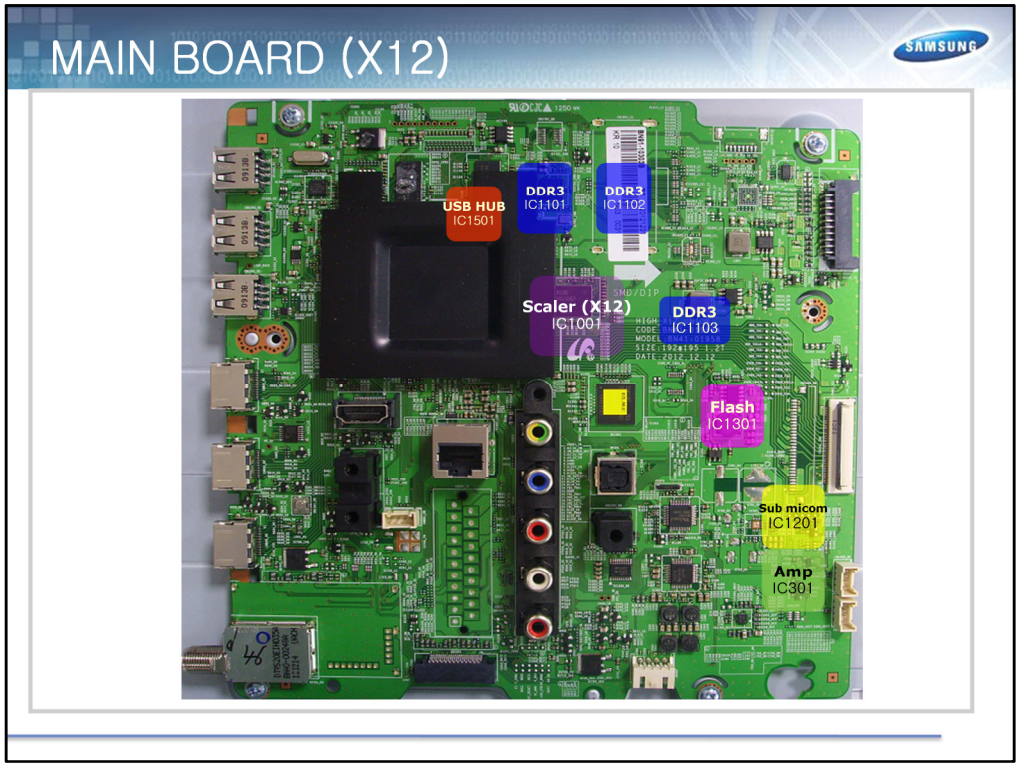


P	CMD	Signal	DC Voltage
1		STBY	3.3V
2		LED	1.8V (in STBY)
3	Left	Key 2	3.3V to 1.6V DC
3	Right	Key 2	3.3V to 2.5V DC
3	Up	Key 2	3.3V to 0.0V DC
3	Down	Key 2	3.3V to 0.8V DC
4	Press	Key 1	3.3V to 0.0V DC
5		SDA	3.3V
6		SCL	3.3V
7		STBY	3.3V
8		GND	
9	IR	IR	3.3V to 2.5V DC With Commands

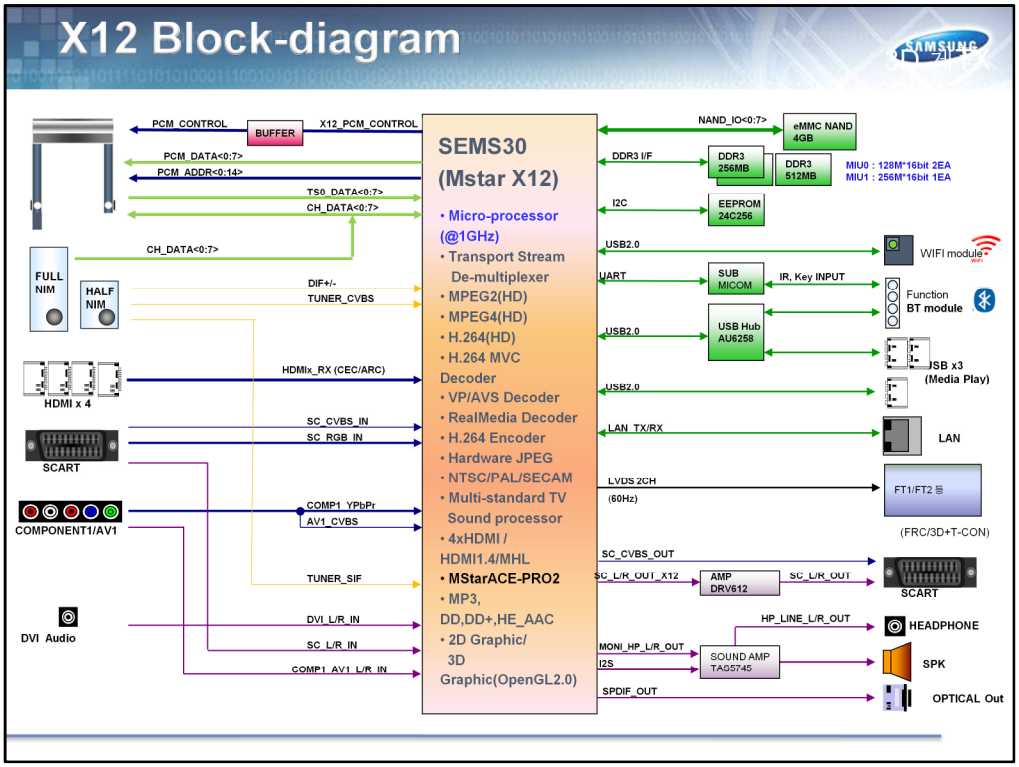
TESTING

1. Check Jog Shuttle STBY Voltages (All at 3.3V except LED at 1.8V)
2. Check Jog Shuttle 5 SW Operation (Key1 & Key2) for each command change
3. Check LED Indicator for STBY operation. (Check 1.8V Supply from Main Board)

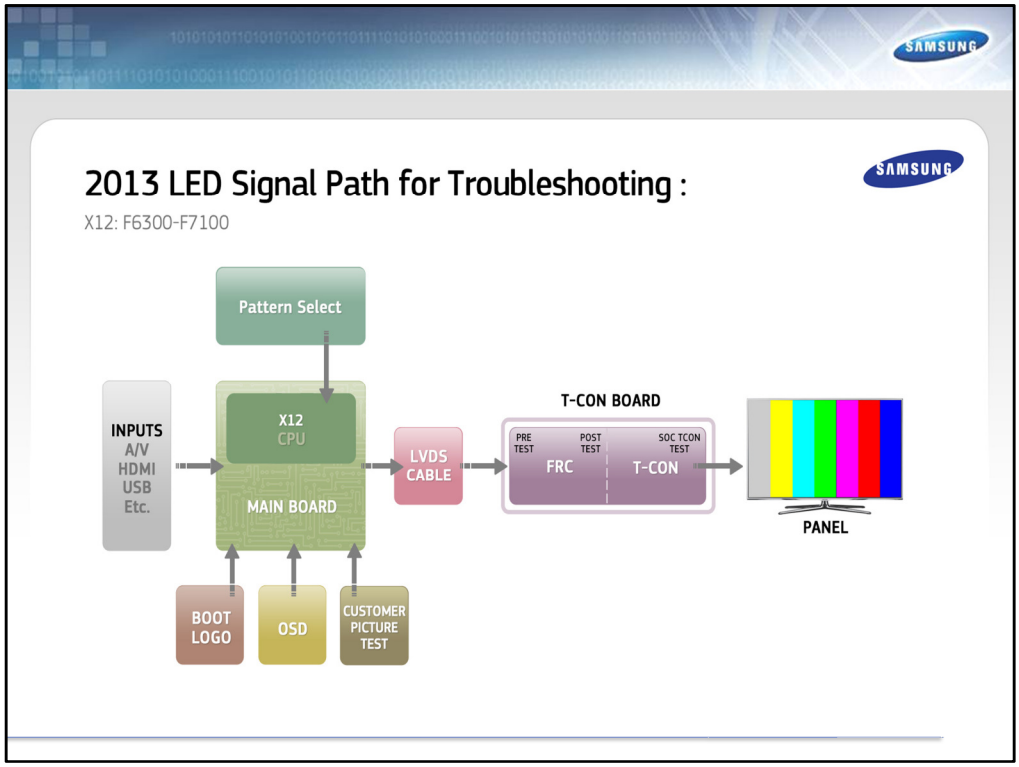

SAMSUNG
MAIN
SAMSUNG



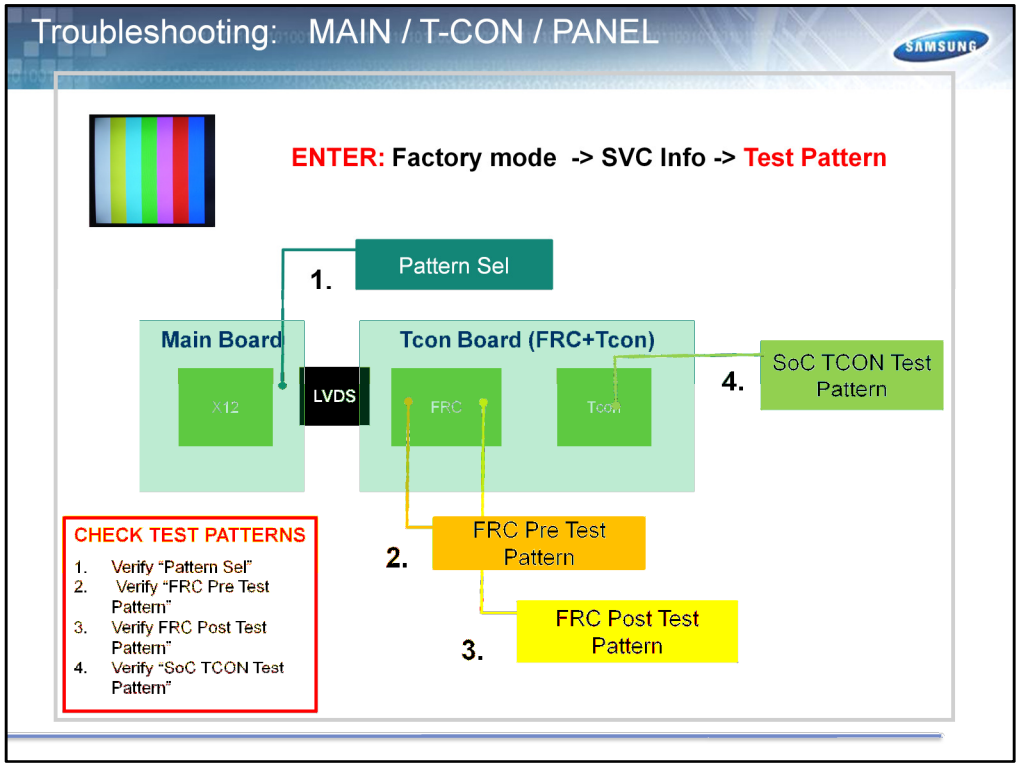
The Main Board is pictured with X12 CPU, DDR, Flash, Audio Amp and other locations



Main Board Block Diagram includes one chip Mstar X12 platform with HDMI and video, audio, LAN, Bluetooth, Wi-Fi, Smart TV, Network, and other operation processing.



The X12 signal path includes all inputs to the Main Board. The 10 Bit Data Signal than passes thru LVDS to the new single FRC/TCON IC located in the T-Con Board. The T-Con Processor sends the final signal to the panel.

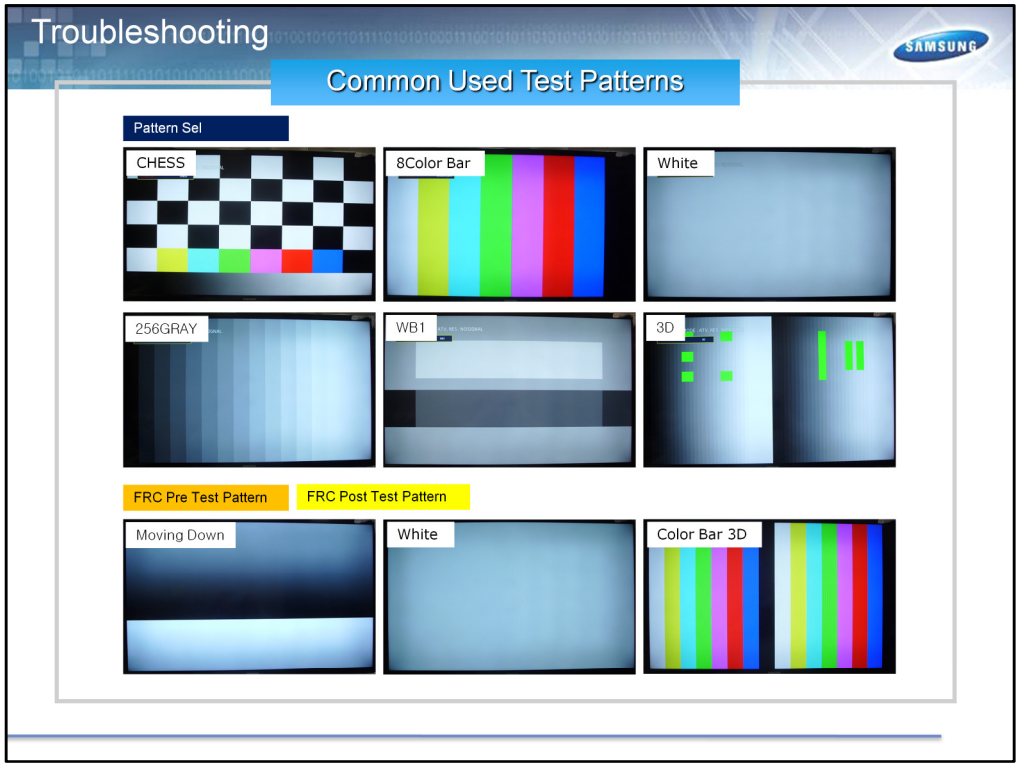


X12 Main Board sends important 10 Bit Video Processed Signal thru LVDS to FRC/T-CON Board than to the Panel.

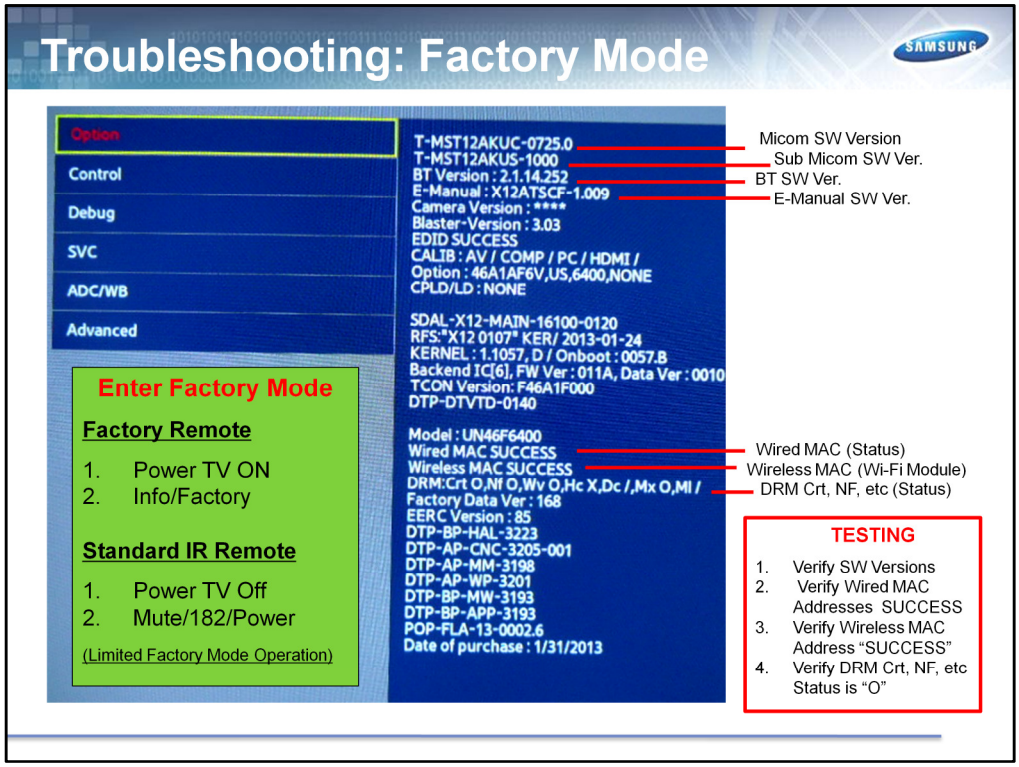
To troubleshoot important Video Path:

Check Test Patterns Available in Service Mode:

1. Verify "Pattern Sel" (Main Board)
2. Verify "FRC Pre Test Pattern" (beginning of FRC in T-CON)
3. Verify FRC Post Test Pattern" (end of FRC in T-CON)
4. Verify "SoC TCON Test Pattern" (at T-CON Processor)



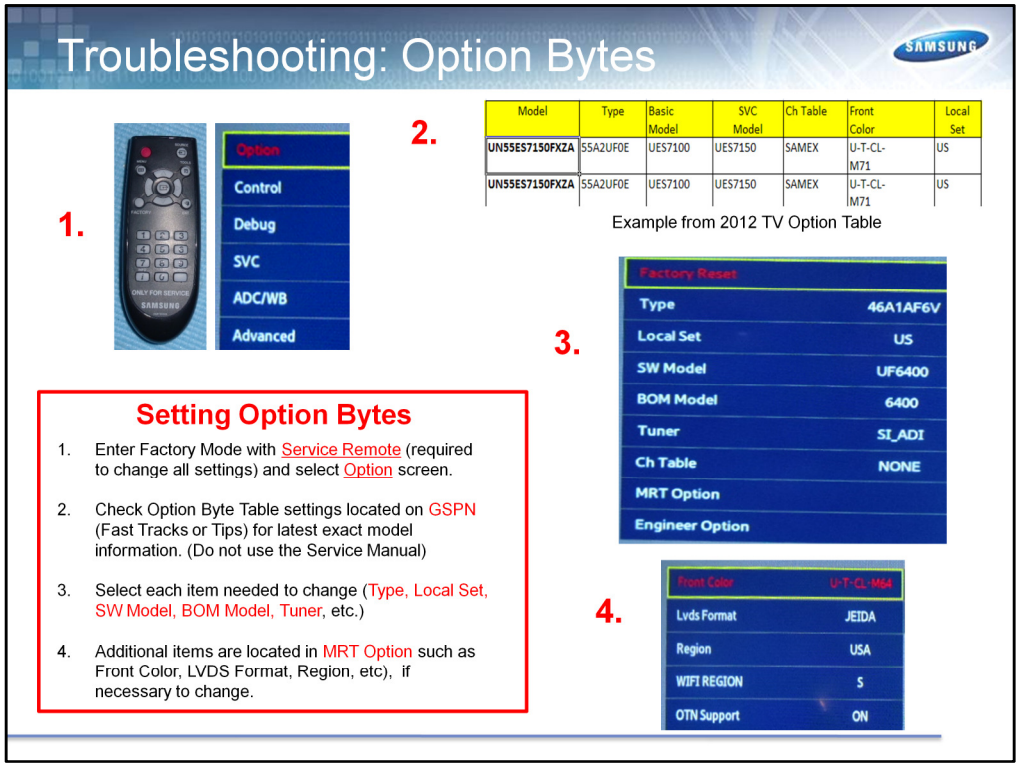
Test Patterns: Pattern Sel, FRC Pre, & FRC Post



The initial Factory Service Mode Screen is shown.
Factory Mode can be entered two ways but Must use a Factory Remote to get full operation and screens.

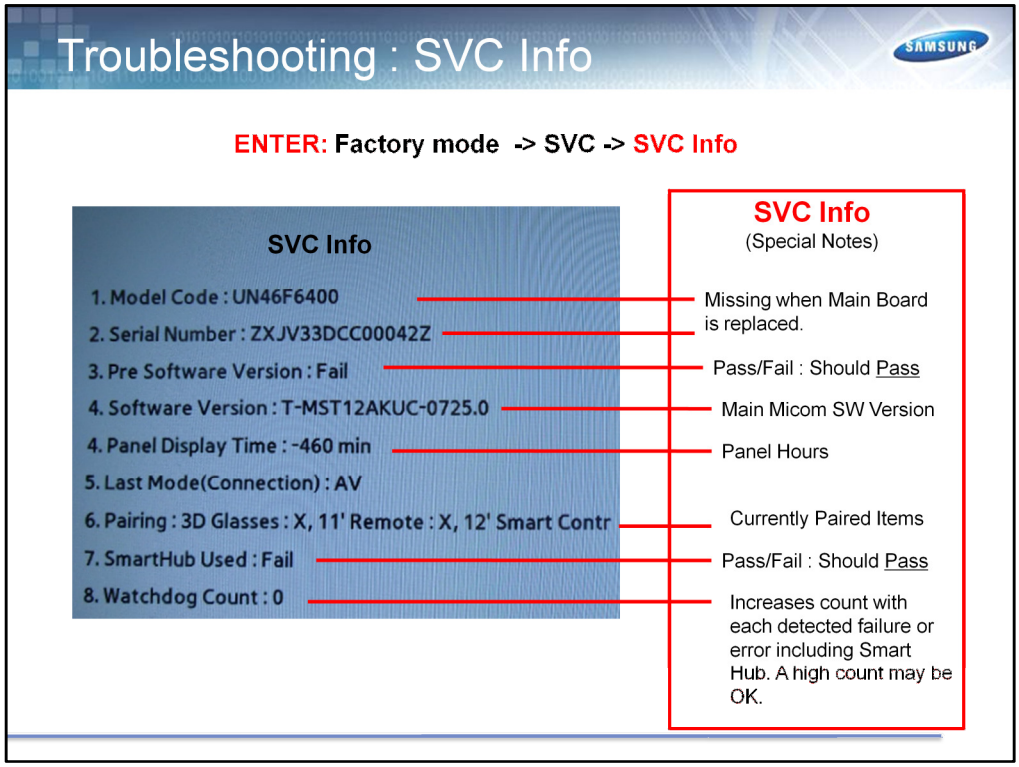
TESTING & OBSERVATION from this screen include:

1. Verify SW Versions
2. Verify Wired MAC Addresses SUCCESS
3. Verify Wireless MAC Address "SUCCESS"
4. Verify DRM Crt, NF, etc Status is "O"

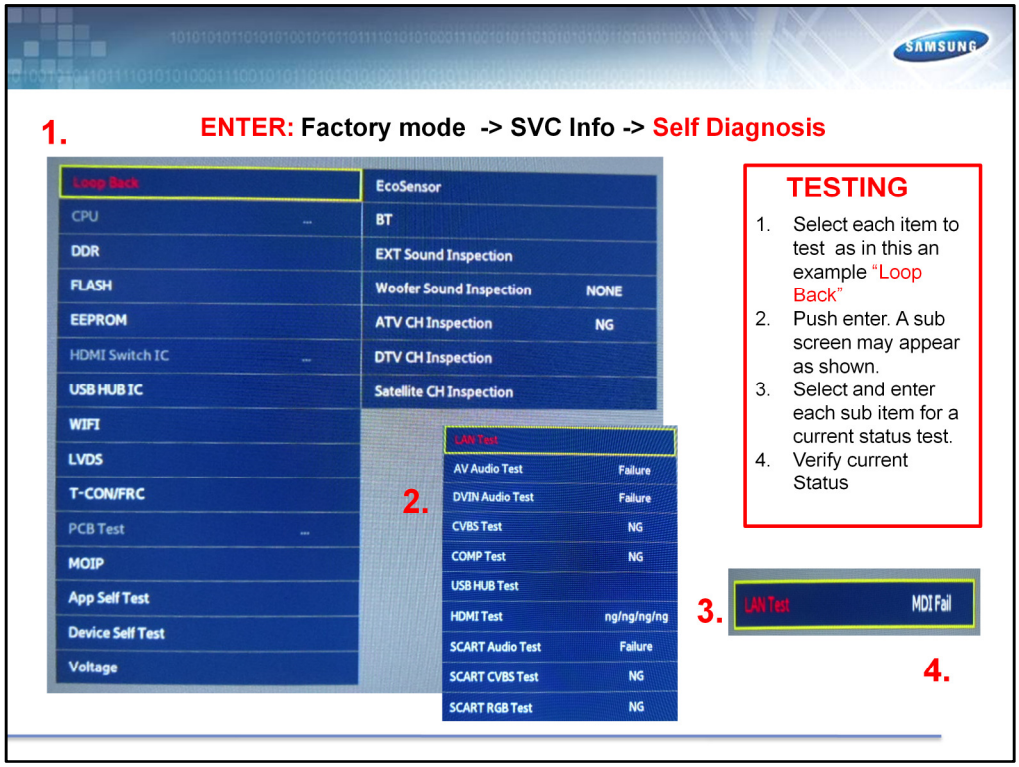


Setting Option Bytes

1. Enter Factory Mode with Service Remote (required to change all settings) and select Option screen.
2. Check Option Byte Table settings located on GSPN (Fast Tracks or Tips) for latest exact model information. (Do not use the Service Manual)
3. Select each item needed to change (Type, Local Set, SW Model, BOM Model, Tuner, etc.)
4. Additional items are located in MRT Option such as Front Color, LVDS Format, Region, etc), if necessary to change.

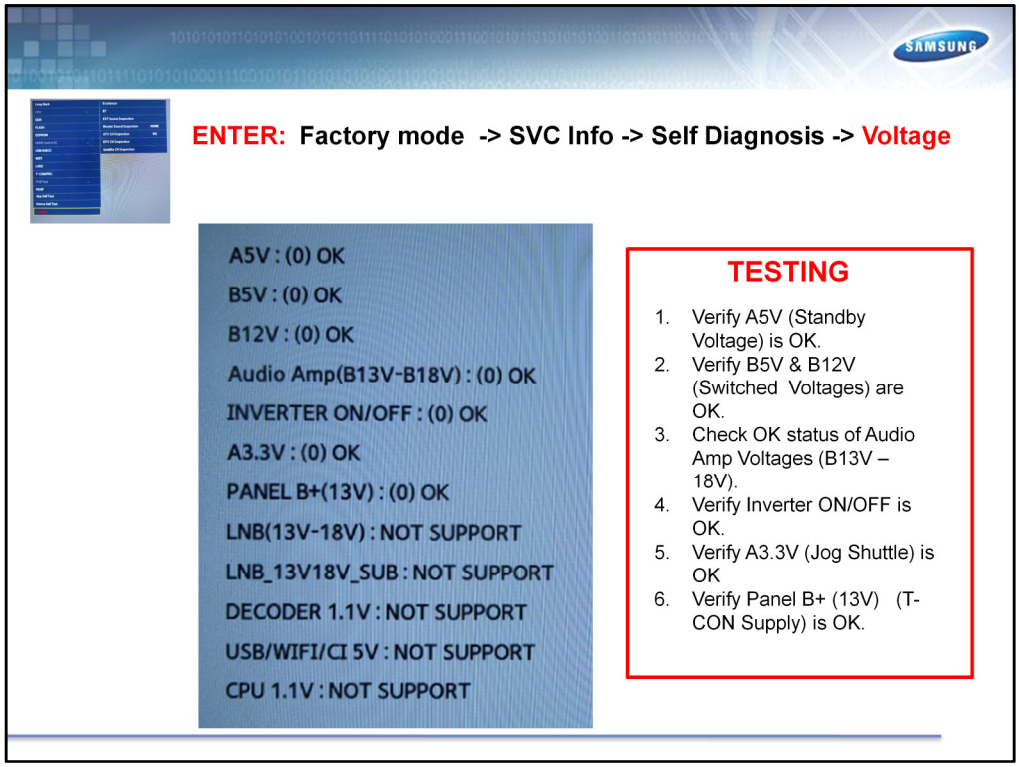


Important SVC Info screen shown can be selected from SVC/SVC INFO
Model, Serial Number, SW Versions, Panel Hours,
Important Customer Pairing info… Use to test what is currently paired…
Smart Hub & Important WD Count



Loop Back Testing feature can be selected from the Self Diagnosis Screen:

1. Select each item to test as in this an example "Loop Back"
2. Push enter. A sub screen may appear as shown.
3. Select and enter each sub item for a current status test.
4. Verify current Status

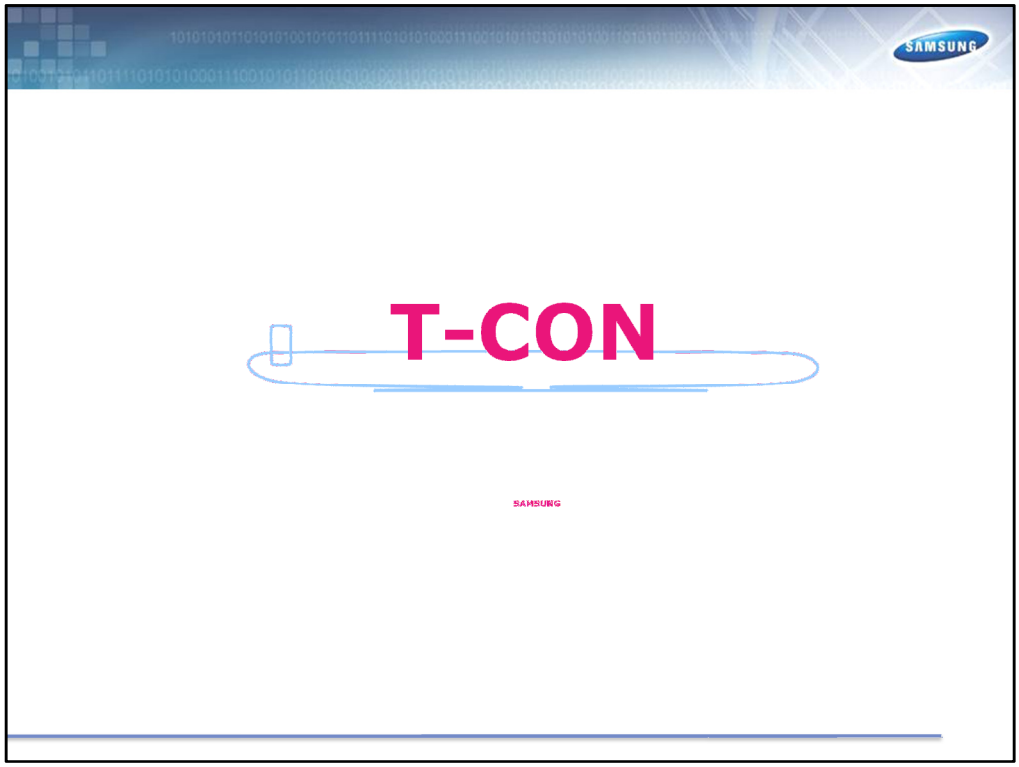


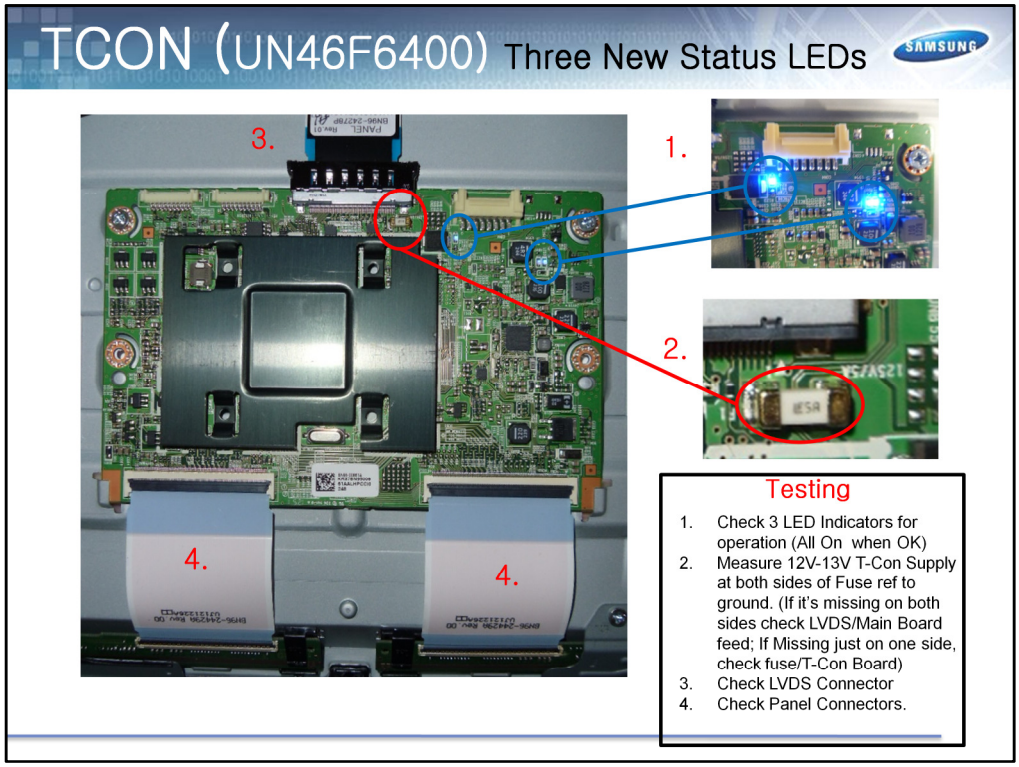
Important Voltage Info Screen can be observed from Self Diagnosis/Voltage


Contact Samsung
2013 Support Menu
SAMSUNG

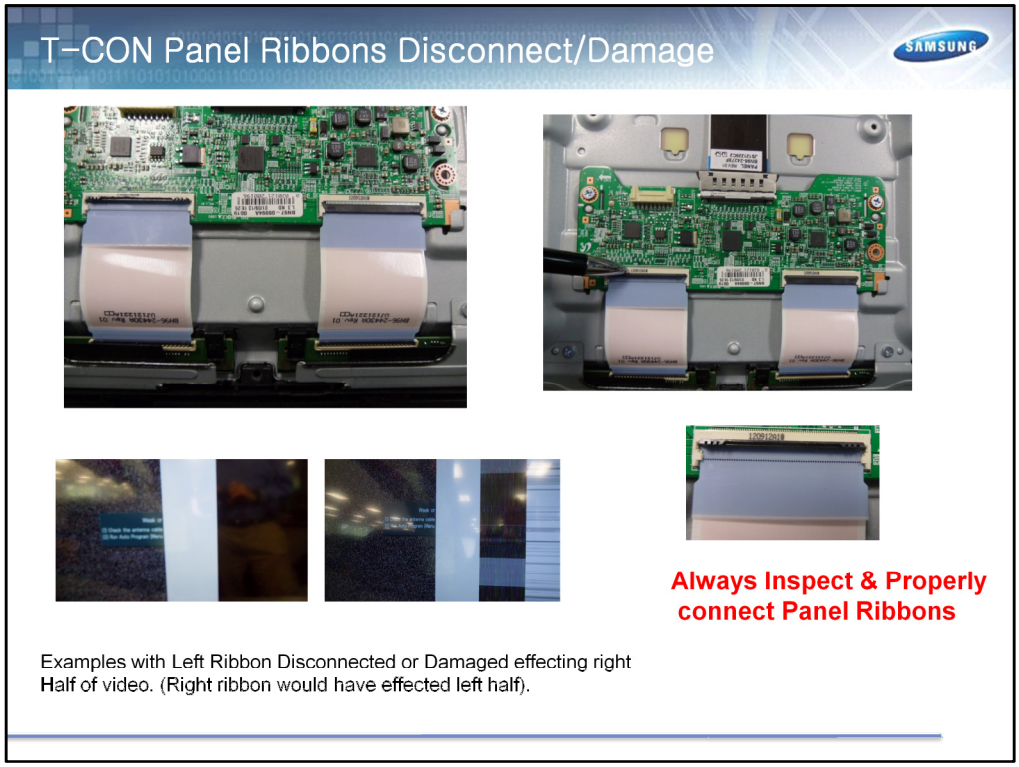
New 2013 Contact Samsung Screens are shown and include:

1. **Model Code** & **Software Version**
2. **Wired Mac Address** (Hex Code 0 thru 9 & A thru F) if missing or incorrect defective Main Board.
3. **Wireless MAC Address**: Verifies Wi-Fi Module is OK.
4. **Bluetooth Address**: Verifies Bluetooth Module
5. **Smart Hub Info**: Verify Apps Version & Unique ID for correct operation.


SAMSUNG
T-CON
SAMSUNG

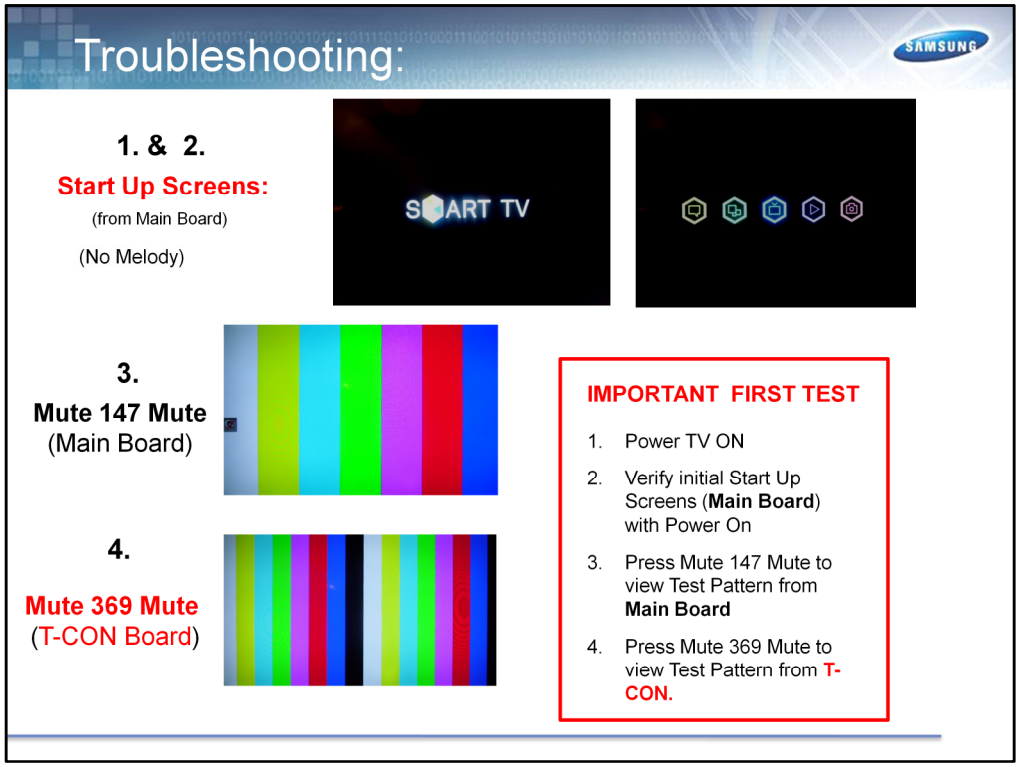


All three LEDs must be lit in order for the T-CON to operate correctly. They monitor DC regulator supplies on the T-CON Board. If all three LEDs are out then the fuse is likely open or there is no 12V supply voltage coming from the LVDS Cable/Main Board. The left LED is the 12V Supply Regulator and if its out no Video condition, the Middle is the 3.1V Regulator, if it's out: Noisy Picture, the Right LED is the T-CON DC to DC Converter (approx 17 pending panel size) : If it's out no Video.



Examples with Left Ribbon Disconnected or Damaged effecting right Half of video. (Right ribbon would have effected left half).

Always Inspect & Properly
connect Panel Ribbons



For Important Video Troubleshooting use this quick method of observing Main & T-Con Board Video Processing Status

This is especially useful for TVs that have hard to see display errors

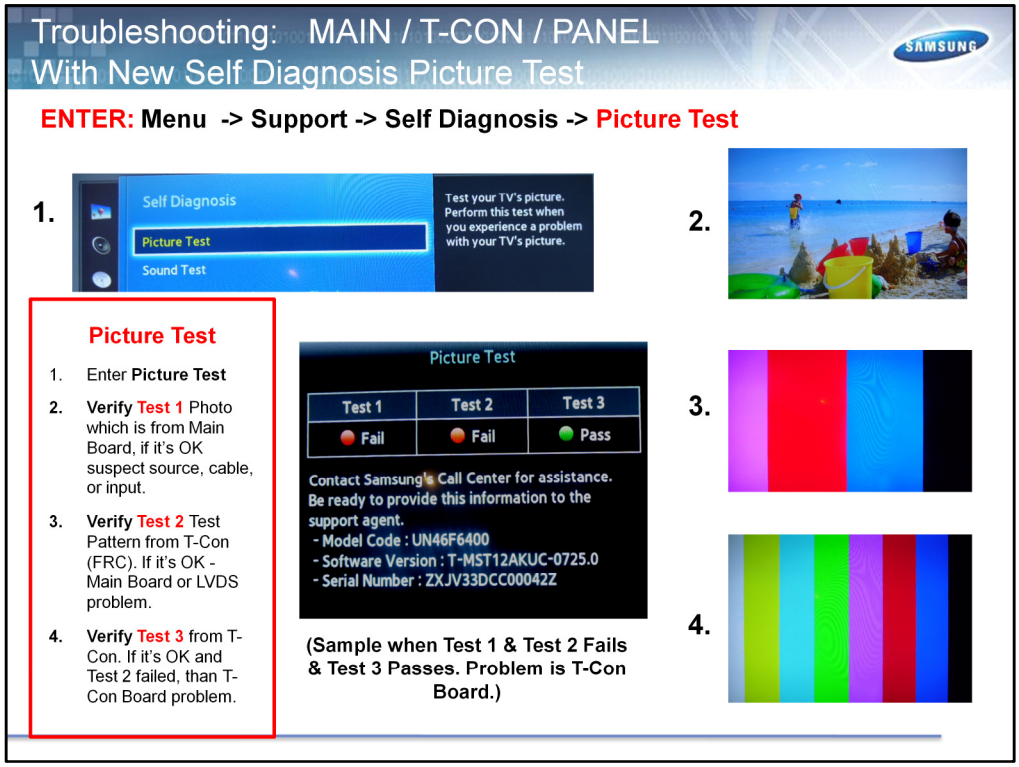
1. Power the TV ON
2. Verify initial Start Up Screens (**Main Board**) with Power On
3. Press Mute 147 Mute to view Test Pattern from **Main Board**
4. Press Mute 369 Mute to view Test Pattern from **T-CON.**

Picture Test

2013 LED TVs

Self Diagnosis Menu

SAMSUNG



New Customer Picture Test Procedure for LED TVs

1. Enter **Picture Test**
2. **Verify Test 1** Photo which is from Main Board, if it's OK suspect source, cable, or input.
3. **Verify Test 2** Test Pattern from T-Con (FRC). If it's OK - Main Board or LVDS problem.
4. **Verify Test 3** from T-Con. If it's OK and Test 2 failed, than T-Con Board problem.

Picture Test Error Chart

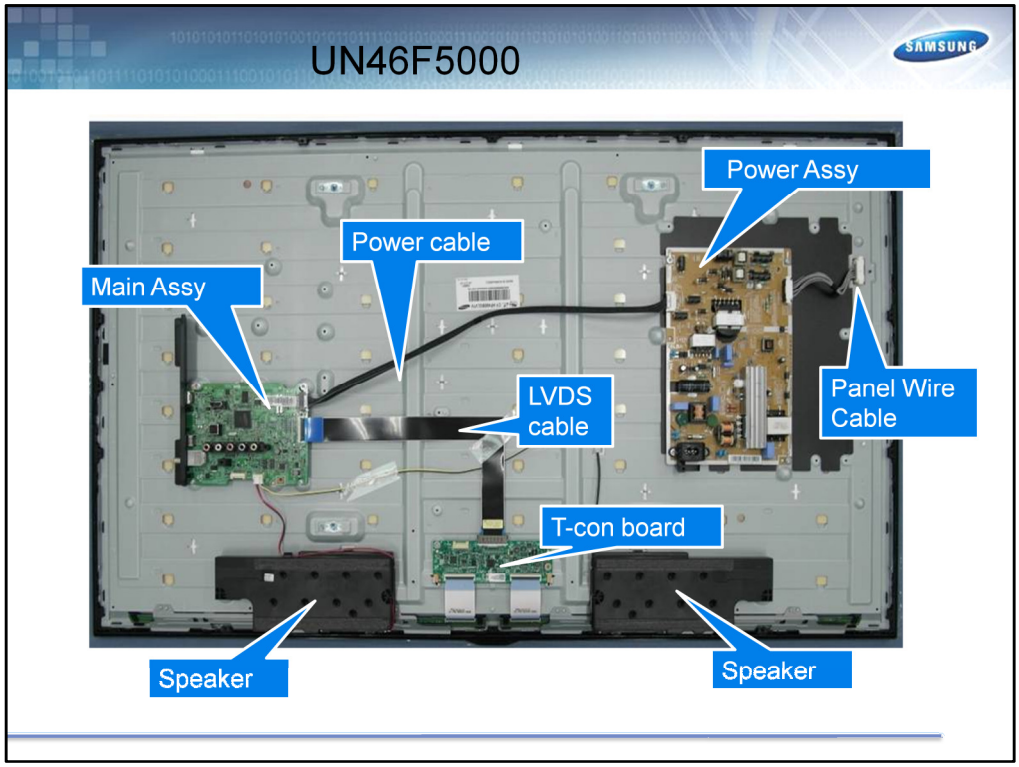
New Customer Picture Test Error Chart for LED Models

More Test Pattern to check T-Con. defect

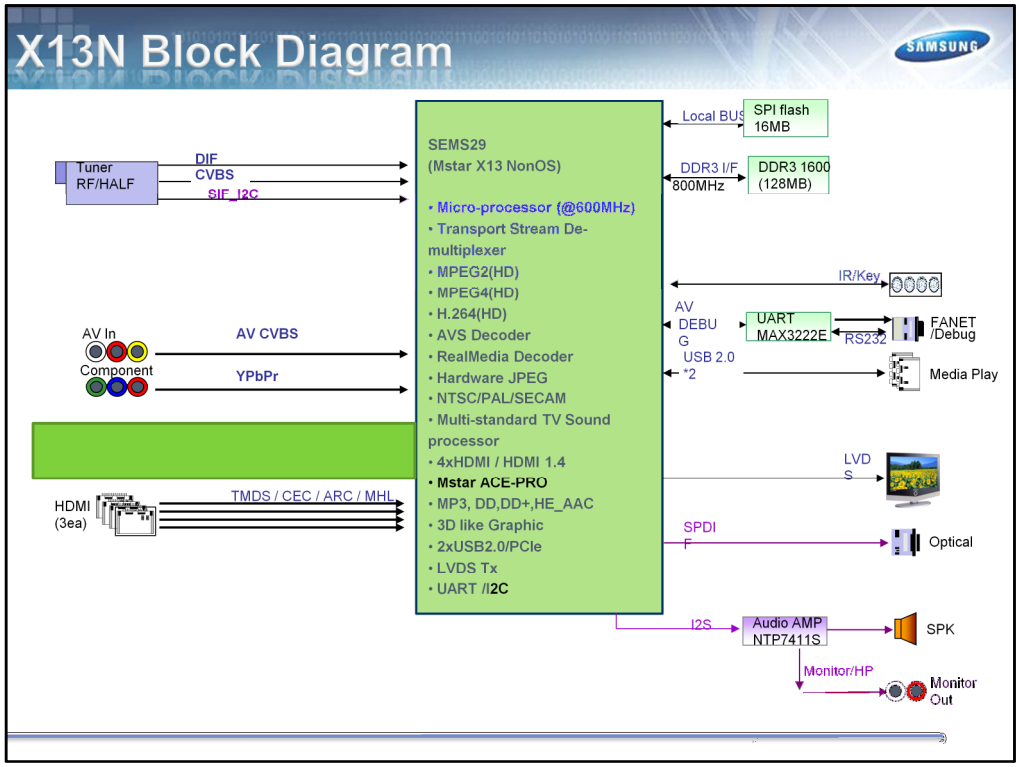
Main Board	Pre-T-Con.	Post T-Con.	Test Result	Problem
				
Pass	Pass	Pass		Check Signal Source and other inputs.
Fail	Pass	Pass		Main Board or LVDS Cable
Fail	Fail	Pass		T-Con. Board
Fail	Fail	Fail		T-Con or Panel

Chart shows probable failures with specific error conditions diagnosing Main, LVDS, T-CON or Panel Failures

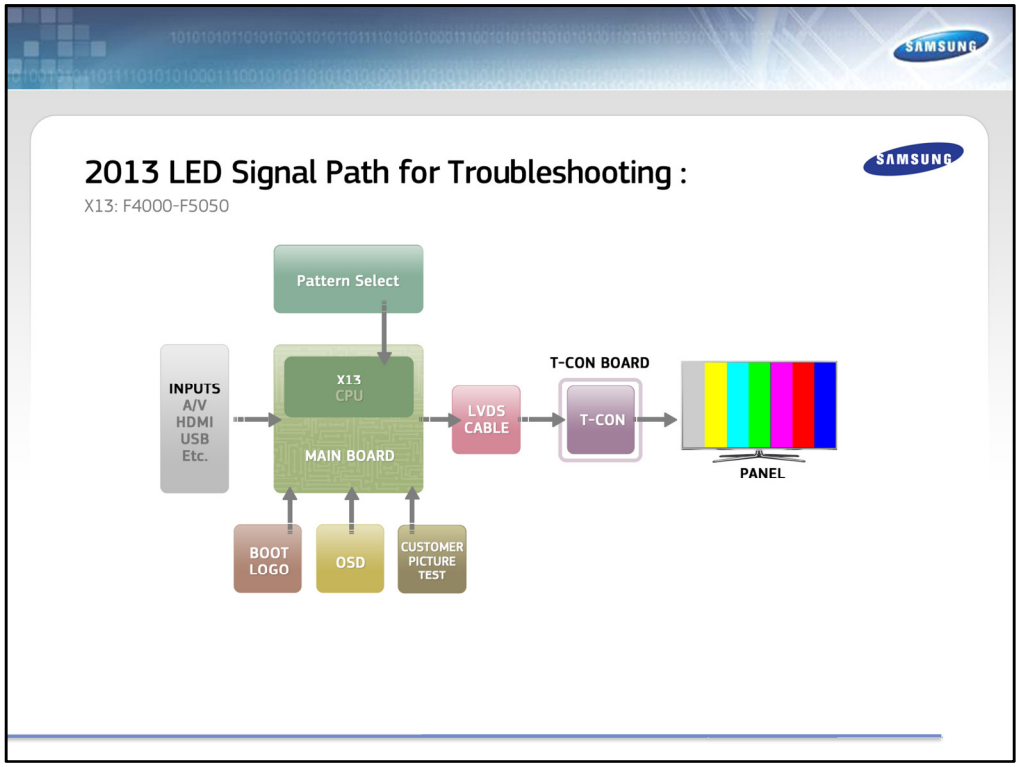
UNF5000



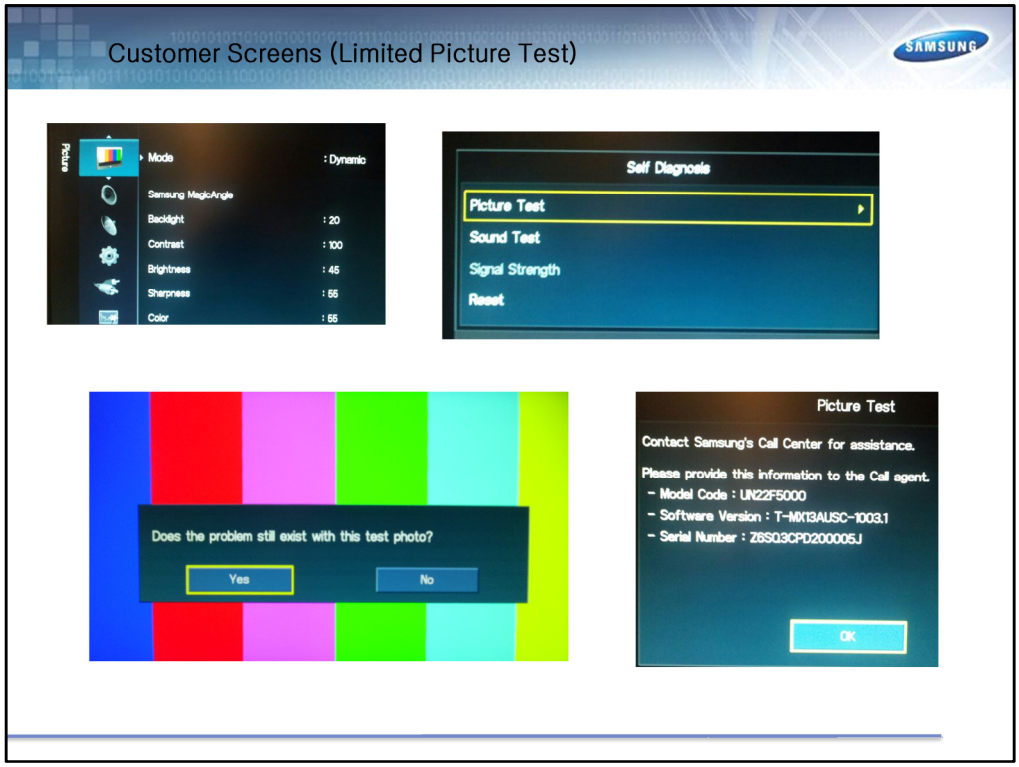
This Basic Model LED TV, the UN46F5000, Layout is shown. It includes the Main Assy, Power Assy (SMPS), T-CON Assy, Speakers, and LVDS Cable… Not shown is the Jog Function Assy.



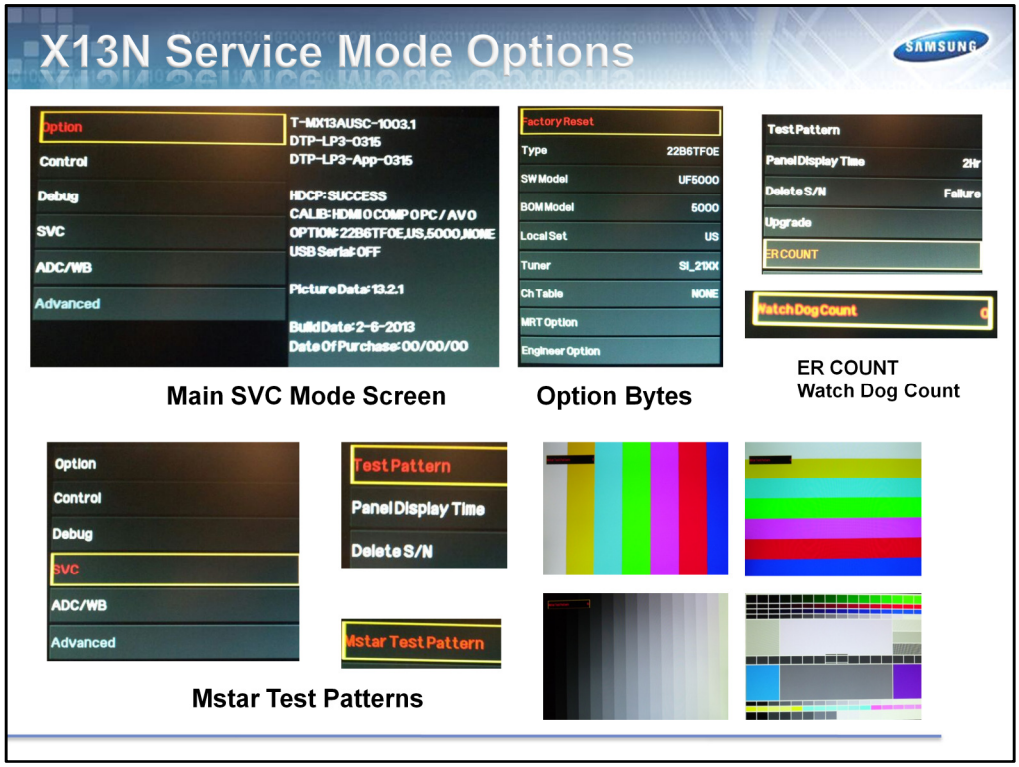
The F5000 SERIES LED TVs use the MSTAR X13 one chip Processor. Input signals are processed and fed thru LVDS to the T-CON Board. All TV operating functions are also processed and controlled.



The X13 signal path includes all inputs to the Main Board. The 10 Bit Data Signal than passes thru LVDS to the T-Con Processor Chip in the T-Con Board. The T-Con Processor sends the final signal to the panel.
For Troubleshooting: Boot Logo, OSD, and customer picture test are available from Main board as well as Pattern Sel from Factory Service Mode.



Customer Screen include limited Picture Test. Since the F5000 series TVs do not have FRC as part of the T-CON there are no T-CON test Patterns available as in the X12 F6400 & the Fox F8000 series



Service Mode Screens are shown including the initial Factory Mode Screen displaying the model & Status items;
The Option Byte Settings, Important ER Watch Dog Count; is also pictured.
Seen at the bottom are the available Test Patterns limited to “Mstar Test Patterns” generated from the Main Board only. T-Con Test patterns are not available for 60 Hz non FRC TV Models.

2013 LED/LCD Troubleshooting with "T-CON TEST JIG" available

Part Number SPC-2011

T-CON Test JIG is available for 2010 thru 2013 LCD/LED Models to activate TV Power and T-CON TEST PATTERNS without a Main Board.

102

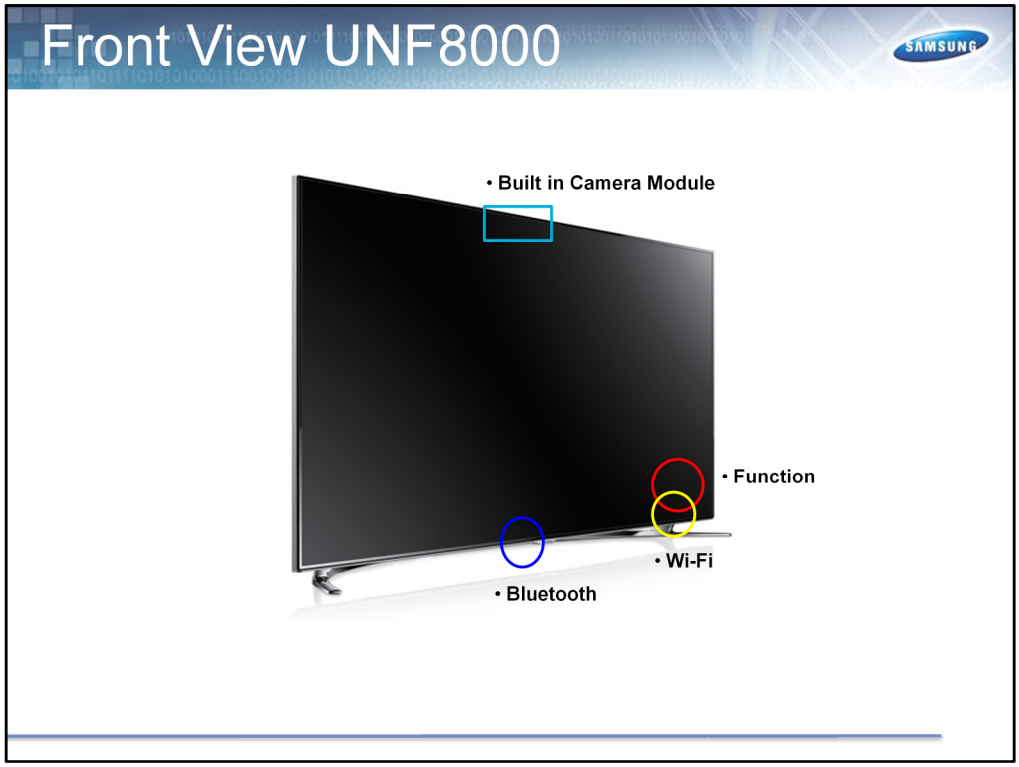
The T-CON JIG is available for LCD/LED Models which will activate Power and T-CON TEST PATTERNS on the TV without a Main Board. **This will also work for 60 Hz models without an FRC in the T-Con needed to view Test Patterns in Factory Mode.**
They will work with 2011, 2012, & now 2013 TVs 32 inch and larger. Do not use on models that are not supported or damage may occur to the TV.

UNF8000

Specification Comparison

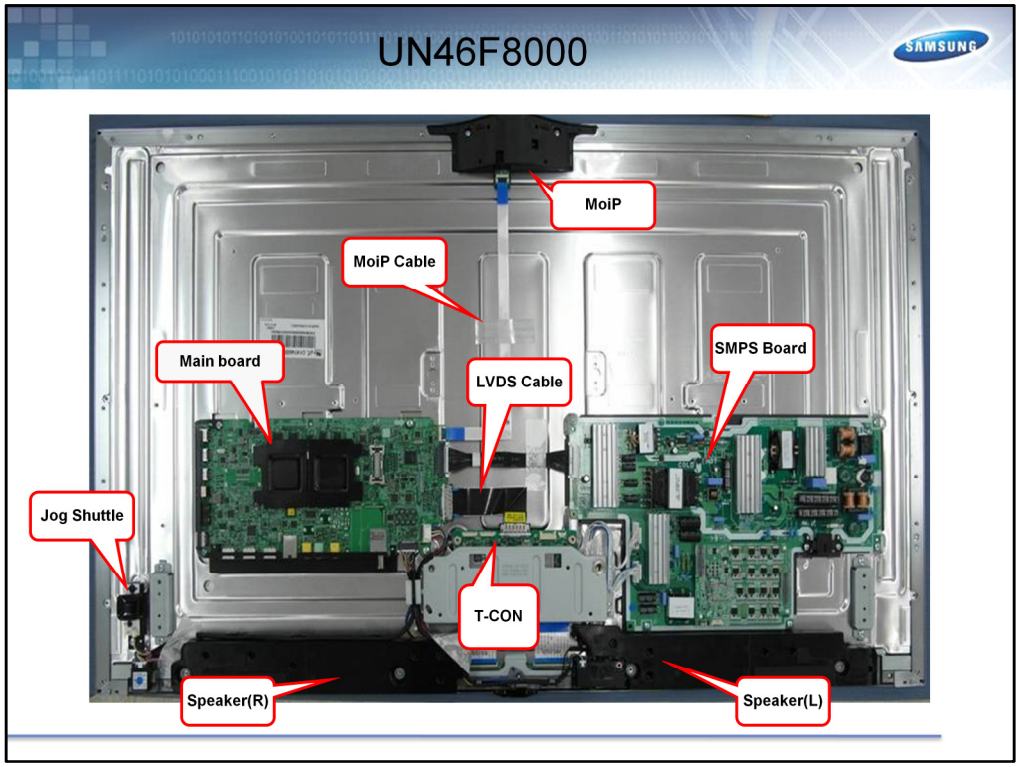
	2012 ES8000	2013 F8000
CPU	ECHO_P(SDP1106), Dual Core(2 x Cortex A-9, 1GHz)	**FOX-AP(SDP1202), Quad Core(4 x Cortex A-10, 1.3GHz)**
DDR	1GB(256MB x 4), 933MHz	1.5GB(1G DDP + 512M), 800MHz
Flash	2GB (eMMC 4.41)	4GB (eMMC 4.41)
Front End Chip	Echo-A(SDP1101)	FOX MP(SDP1201) : Front End + DP
HDMI	3 Port, 1.4 ver, MHL 1.2 SIL9587 (MHL Switching)	4 Port, 1.4 ver, MHL 1.2 SIL9687 (Loopback circuit)
CPLD Chip	Echo-FP (4-Line Scanning)	EPM240M100C4N (5-Line Scanning)
Voice & Hand Gesture Recognition	O	O(Voice Recognition (Server))
Camera	Built-in, 1M(720P)	**Built-in, 5M(1080P)**
Eco Sensor/IR/LED	Built-in Camera	Built-in left & bottom Frame
Sound output	10W(6Ω) X 2	10W(6Ω) X 2, 10W(6Ω) X 2(Woofer)
Screen Mirroring	O (WiDi)	O (AllShare Cast, WiDi)
3D/FRC Chip Set	Echo-FP(SDP1111)	**FOX-FT1 (FRC + TCON 1 Chip)**
TCON IC	Echo-T (SDP1107)	

2013 F8000 specifications are shown as compared to the 2012 ES8000 series

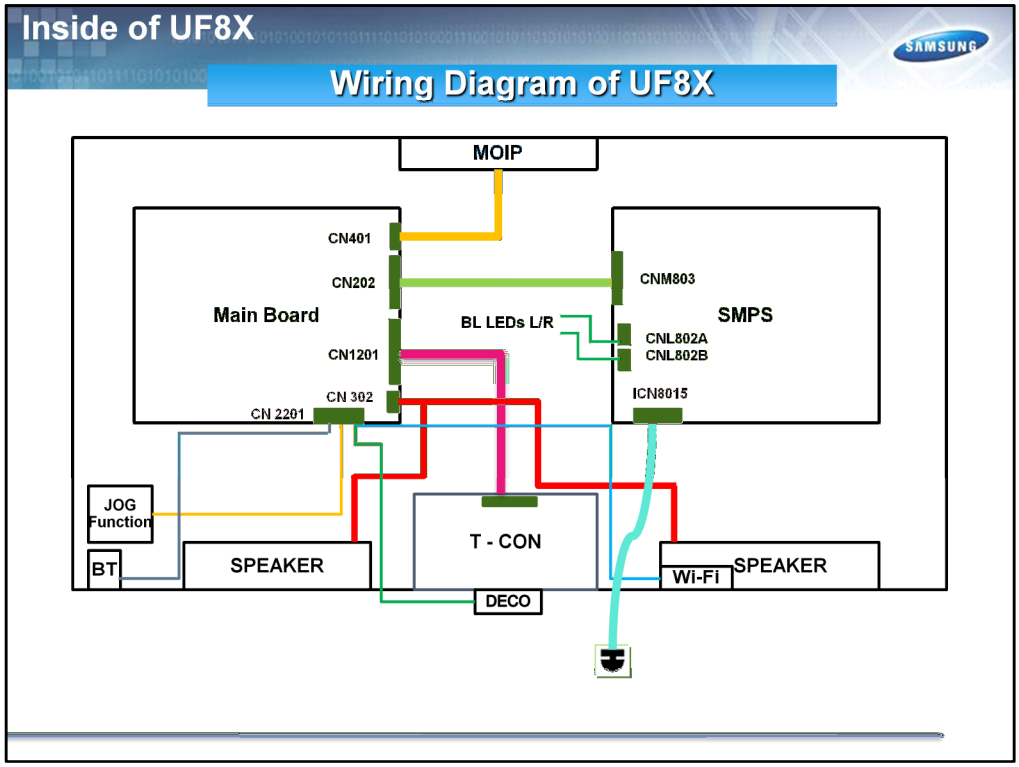


Front Voew includes locations of the MOIP Camera/Mic Module, Bluetooth Module, Wi-Fi Module, and Jog Function

Important disassembly procedure is to protect the TV. It must be laid face down to remove the stand before the rear Cover can be removed. The Stand can then be re-attached for troubleshooting with the rear cover removed.



The Layout for the UN46F8000 is shown and includes the MOIP Camera/Mic Module, Main Board, LVDS Cable, SMPS Board, T-CON Board, Jog Shuttle, & Speakers. Not labeled are the Wi—Fi Module and Bluetooth Module.



Wiring Diagram includes Main cabling and connectors to MOIP and SMPS. Main to Bluetooth and WiFi Modules. Main to Speakers. Main to Jog Function and Deco - Samsung Logo, Main to LVDS to T-CON Board, as well as SMPS to the Back Light Panel LEDs.

SMPS Board

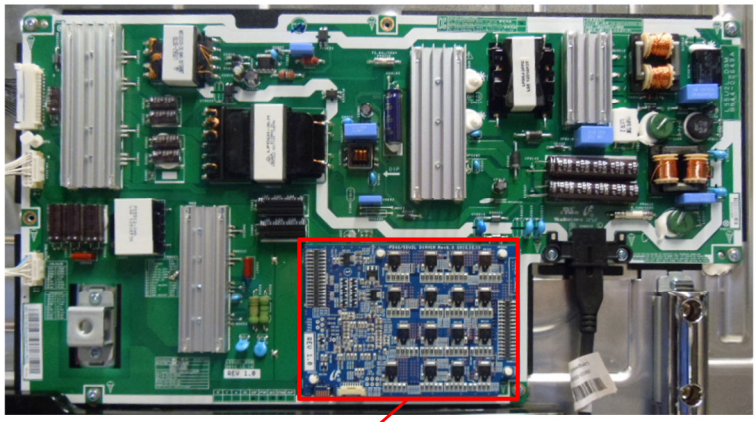
SAMSUNG

SMPS

CNM803
To Main

CNL802A
Left BL LEDs

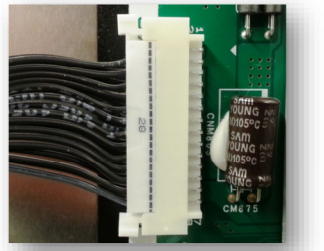
CNL802A
Right BL LEDs



Micro Dimming Board
(Backlight Control)

Power-Up Sequence

1. Standby 5.3VDC on *A5V* pin when AC cord is connected
2. The Micro on the Main PCB actively looks for the user to press Power
3. When Power is pressed, the Micro sends a “High” voltage transition (0-3.3VDC) to the SMPS via the *PWR_ON/OFF* pin, to activate the rest of the voltages.
4. The SMPS may be forced on by simply disconnecting the wire harness between the SMPS and Main PCB



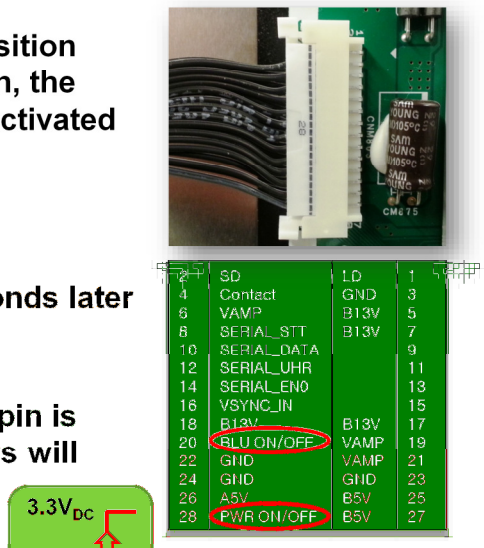
2	SD	LD	1
4	Contact	GND	3
6	VAMP	B13V	5
8	SERIAL_STT	B13V	7
10	SERIAL_DATA		9
12	SERIAL_UHR		11
14	SERIAL_EN0		13
16	VSYNC_IN		15
18	B13V	B13V	17
20	BLU ON/OFF	VAMP	19
22	GND	VAMP	21
24	GND	GND	23
26	A5V	B5V	25
28	PWR ON/OFF	B5V	27

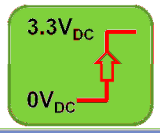
CNM 803

Power-Up Sequence Described: Standby & Power On

Power-Up Sequence

5. **Upon the 0-3.3VDC transition on the *PWR_ON/OFF* pin, the following voltages are activated on CNM803**
   - Vamp ≈ 18VDC
   - B13V ≈ 13VDC
   - B5V ≈ 5VDC
6. **Approximately two seconds later 5VDC is applied to the *BLU_ON/OFF* pin**
7. **Once the *BLU_ON/OFF* pin is activated, the LED arrays will turn on**





CNM 803

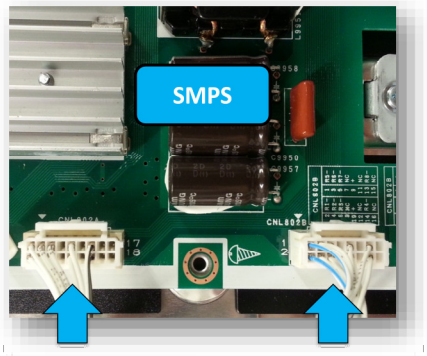
112

Power-Up Sequence continued: Switched DC Voltages & BL activation

Power-Up Sequence

8. CNL802A and CNL802B supply voltage to the LED arrays
9. The "positive" pins will carry a steady voltage of approx 35V DC (panel size dependent)
10. The "negative" pins will carry a voltage which will vary between approx 1 and 10VDC depending on how bright the section of the backlight screen needs to be for that location

- 1Vdc = Brighter screen
- 10Vdc = Darker screen



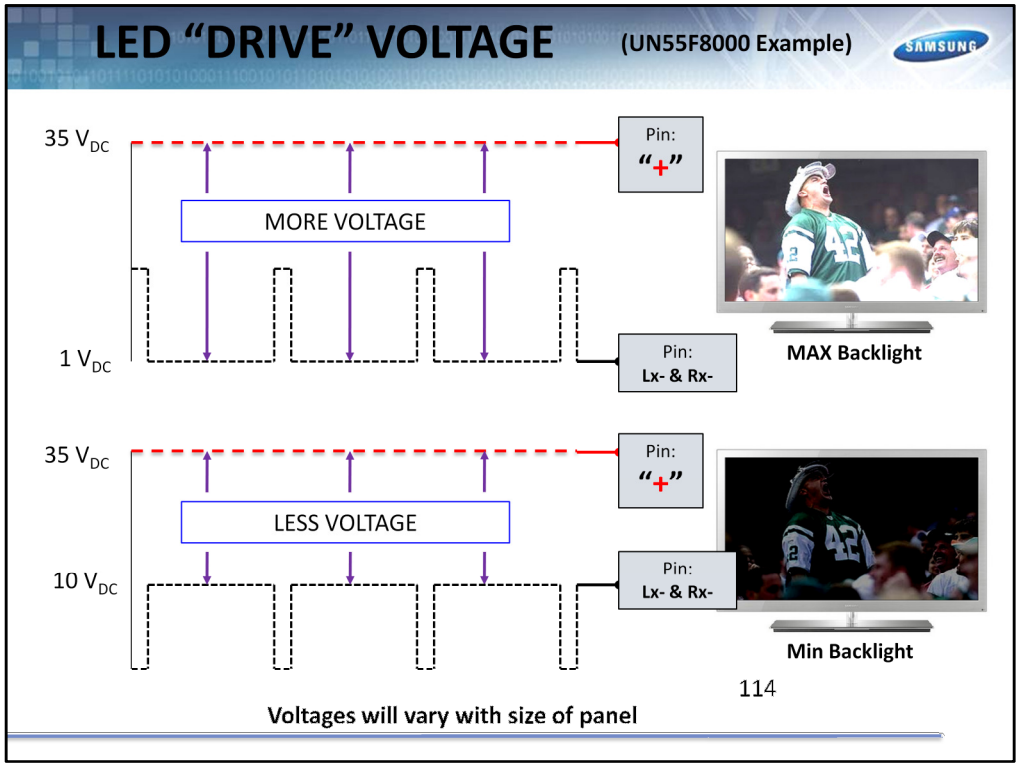
2	L4–	1	L8–
4	L3–	3	L7–
6	L2–	5	L6–
8	NC	7	NC
10	+	9	+
12	NC	11	NC
14	L1–	13	L5–
16	NC	1	NC
18	NC	17	NC

CNL 802A

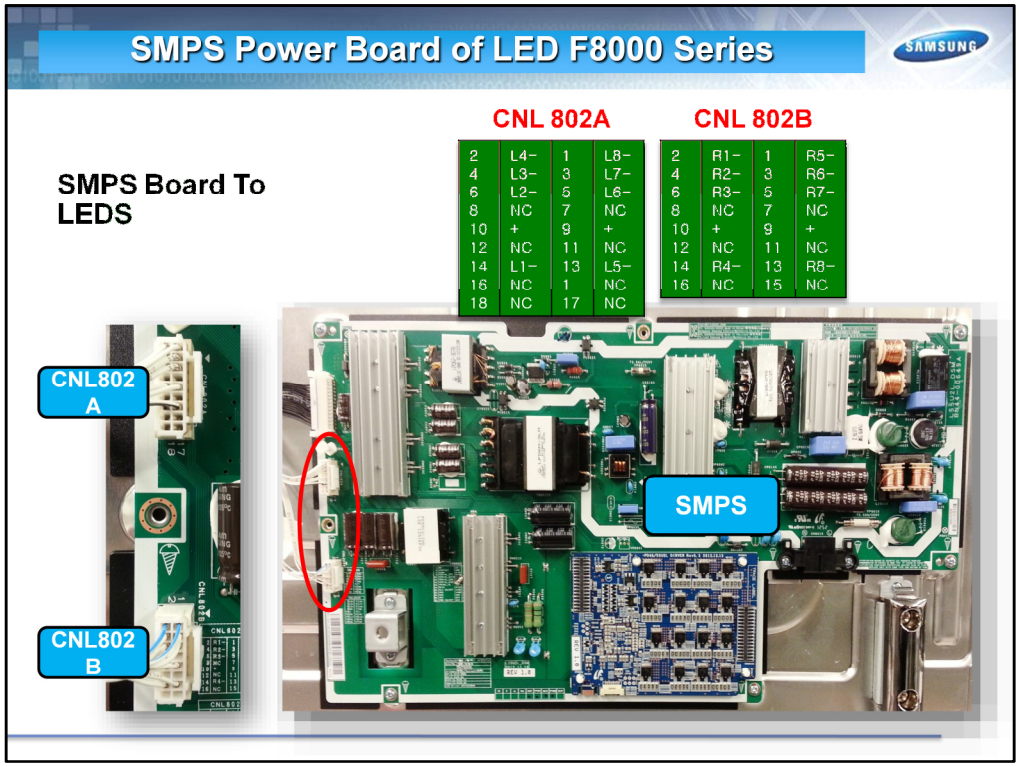
2	R1–	1	R5–
4	R2–	3	R6–
6	R3–	5	R7–
8	NC	7	NC
10	+	9	+
12	NC	11	NC
14	R4–	13	R8–
16	NC	15	NC

CNL 802B

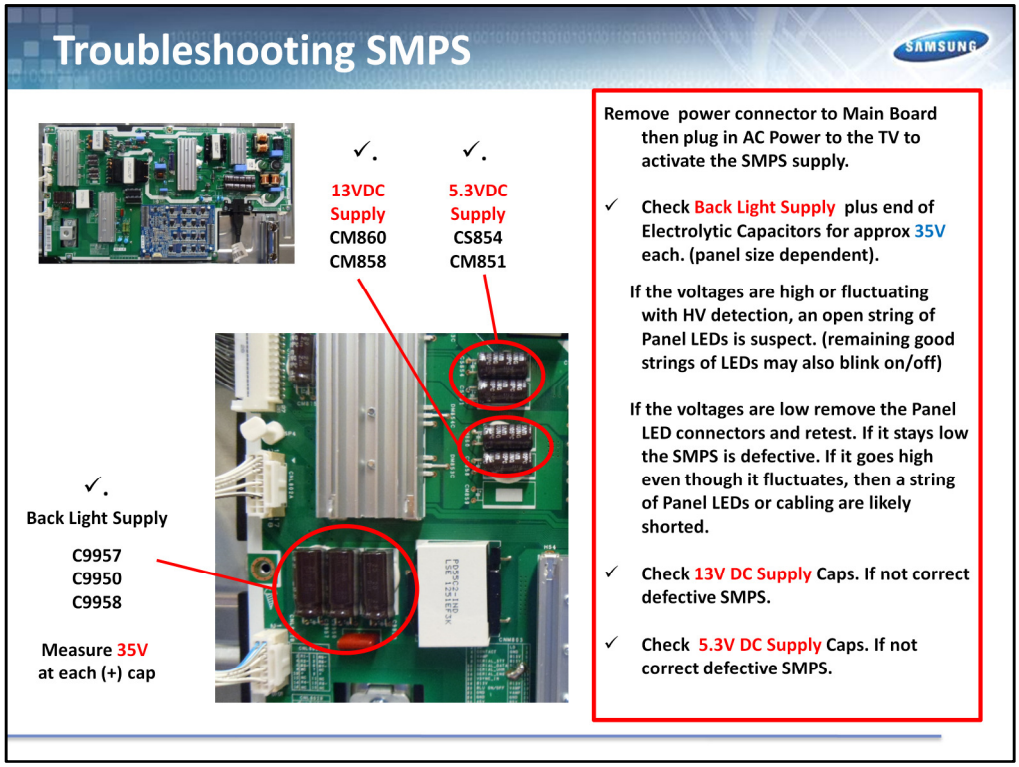
Back light process to sixteen separate sets of Backlight Panel LEDs



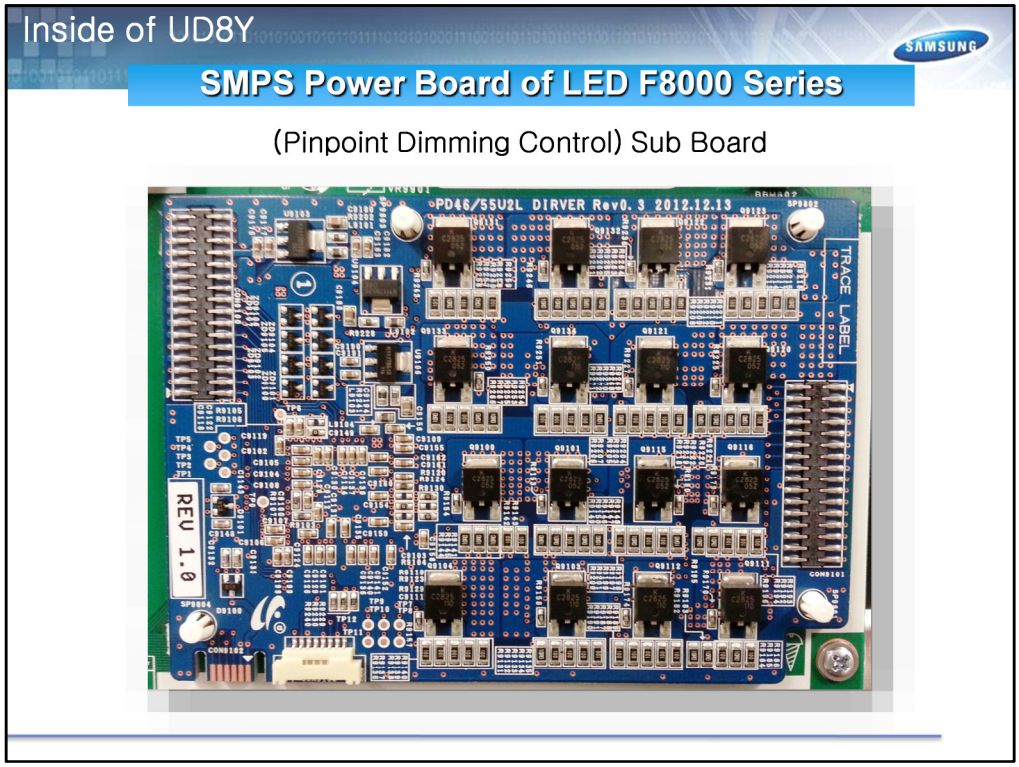
LED Drive operation is displayed and includes the fixed 35V (example) Supply to the plus LED Pins and varying 10V supply to the negative LED Pins along with their effect on screen Backlight condition. Notice the 10 volt supply is actually a TTL type signal that varies in duty cycle on time. As this negative side 10 volt drive goes higher in level (more on time of the 10V feed) the panel LEDs becomes dimmer. Use a standard DC volt meter to test the effective voltage and changes.



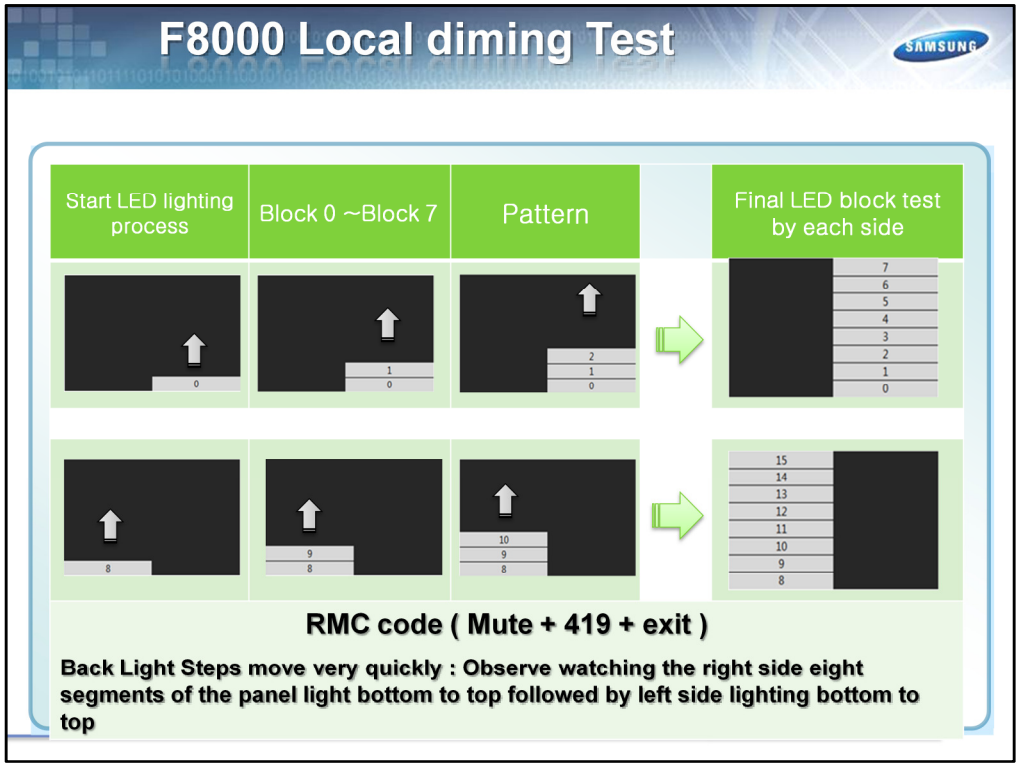
Shown here are the panel connectors and special Micro dimming board controllingt he sixteen backlight section .



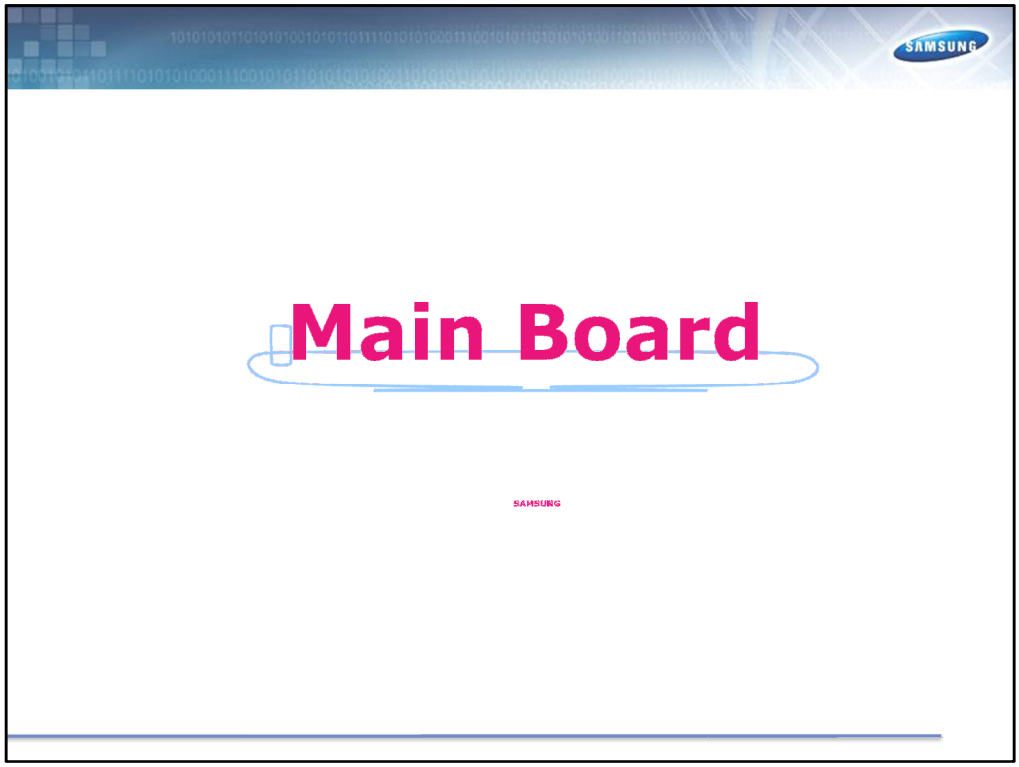
Important Additional SMPS Backlight Supply Troubleshooting

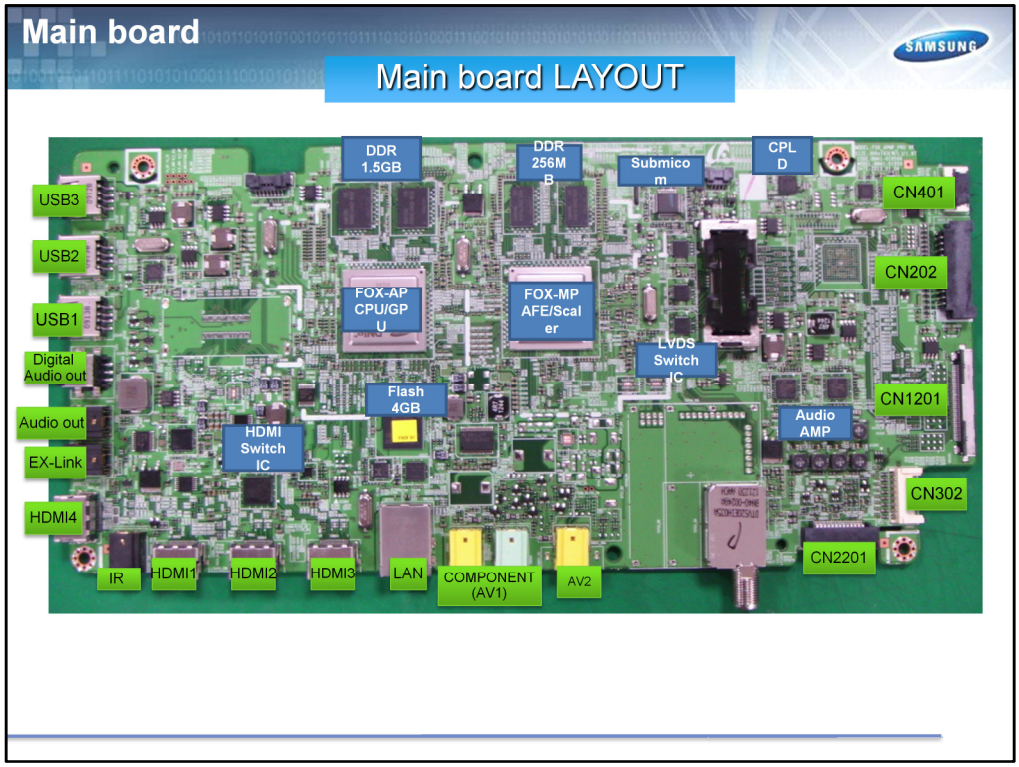


Pinpoint Dimming Control Board, although may be removed for some type models, is part of the SMPS Board when ordering.

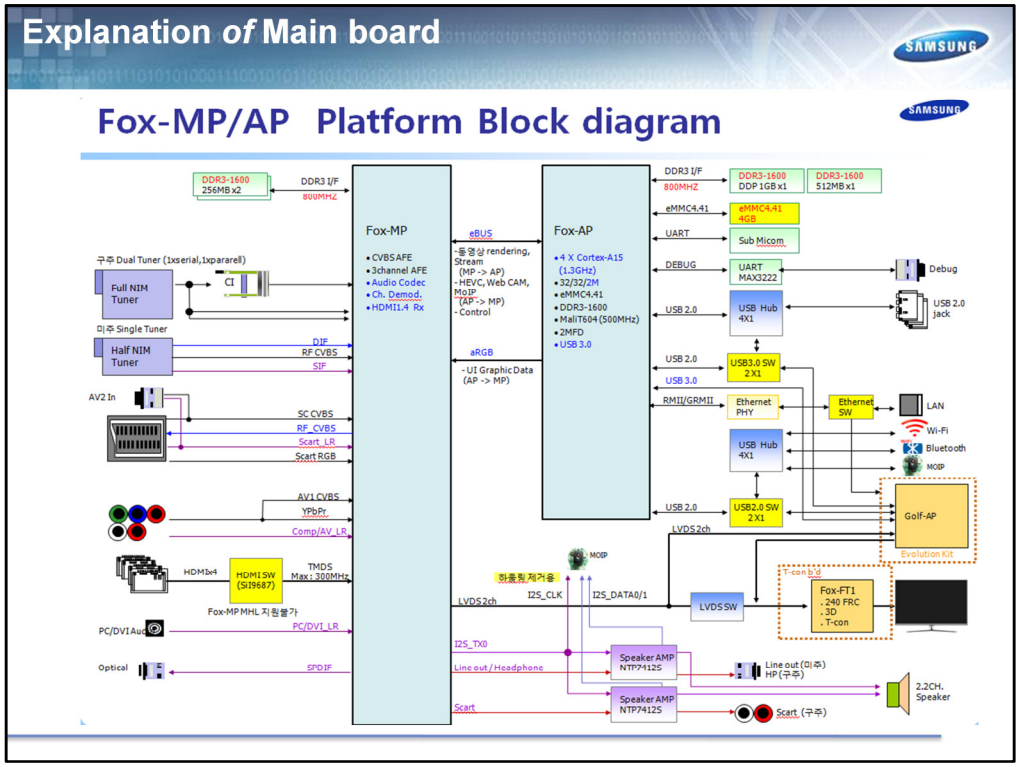


This Backlight Test is for the 8000 series LED TVs only. It tests each 16 LED Panel segment. However the **Back Light Steps move very quickly and might be hard to follow : Observe watching the right side eight segments of the panel light bottom to top followed by left side lighting bottom to top**

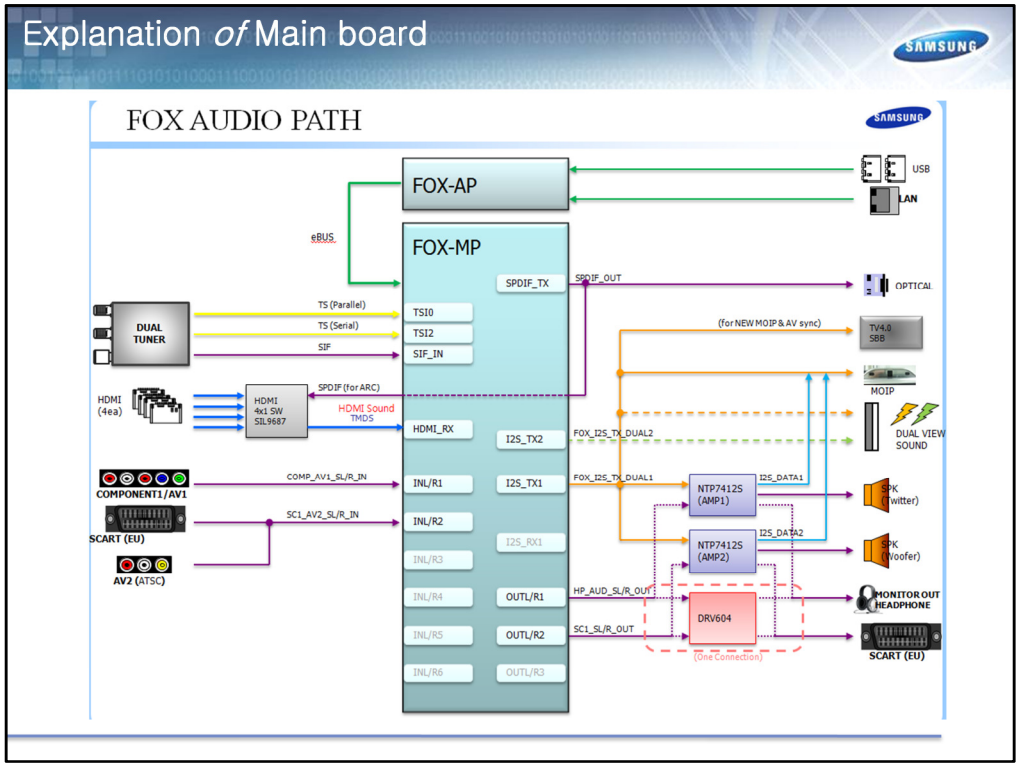

SAMSUNG
Main Board
SAMSUNG



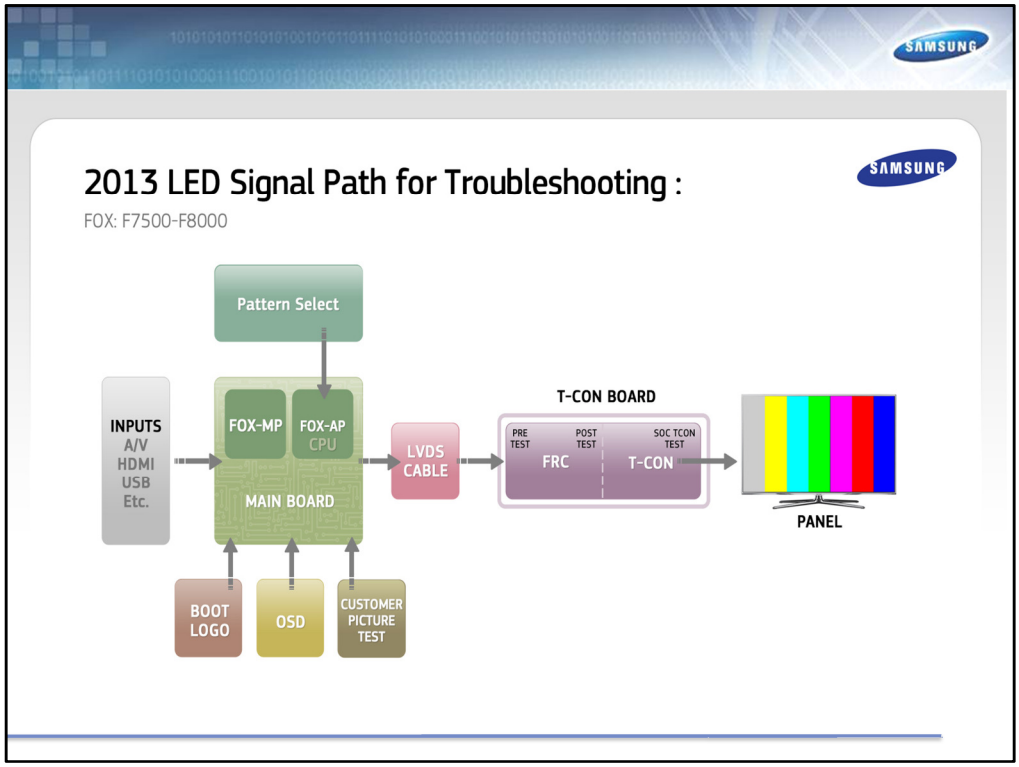
The Main Board Layout for the F8000 is pictured. The Fox-AP CPU & Fox-MP Scaler and accompanying Ics as well as all connectors USB, Audio, IR, HDMIs, RF, and cable connectors are included.



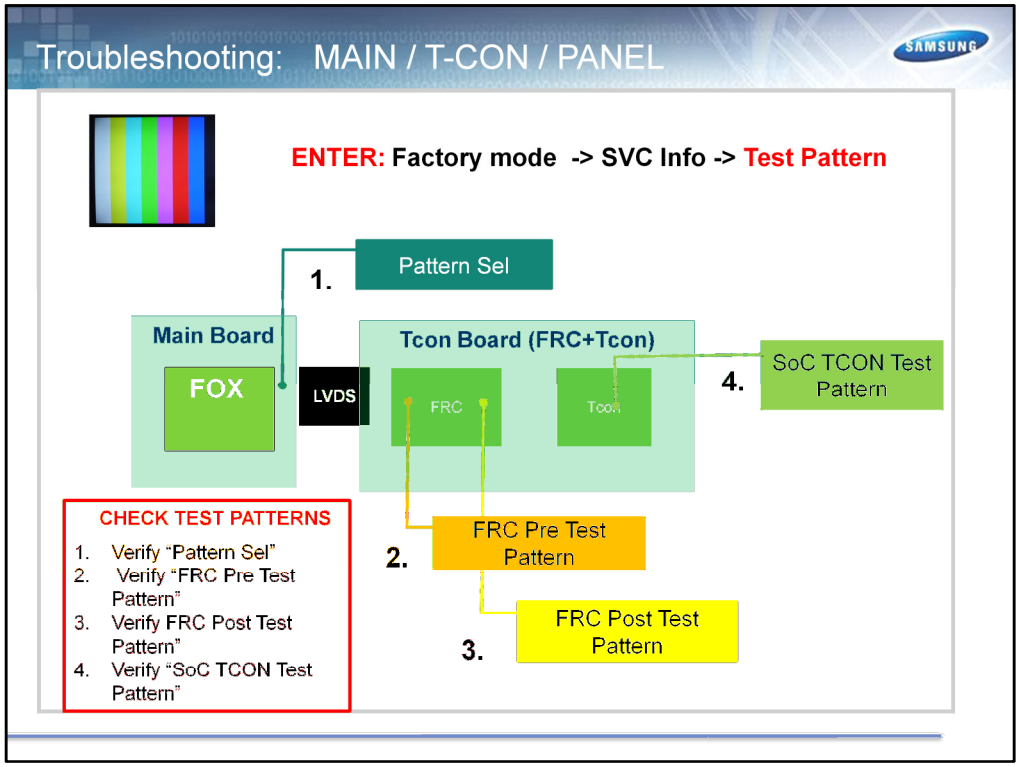
Tuner, HDMI, Audio & Video Inputs are sent to the FOX-MP. Fox AP receives USB, Wi-Fi, Bluetooth sending info to the Fox MP as well as shared communications… Fox MP sends audio out to amps on Main Board and LVDS Video Data Signals thru LVDS to 240 FRC/T-CON IC located in T-Con Board. Final video signal outputting to the Panel.



Audio Path includes all input feeds to Fox-MP for processing with L&R Audio out signals to Amp 1 & Amp 2 on Main Board. SPDIF Audio Optical Out and MOIP Audio & Video signals are Processed as well by the Fox MP.

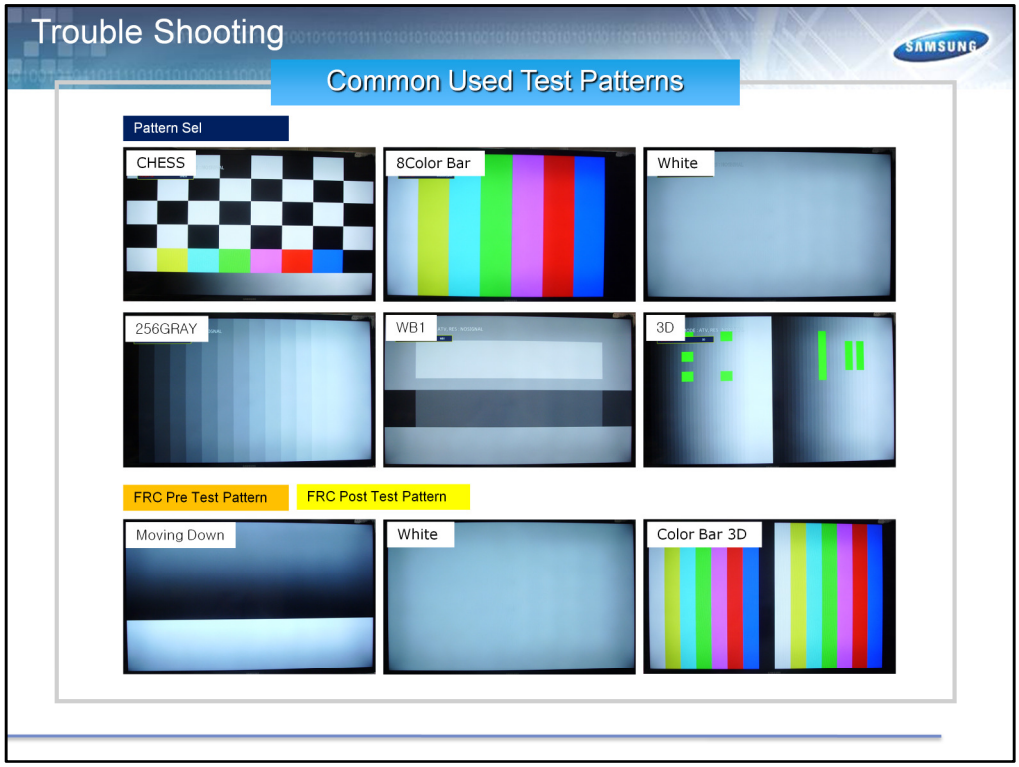


The FOX signal path includes all inputs to the Main Board. The 10 Bit Data Signal than passes thru LVDS to the new single FRC/TCON IC located in the T-Con Board. The T-Con Processor sends the final signal to the panel.

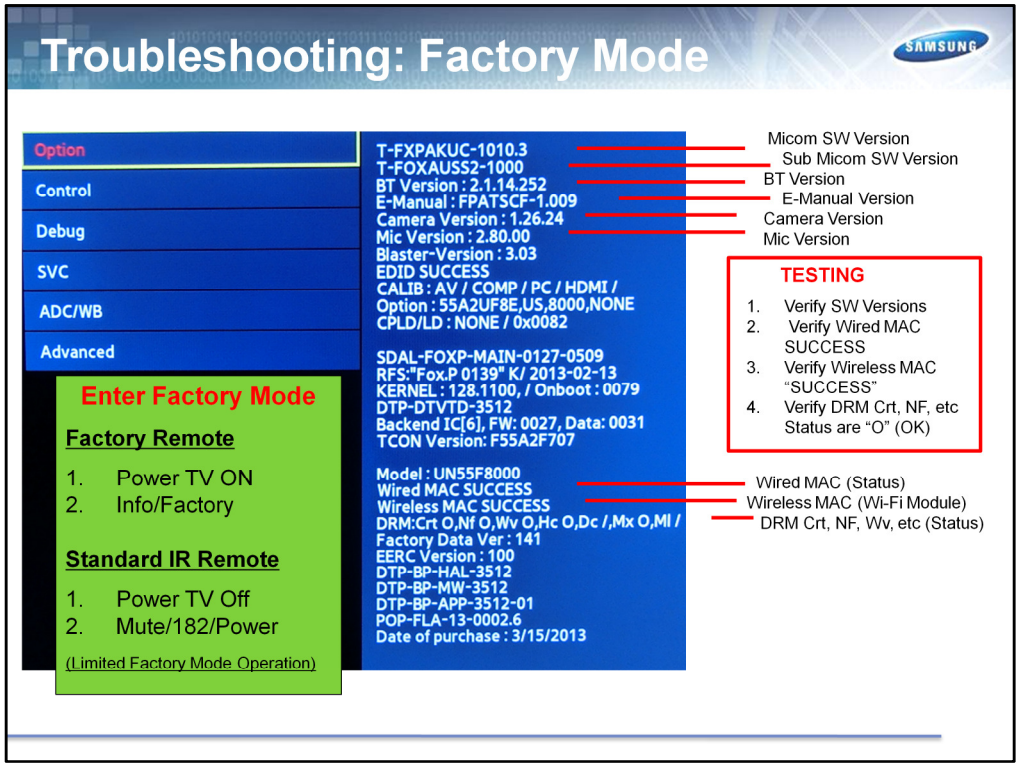


Fox Platform Main Board sends important 10 Bit Video Data Signal thru LVDS to FRC/T-CON Board than to the Panel. To troubleshoot important Video Path: Check specific Test Patterns listed in Service Mode:

1. Verify "Pattern Sel"
2. Verify "FRC Pre Test Pattern"
3. Verify FRC Post Test Pattern"
4. Verify "SoC TCON Test Pattern"



Test Patterns: Pattern Sel, FRC Pre, & FRC Post



The initial Factory Service Mode Screen is shown.
Factory Mode can be entered two ways but Must use a Factory Remote to get full operation and screens.

TESTING & OBSERVATION from this screen include:
Check Model & Serial numbers

1. Verify SW Versions of each item
2. Verify Wired MAC Addresses SUCCESS
3. Verify Wireless MAC Address "SUCCESS"
4. Verify DRM Crt, NF, etc Status is "O"

Troubleshooting: Option Bytes

1.

2.

Model	Type	Basic Model	SVC Model	Ch Table	Front Color	Local Set
UN55ES7150FXZA	55A2UF0E	UES7100	UES7150	SAMEX	U-T-CL-M71	US
UN55ES7150FXZA	55A2UF0E	UES7100	UES7150	SAMEX	U-T-CL-M71	US

Example from 2012 TV Option Table

3.

Type	55A2UF8E
Local Set	US
SW Model	UF8000
BOM Model	8000
TUNER	SI2190
Ch Table	NONE
MRT Option	

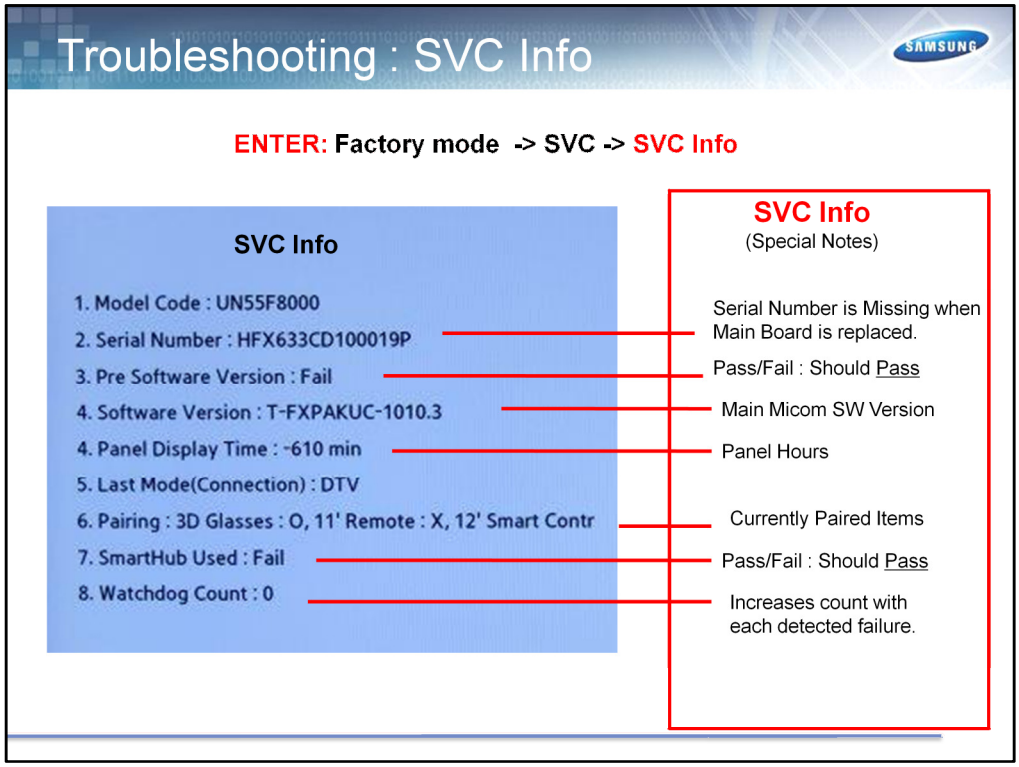
4.

Front Color	U-CF-B80
Lvds Format	JEIDA
Language_Arabic	US
Region	USA
PnP Language	ENG_US
WIFI REGION	S

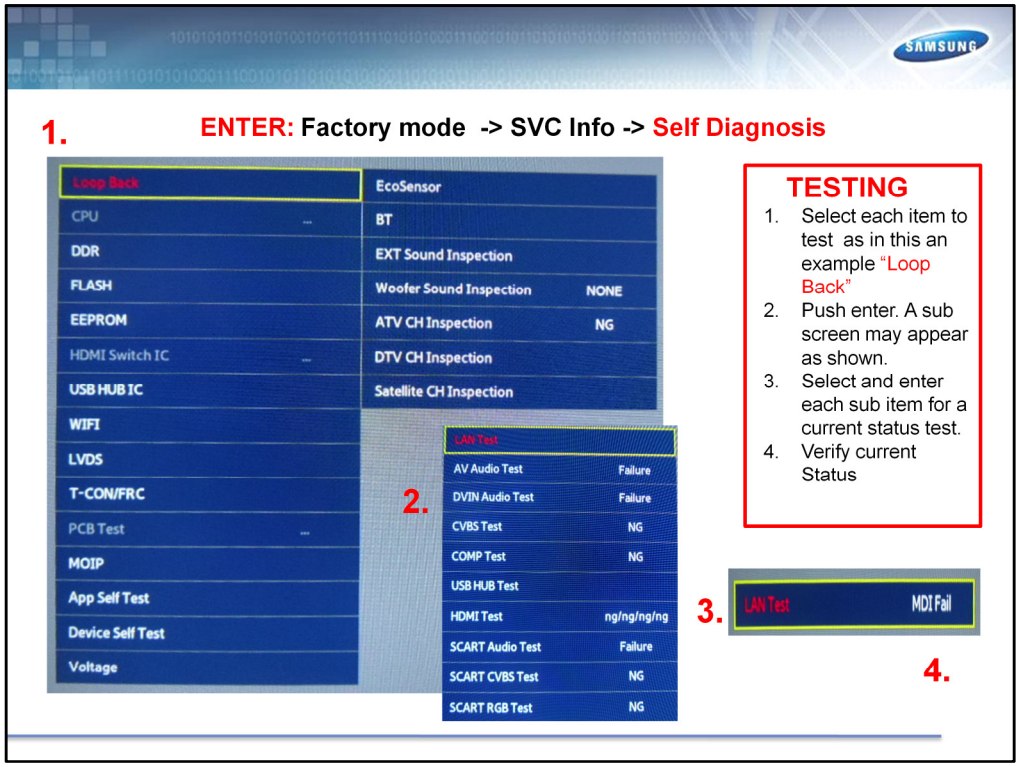
Setting Option Bytes

1. Enter Factory Mode with Service Remote (required to change all settings) and select Option screen.
2. Check Option Byte Table settings located on GSPN (Fast Tracks or Tips) for latest exact model information. (Do not use the Service Manual)
3. Select each item needed to change (Type, Local Set, SW Model, BOM Model, Tuner, etc.)
4. Additional items are located in MRT Option such as Front Color, LVDS Format, Region, etc), if necessary to change.

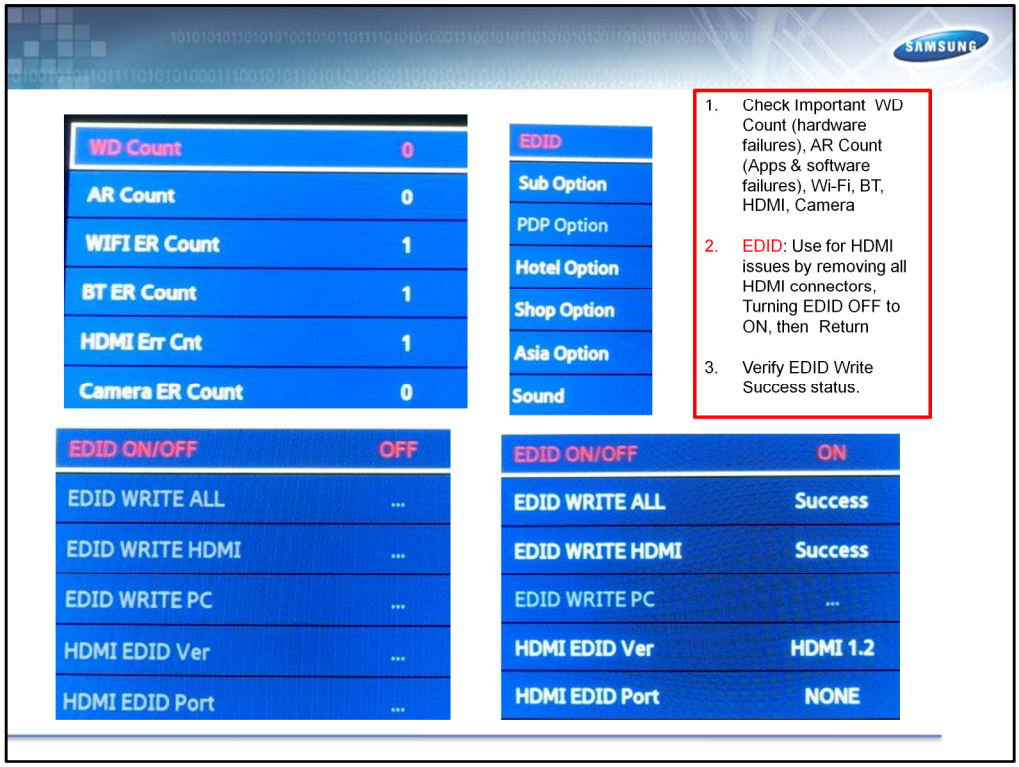
Option Byte Setting are shown for the 8000 and procedure. They must be verified and set after any Main Board replacement. The Factory Remote is required for these changes. The TV will not allow changes when using Mute 182 Power for Service Mode activation.



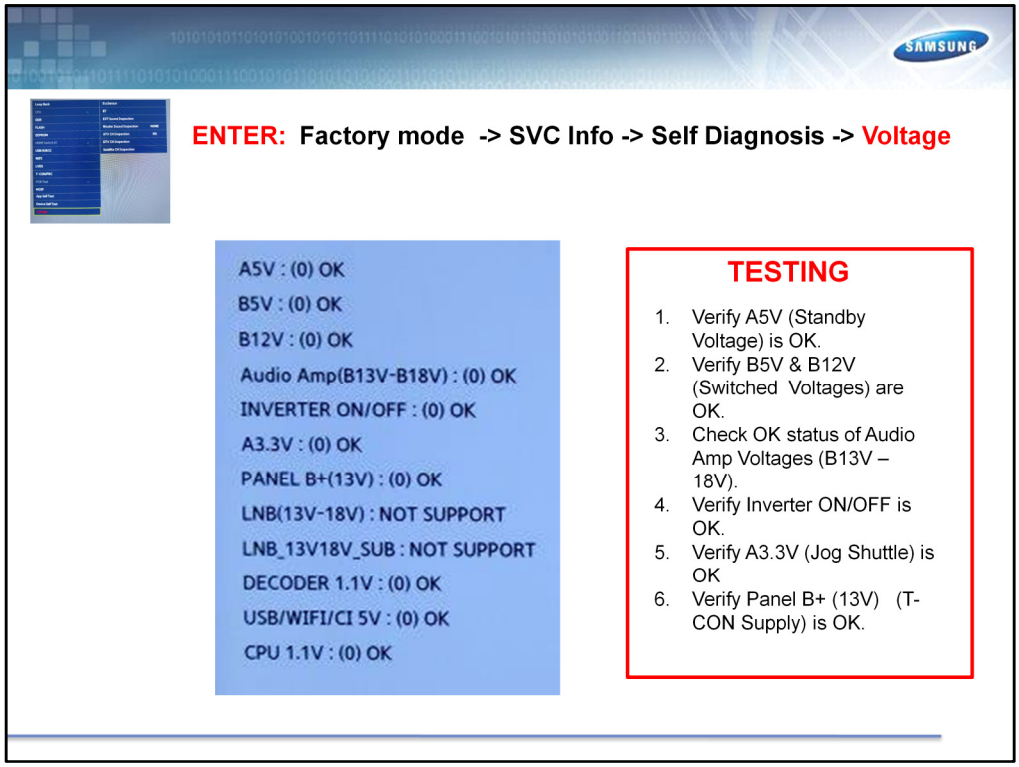
Important Service Information can be viewed from SVC Info.



Important Loop Back Testing can be performed for each item listed with Self Diagnosis while displaying its status.



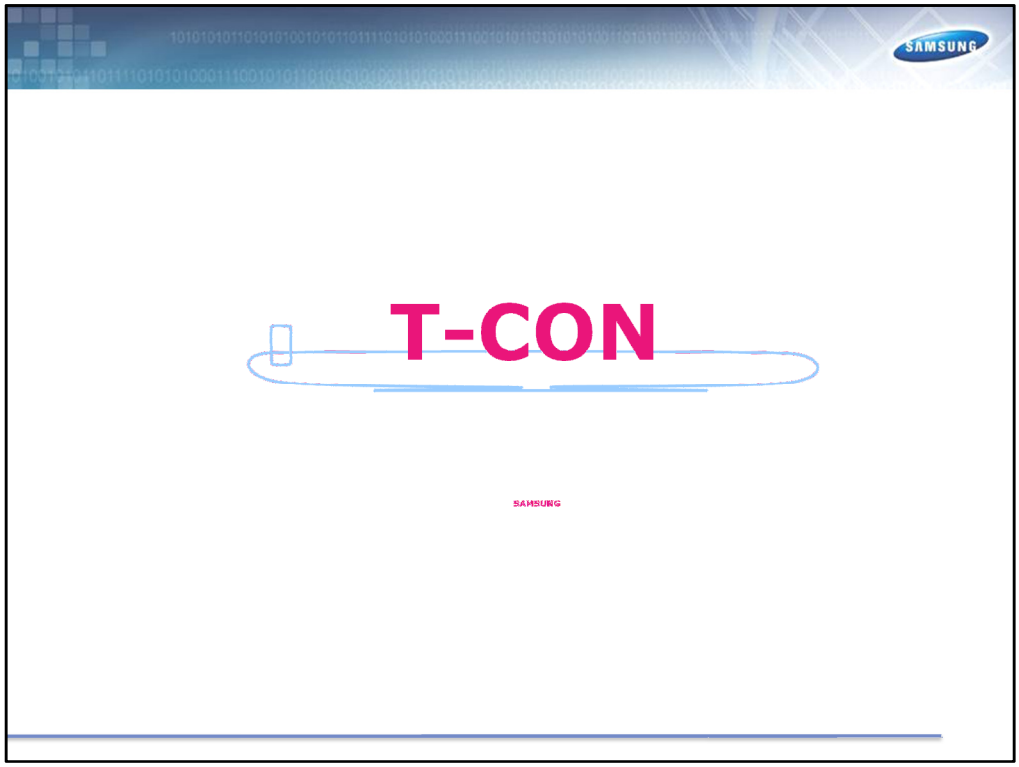
1. Check Important WD Count (hardware failures), AR Count (Apps & software failures), Wi-Fi, BT, HDMI, Camera
2. EDID: Use for HDMI issues by removing all HDMI connectors, Turning EDID OFF to ON, then Return
3. Verify EDID Write Success status.

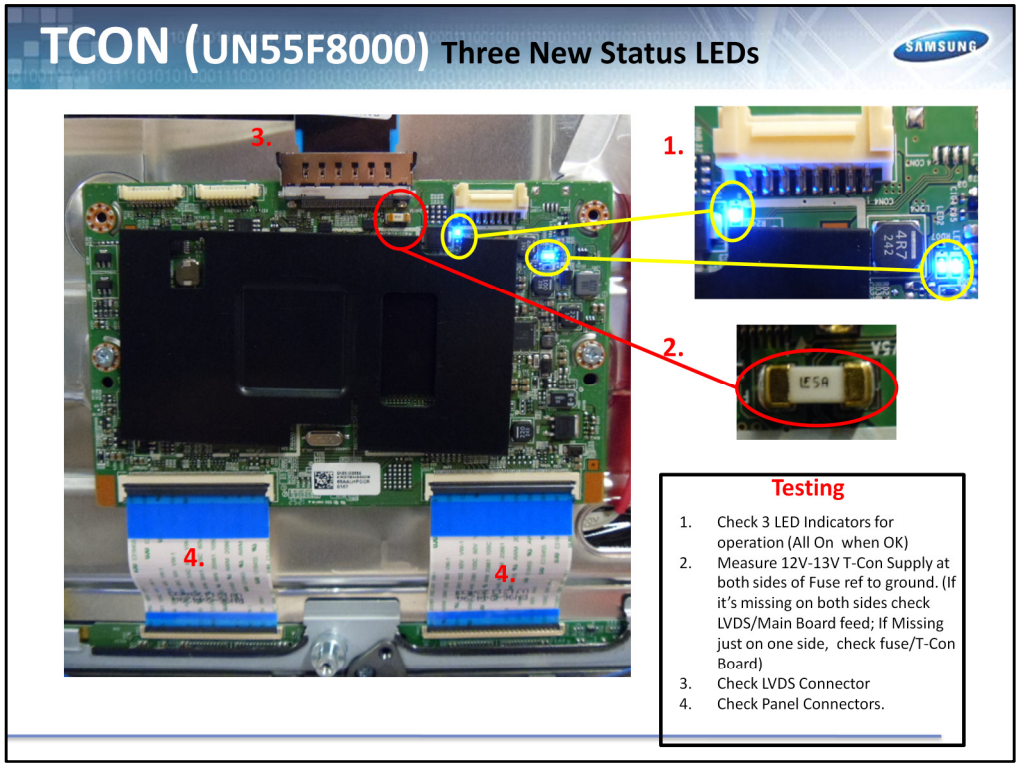


Important Voltage Status can also be selected from Self Diagnosis. It will display readings based on the type of TV & Model. For instance Panel B+ 13V for LED TVs.

2013 Contact Samsung Screen information is seen here for the F8000 and includes Camera & Mic Version for the
MOIP. If either one is missing the MOIP is likely defective or has a cabling and supply feed issue.

1. **Model Code** & **Software Version**
2. **Wired Mac Address** (Hex Code 0 thru 9 & A thru F) if missing or incorrect defective Main Board.
3. **Wireless MAC Address**: Verifies Wi-Fi Module is OK.
4. **Bluetooth Address**: Verifies Bluetooth Module
5. **Unique ID**: If missing defective Main Board. (Netflix & other apps not possible)

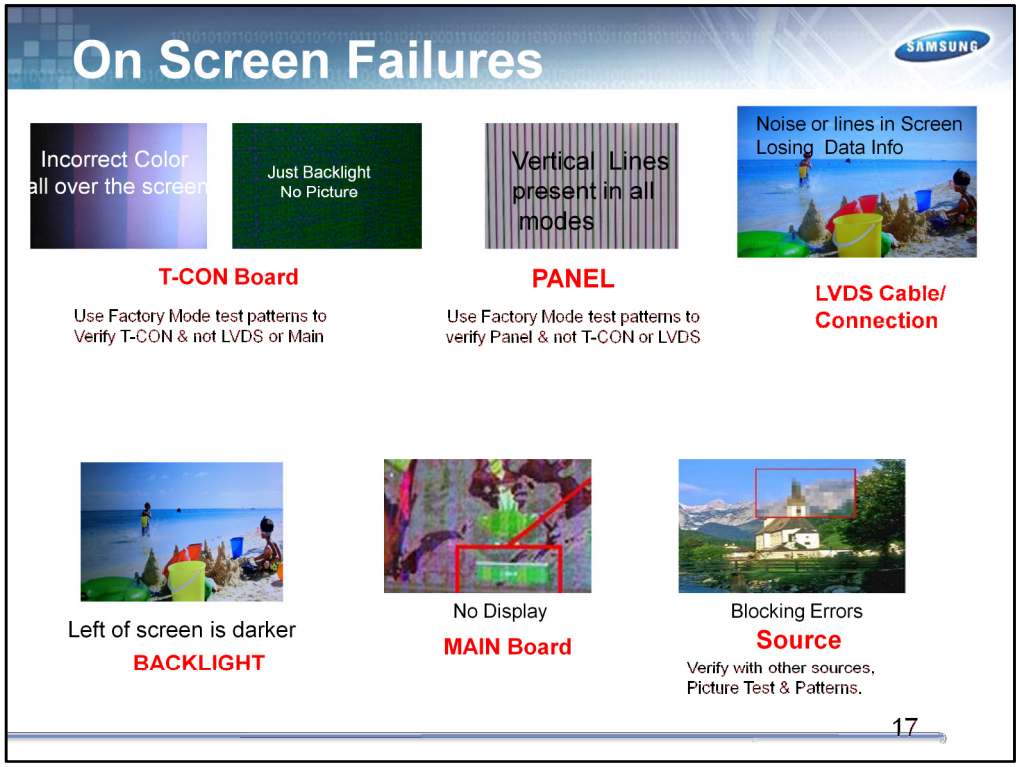

SAMSUNG
T-CON
SAMSUNG



All three LEDs must be lit in order for the T-CON to operate correctly. They monitor DC regulator supplies on the T-CON Board. If all three LEDs are out then the fuse is likely open or there is no 12V supply voltage coming from the LVDS Cable/Main Board. The left LED is 12V Supply Regulator if its out no Video condition, the Middle is the 3.1V Regulator, if it's out: Noisy Picture, the Right LED is the T-CON DC to DC Converter (approx 17 pending panel size) : If it's out no Video.

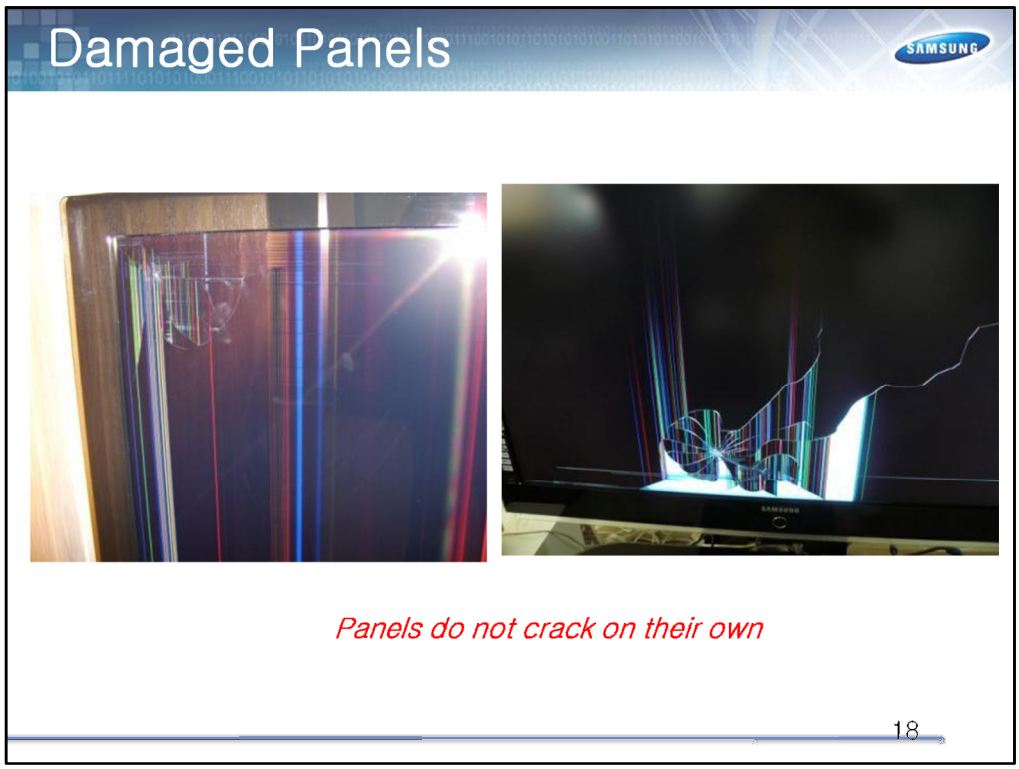
Examples with Left Ribbon Not Snapped Down or Damaged effecting right Half of video and Right Ribbon effecting left half.

Always Inspect & Properly connect Panel Ribbons



T-Con board failures can be all over the screen or localized (because it is responsible for which cell to light and how much intensity). TCON board failures can cause half the screen to go black or full white (since it handles each half of the screen, one side could be good and other bad).
TCON Board defects do not go away with content or connection. If the problem disappears when the input is changed it is not the TCON board. If the problem completely disappears with a darker or brighter scene the problem is not the TCON board.
If the screen defect appears after a period of time the TCON board can be suspected (after is heats up).

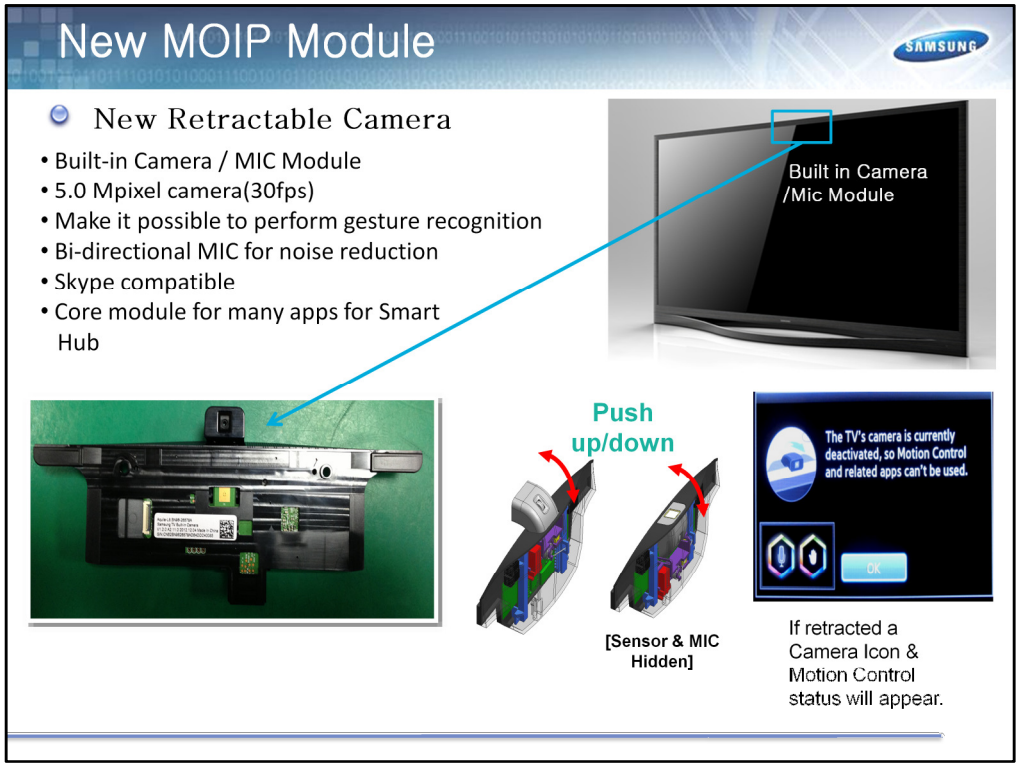
Remember Defective LVDS Cables can also look like T-CON or PANEL Failures. Always test and replace the LVDS Cable first.



LCD panels use a flexible polarizer on the outside edge of the panel. If the unit is hit by a object the flexible polarizer may not show damage but the inside LCD glass will break. Panels showing a center point and cracks radiating from that point is impact damage. Corner cracks are usually the result of rough handling. Panels do not crack on their own.

2013 MOIP
(Camera / Mic) Module

SAMSUNG

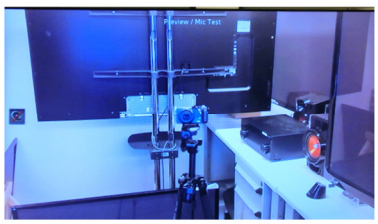


2013 MOIP includes a retractable 5.0 MPixel Camera and Bi Directional Mic.
If retracted a Camera Icon & Motion Control status will appear.

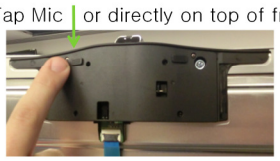
MOIP Module Troubleshooting

1. Enter **MOIP Test** Mode:
   - Set camera for operation position
   - TV Power On
   - Using Standard Remote Control
   - Press: **Mute, 569, Exit**
2. Verify Camera Activation & proper viewing operation
3. Speak and verify voice is echoed back. Adjust TV volume for best level results.
4. Tap Left & Right Mic on rear (shown) or directly above each mic on top surface of the frame.
5. Verify both are OK with sound from speakers.

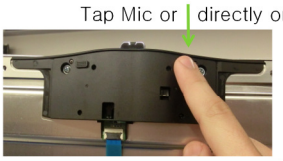
Camera Test



Left Mic Test



Right Mic Test

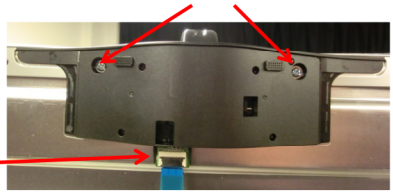


The MOIP is tested by following these steps…

MOIP Module Troubleshooting

1. Set Camera for operation position
2. Menu / Smart Features/ Motion Control
3. Verify **"Motion Control"** is Available.
4. Try making selection…
   If Motion Control is Grayed out and "This function isn't available" the moIP Module is not active.
5. Check cable & feed from Main Board.

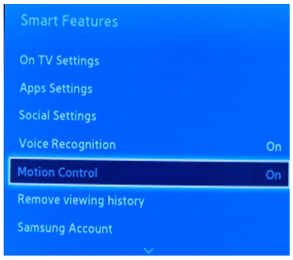
Mount Screws



NORMAL

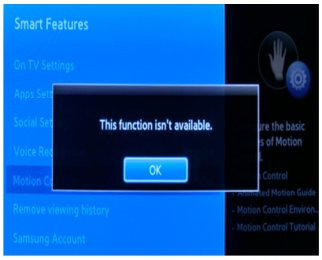
Motion Control
Normal Screen.

ERROR



Motion Control
Grayed Out-Not Available

ERROR



Motion Control
"This Function isn't available"

Additional MOIP testing from the menu are these simple steps: