SAMSUNG

The Frame

Project : QBLS03M
Chassis : QWW23
Model : QN43LS03B
QN50LS03B
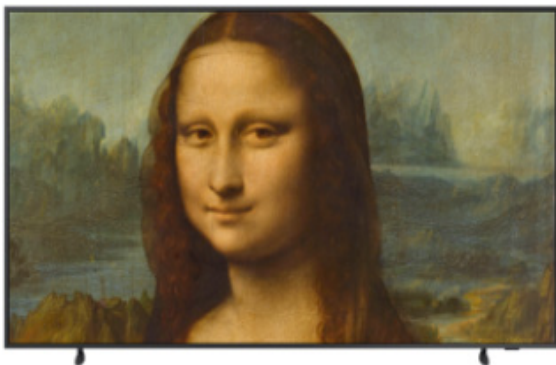QN55LS03B
QN65LS03B
QN75LS03B
QN85LS03B

SERVICE *Manual*

The Frame

LS03

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5. Wiring Diagram

SAMSUNG

GSPN (GLOBAL SERVICE PARTNER NETWORK)

Area	Web Site
Europe, MENA, CIS, Africa	https://gspn1.samsungcsportal.com
E.Asia, W.Asia, China, Japan	https://gspn2.samsungcsportal.com
N.America, S.America	https://gspn3.samsungcsportal.com

1. Precautions

1-1. Safety Precautions

- Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1-1. Warnings

⚠️ **WARNING**	For continued safety, do not attempt to modify the circuit board. Disconnect the AC power and DC power jack before servicing.

1-1-2. Servicing the LED TV

1. When servicing the LED TV, Disconnect the AC line cord from the AC outlet.

2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3. Fire and Shock Hazard

- Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.

2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistorcapacitor networks, mechanical insulators, etc.

3. Leakage Current Hot Check:
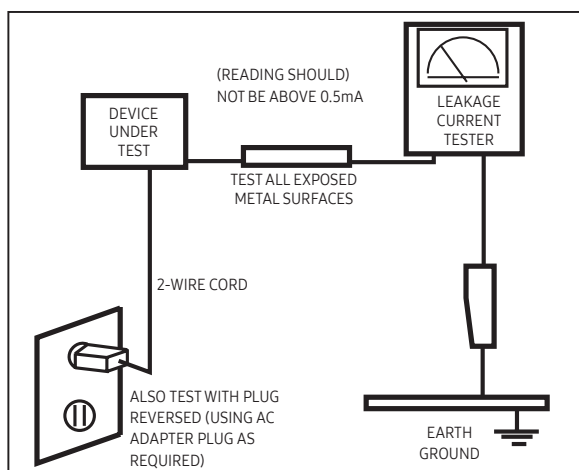
⚠️ **WARNING**	Do not use an isolation transformer during this test. Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts.
The current measured should not exceed 0.5 milliamp.
Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4. Product Safety Notices

Some electrical and mechanical parts have special safetyrelated characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

⚠ WARNING	Wear protective equipment(gloves, safety goggles, etc) to prevent injuries and electrical shock that may occur during product disassembly/repair.

1-2. Servicing Precautions

WARNING	An electrolytic capacitor installed with the wrong polarity might explode.
CAUTION	Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.
NOTE	If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.
NOTE	Following the repair by a non-authorised service provider, self-repair or non-professional repair of the product, Samsung is not liable for any damage to the product, any injury or any other product safety issue caused by any attempt to repair the product which does not carefully follow these repair and maintenance instructions. Any damage to the product caused by an attempt to repair the product by any person other than a Samsung certified service provider will not be covered by the warranty

1-2-1. General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to: (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.

2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.

3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.

4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).

5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to theblades of the AC plug. The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.

6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3. Static Electricity Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.

2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.

3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.

4. Use only a grounded-tip soldering iron to solder or desolder ESDs.

5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.

6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.

7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

 CAUTION Be sure no power is applied to the chassis or circuit and observe all other safety precautions.

8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

1-4. Installation Precautions

1. For safety reasons, more than a people are required for carrying the product.

2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the highvoltage cable or the antenna falling over may cause fire or electric shock.

7. When installing the product, leave enough space (40mm) between the product and the wall for ventilation purposes. A rise in temperature within the product may cause fire.

8. If an equipment is provided with a replaceable battery, and if replacement by an incorrect type could result in an explosion (for example, with some lithium batteries), the following applies:

⚠️ CAUTION	• Risk of explosion if battery is replaced by an incorrect type dispose of used batteries according to the instructions.
	• Do not dispose of batteries in a fire.
	• Do not short circuit, disassemble or overheat the batteries.
	• Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
	• Do not be exposed to excessive heat such as sunshine, fire or the like.

2. Product Specifications
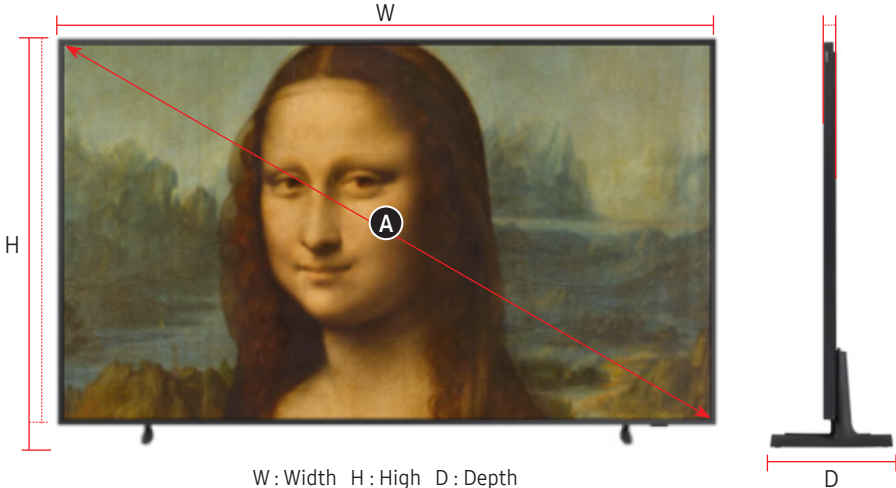
2-1. Specifications

> 📝 **NOTE**
>
> - Design and specifications are subject to change without prior notice.
> - Specifications depends on the models or region.

2-1-1. Product information

Model	QN**LS03B* (43/50/55/65/75/85")			
Feature	• **Key Features** - Art Mode - Ambient Mode - Motion Detection - no Gap Wall-mount - QHD - Smart HUB - One Connect • **General Information** - Product : QLED - Platform(TV) : SoC | Pontus-M - Display Resolution : 3,840 x 2,160 - Picture Engine : Neo Quantum Processor 4K • **Connectivity**			

CPU	CA72 (1.7GHz)		
DDR	LPDDR4 64bit @1.7GHz		
Flash	16GB (eMMC 5.1)		
HDMI	4 INPUT, HDMI 2.0/HDMI 2.1		
USB	2 INPUT, USB 2.0		
BT/WIFI	BT5.2/WiFi5 (Built-in bottom)		
Eco Sensor/IR	Built-in bottom		
Sound	43/50"	Sound Output (RMS)	20W
		Speaker Type	2.0CH
	55/65" 75/85"	Sound Output (RMS)	40W
		Speaker Type	2.0.2CH
Smart Control	O		
Voice Interaction	O		

2-1-2. Product specification

Model	QN**LS03B* (43/50/55/65/75/85")		
Prod. View	W : Width H : High D : Depth		
Dimensions(W x H x D) / Weight	43"	Without Stand	969.5 x 557.8 x 24.9 mm / 8.6 Kg
		With Stand	969.5 x 591.9 x 196.8 mm / 8.9 Kg
	50"	Without Stand	1124.1 x 644.9 x 24.9 mm / 11.8 Kg
		With Stand	1124.1 x 679.2 x 227.8 mm / 12.2 Kg
	55"	Without Stand	1237.9 x 708.8 x 24.9 mm / 16.9 Kg
		With Stand	1237.9 x 743.4 x 227.8 mm / 17.3 Kg
	65"	Without Stand	1456.8 x 831.9 x 24.9 mm / 22.4 Kg
		With Stand	1456.8 x 868.9 x 260.9 mm / 22.8 Kg
	75"	Without Stand	1682.3 x 960.4 x 26.9 mm / 35.3 Kg
		With Stand	1682.3 x 998.5 x 315.8 mm / 35.9 Kg
	85"	Without Stand	1904.3 x 1085.3 x 26.9 mm / 44.5 Kg
		With Stand	1904.3 x 1122.4 x 347.9mm / 45.4 Kg

Model	QN**LS03B* (43/50/55/65/75/85")	
	43"	108 cm
	50"	125 cm
Screen Size	55"	138 cm
(**A**)	65"	163 cm
	75"	189 cm
	85"	214 cm

■ **VESA**
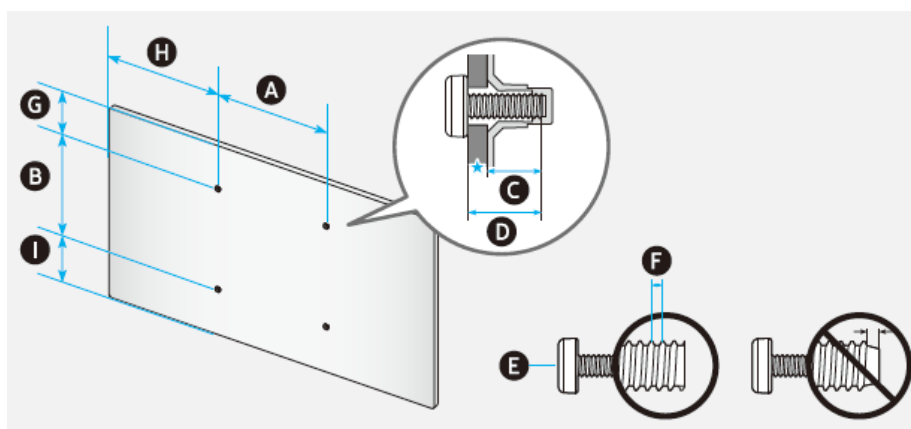
Inch	VESA **A** x **B** (mm)	**C** (mm)	**D**	**E** x 4	**F** (mm)	**F** (inches)	**H** (inches)	**I** (inches)
43"		9-11				7.6	15.1	6.5
50"	200 x 200					8.3	18.2	9.2
55"		10-12	**C** + ★	M8	1.25	9.5	20.4	10.5
65"	400 x 300					10.5	20.8	10.4
75"	400 x 400					10.3	25.2	11.7
85"	600 x 400					7.7	25.7	19.3

★: Wall-Mount Bracket

2-2. Checking the Components

2-2-1. Components

> ✎ **NOTE**
>
> - The items' colors and shapes may vary depending on the model.
> - Cables not included in the package contents can be purchased separately.
> - The part code for some accessories may differ depending on your region.
> - The provided accessories may vary depending on the model.
> - The code number can be changed, see **"Exploded Views"** provided on the site.
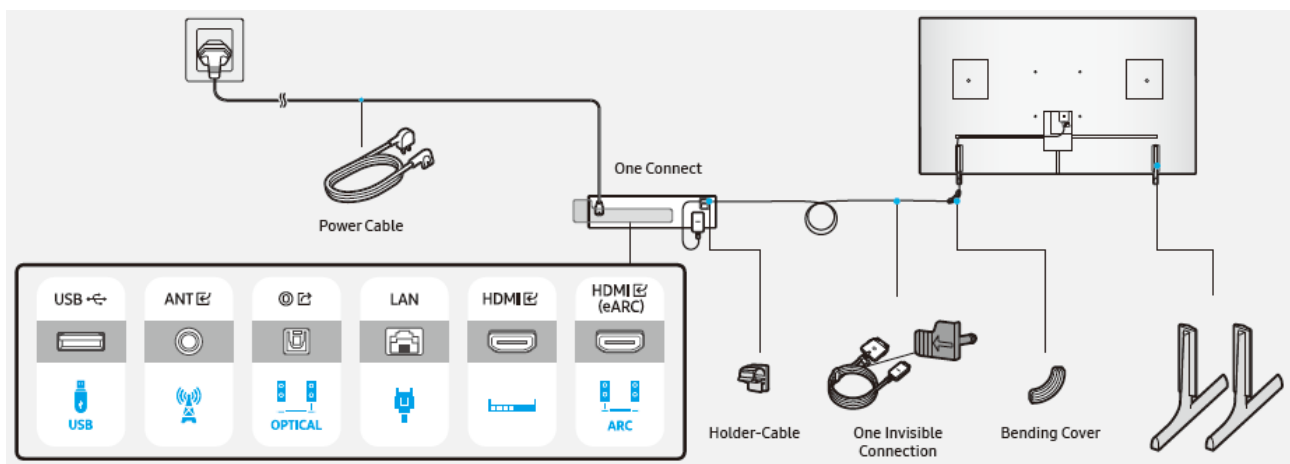
* Reference Electrical Parts List in Exploded View

2-2-2. Smart Control

The **Accessibility Shortcuts** button on your remote provides easy access to the accessibilyty functions on your TV.
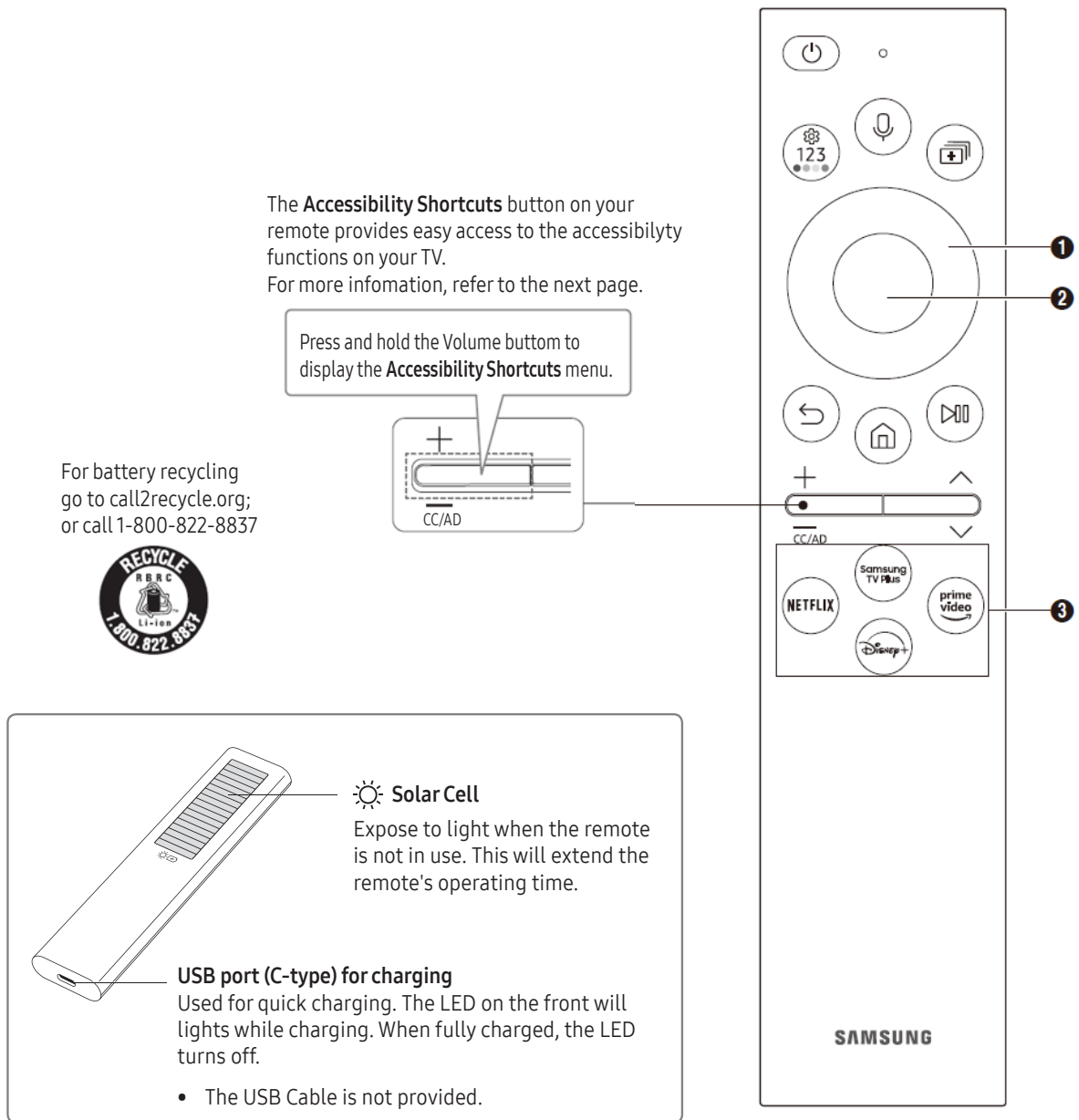For more infomation, refer to the next page.

> Press and hold the Volume buttom to display the **Accessibility Shortcuts** menu.

For battery recycling go to call2recycle.org; or call 1-800-822-8837

❶

❷

❸

☀ **Solar Cell**

Expose to light when the remote is not in use. This will extend the remote's operating time.

USB port (C-type) for charging

Used for quick charging. The LED on the front will lights while charging. When fully charged, the LED turns off.

• The USB Cable is not provided.

⚠ **Fire or explosion may occur, resulting in damage to the remote control or personal injury.**

• Do not apply shock to the remote control.

• Be careful not to let foreign substances such as metal, liquid, or dust come in contact with the charging terminal of the remote control.

• When the remote control is damaged or you smell smoke or burning fumes, immediately stop operation and then repair it at the Samsung service centre.

• Do not arbitrarily disassemble the remote control.

• Be careful not to let infants or pets suck or bite the remote control.
Fire or explosion may occur, resulting in damage to the remote control or personal injury.

Product specifications

Button	Description
⏻ (Power)	Press to turn the TV on or off. For The Frame model, When watching TV, press to switch to Art mode. In Art mode, press to switch to the Media Home. Press and hold to turn off the TV completely.
🎤 (Voice Assistant)	Runs Voice Assistant. Press and hold the button, say a command, and then release the button to run Voice Assistant. • The supported Voice Assistant's languages and features may differ by geographical region. ⚠ Keep the remote more than 0.6 inches (15.24 mm) from your face when using and speaking to Voice Assistant through the mic on the remote.
🎛 (Settings - Number - Color button)	Each time you press this button, the coloured buttons window and the virtual numeric pad are displayed alternately. • Use this button to access additional options that are specific to the feature in use. • Press to bring up the virtual numeric pad on the screen. Use the numeric keypad to enter numeric values. Select numbers and then select Done or Enter Number to enter a numeric value. Use to change the channel, enter a PIN, enter a ZIP code, etc.
⊡ (Multi View)	Press the button to enter **Multi View** Mode.
❶ Directional button (up, down, left, right)	Use to navigate the menu or move the focus to highlight items on the Home Screen.
❷ Select	Selects or runs a focused item. When pressed while you are watching a broadcast program, detailed program information appears.
↩ (Return)	Press to return to the previous menu. When pressed for 1 second or more, the running function is terminated. When pressed while you are watching a program, the previous channel appears.
⌂ (Smart Hub)	Press to switch to the Media Home. From the Ambient Mode screen, press to switch to the Ambient Mode Home. For The Frame model, in Art mode, press to switch to the Art Home.
⏯ (Play/pause)	When pressed, the playback controls appear. Using these controls, you can control the media content that is playing. To use Game Bar, press and hold the button in Game Mode. • Game Bar may not be supported depending on the model or geographical area.
＋／− (Volume)	Move the button up or down to adjust the volume. To mute the sound, press the button.
∧／∨ (Channel)	Move the button up or down to change the channel. To see the Guide screen, press the button. Press and hold the button up or down to quickly change the channel.
❸ (Launch app button)	Launch the app indicated by the button. • Available apps may differ depending on the geographical area or contents provider.
↩ + ⏯ (Pairing)	If the Samsung Smart Remote does not pair to the TV automatically, point it at the front of the TV, and then press and hold he ↩ and ⏯ buttons simultaneously for 3 seconds or more.

Use the Samsung Smart Remote less than 20 feet (6 m) from the TV. The usable distance may vary with the wireless environmental conditions.

- The images, buttons, and functions of the Samsung Smart Remote may differ with the model or geographical area.

- The Universal Remote function operates normally only when you use the Samsung Smart Remote that comes with the TV.

- It is recommended to use an original Samsung charger. Otherwise, it may cause performance degradation or failure of the product. In this case, the warranty service is not applicable.––

- When the remote control does not work due to low battery, charge it by using the USB-C type port

■ Starting Bixby using buttons on the Samsung Smart Remote

You can have conversation with Bixby using the Samsung Smart Remote buttons. Press and hold the 🎤 button on your Samsung Smart Remote, say a command, and then release the 🎤 button.

To view the Bixby guide, press the 🎤 button once:

• When you press the 🎤 button, the **Explore Now** button appears at the bottom of the screen. Press the Select button to go to the **Explore Bixby** screen.

2-3. Product Overview

2-3-1. Front Panel of the TV

■ Using the TV Controller

You can turn on the TV with the **TV Controller** button at the bottom of the TV, and then use the **Control menu**. The Control menu appears when the **TV Controller** button is pressed while the TV is On.

* The screen may dim if the protective film on the SAMSUNG logo or the bottom of the TV is not detached.
  Please remove the protective film.
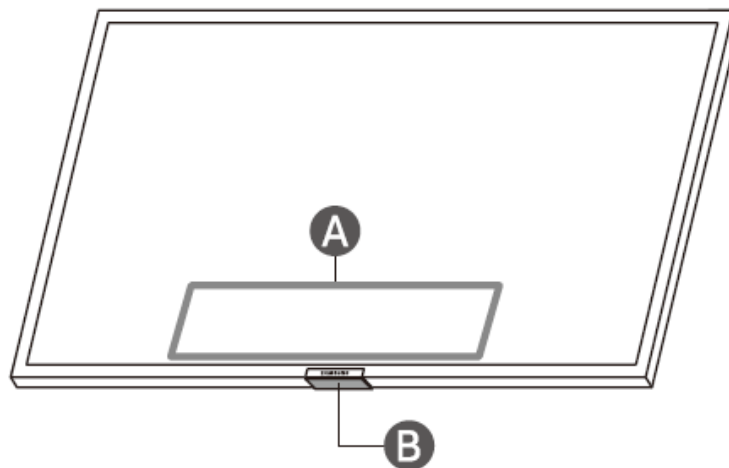
Ⓐ Control menu

Ⓑ TV Controller button / Remote control sensor / Motion

* TV mode
  - Press: Move
  - Press & Hold: Select

* Art mode
  - Press: Switch to the TV mode.

* In Art mode, the Remote control sensor at the bottom of the TV remains off.

■ Setting the sound sensor
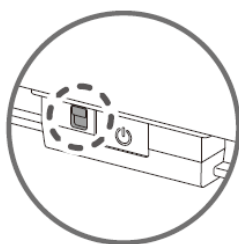
You can turn on or off the sound sensor by using its switch at the lower right rear corner of the TV. With the TV on, slide up the switch to turn the sound sensor on or down the switch to turn it off. See the pop-up window on the TV to check whether the sound sensor is turned on or off.

* During analysis using data from the sound sensor, the data is not saved.

2-3-2. Rear View

- When the ONE CONNECT CABLE is connected or disconnected, the TV reboots immediately
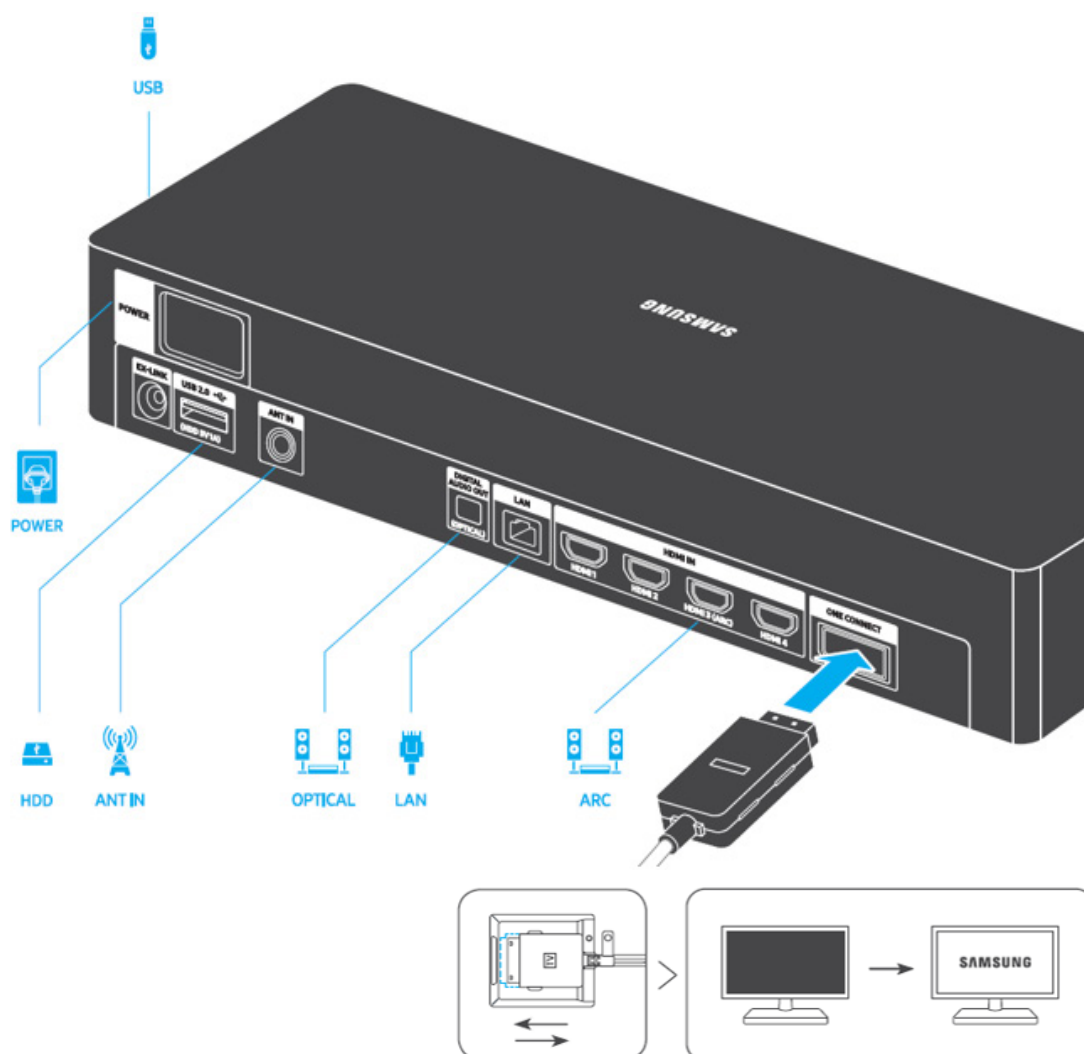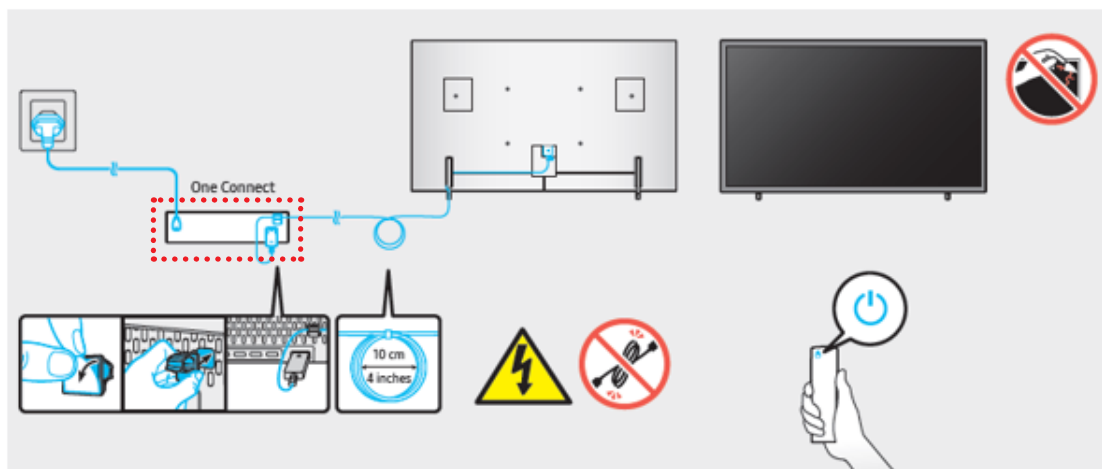
2-4. Viewing the Features

> ✎ NOTE
>
> • This function may not be supported depending on the model.

■ Smart Hub

From Smart Hub, you can use the Internet search function, install and use various apps, view photos and videos or listen to music stored on external storage devices, and perform more functions.
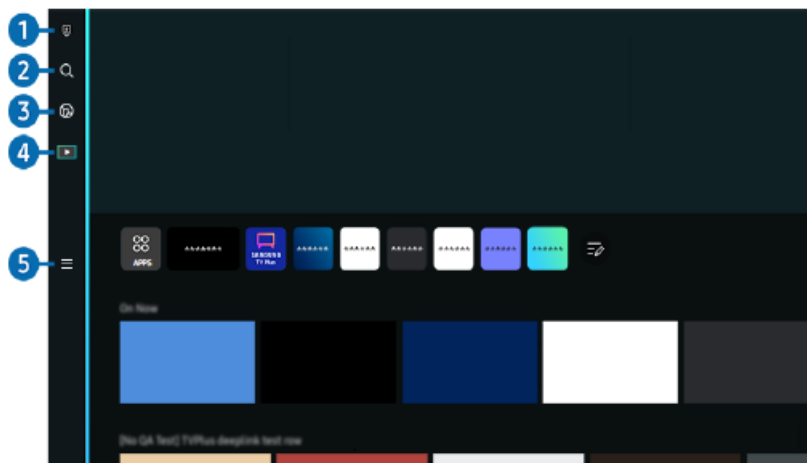
① 🛡 **Privacy Choices**
From your TV, easily manage the privacy policy regarding services related to Smart Hub and verify how personal information is protected.

② 🔍 **Search**
Search for channels, programmes, movies, and apps offered by Smart Hub.

③ 🌐 **Ambient Mode**
Set your TV to display content you desire, such as the time or weather, when the TV is not used.
To return to TV mode from Ambient Mode, press 🏠 > the left directional button > ▶ Media. Press the ⏻ button to turn off the TV.

④ ▶ **Media**
View a variety of TV programmes. Install various apps offered by Smart Hub, such as news, sports, weather and game apps, and use the apps from the TV.

⑤ ☰ **Menu**
Manage external devices connected to the TV, and configure settings for various functions available on the TV.

■ Ambient Mode

Set your TV to display a photo or content you desire when the TV is not used.
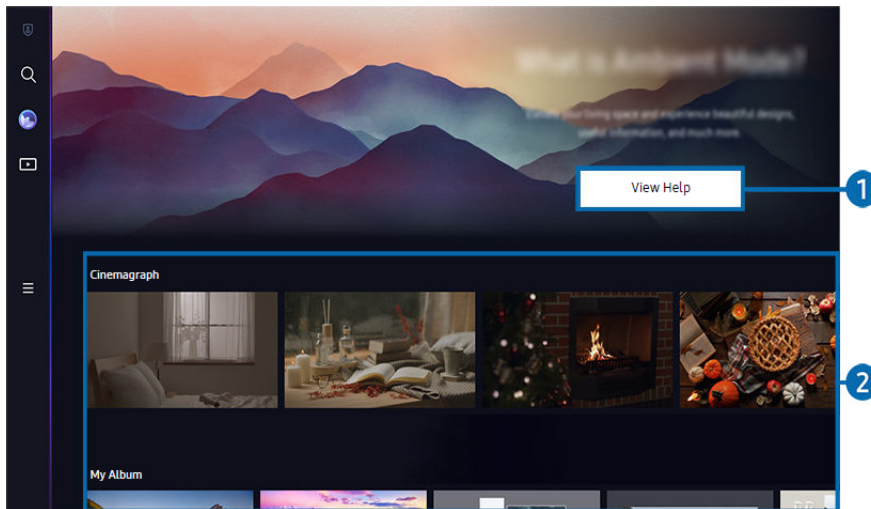
1 Getting to Know Ambient Mode

Press View Help to briefly view information about Ambient Mode, including functions.

2 Function and content preview

Select a preferred content and a preferred background and set them as your Ambient Mode. While in Ambient Mode, press the Select button on the remote control to view the content details.

Product specifications

■ Art Mode

You can use Art mode function to display image content such as artworks or photos when you are not watching TV in full screen mode.
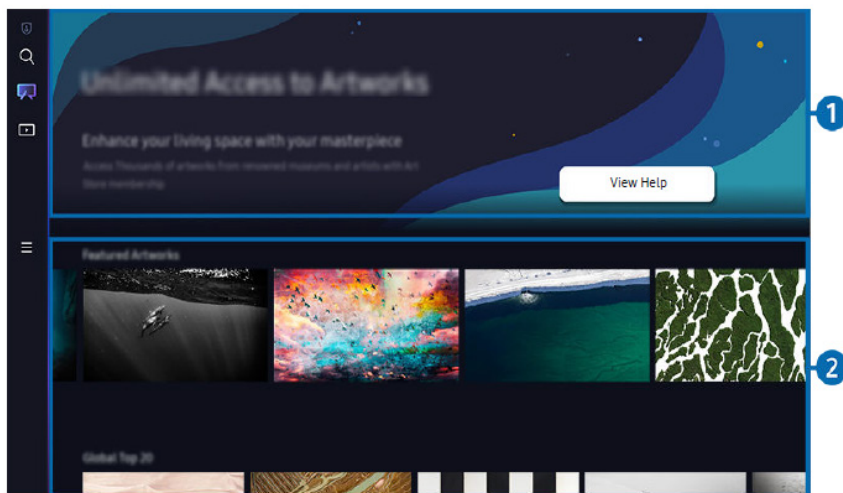
1 Useful Information

View information and promotions related to the Art home..

2 List of image categories

From the displayed list of categories, select an image and press the Select button to view details about the image. Select Preview to preview the image in full screen for 30 seconds. If you like the image, you can keep it as an artwork by purchasing it or subscribing to the Membership.

If you select a saved image, the TV goes into Art mode. In Art mode, press Select on the remote control to use the following menu options:

- Set / View Details / Favorite / Mat / Screen Settings
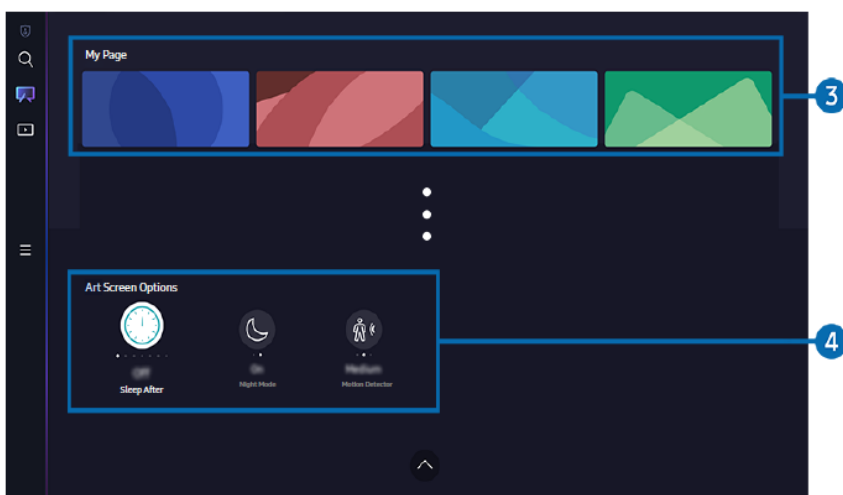
3 My Page

- Recents / Favorites / Membership / Payment Info

4 Art Screen Options

Configure options related to the Art mode screen.

- Sleep After / Night Mode / Motion Detector

■ Motion Detection

When the TV is soft powered off with the remote it will display "Art Mode".
The new motion detector will power the TV off after 5 min. (time user selectable)
The Frame model will re-activate when motion is again detected.
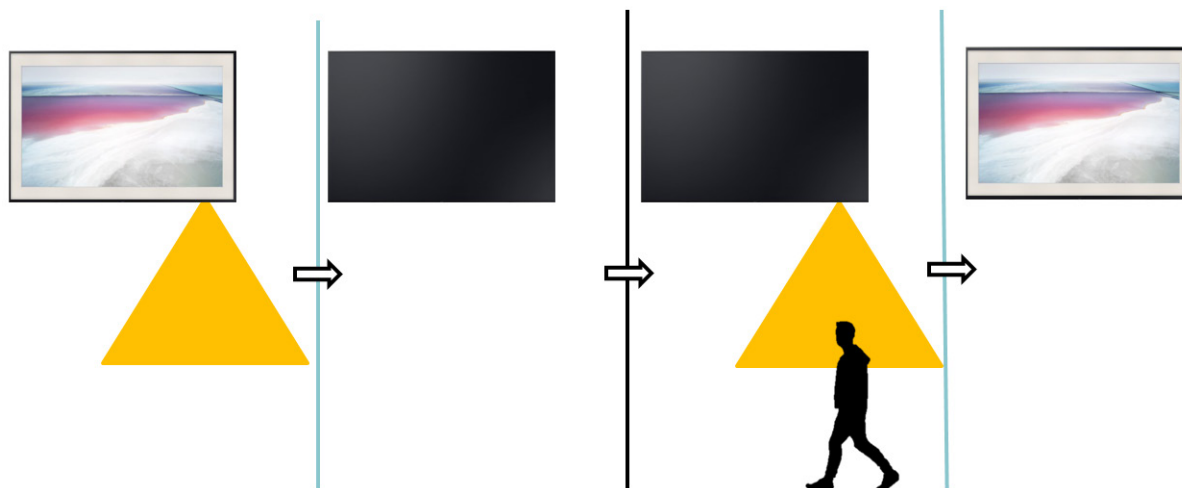
- 60GHz Rader User Motion Sensor Detection Spec

Item	Details	Spec	Remark
Detection performance (Standard subject / background standard)	Minimum Detection Range	Horizontal angle of view : 90° Vertical angle of view : 45° distance : 0.5 ~ 4.5m	Front maximum sensing distance : 4.5m *Sensing performance guaranteed distance : Front 4.5m, Side(45°) : 3.5m
	Detection illuminance	-	No effect, no direct sunlight effect
	* Standard subject : size 30cm x 50cm ↑ / Travel distance and speed : move 10cm back and forth toward the TV / 4Km/h typical walking speed (Based on the lower body of the human body)		

< Motion detection range >
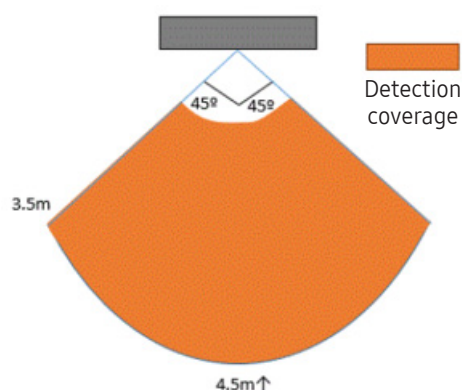
< Motion detection install condition >

Detection coverage

Installation condition : wall mount
→ (Based on the bottom) Install at a height of 1m
→ Install horizontally to the ground (vertical to the wall)
→ Mainly targets the lower body from the sensor height to the ground

subject

60GHz Radar motion sensor
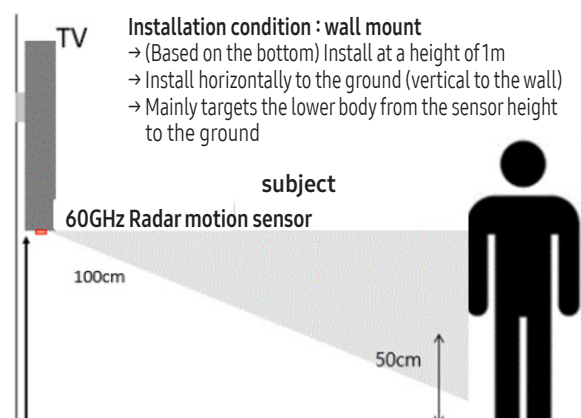
※ When measured in a general hallway of 5m in width and 3.5m in height
※ In the case of an open space or an enclosed space, the sensing distance may change depending on the radar signal reflection conditions.
※ When installing the stand, the sensing distance may be reduced depending on the stand position.
※ If there are electronic devices including speakers or metallic objects in front of the TV, the sensing distance may be reduced.

Product specifications

■ **Apps Service**

You can enjoy a wide range of content including news, sports, weather and games by installing the corresponding apps on your TV.
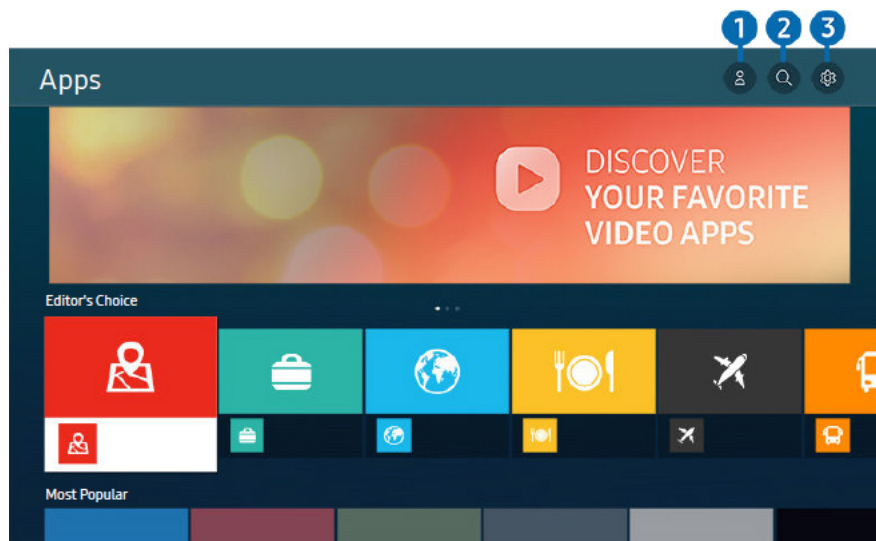
1 👤 **Samsung Account**

Go to the Samsung Account screen to create a new account or sign out of your account.

2 🔍 **App Search**

You can search for available apps.

3 ⚙ **Settings**

You can manage the installed apps.

■ **Multi View**

To start Multi View, navigate to ⌂ > Menu > ⬚ Multi View. Next, Select the item you want from the Add View list. Or select Make My Own to configure a custom layout and screen.
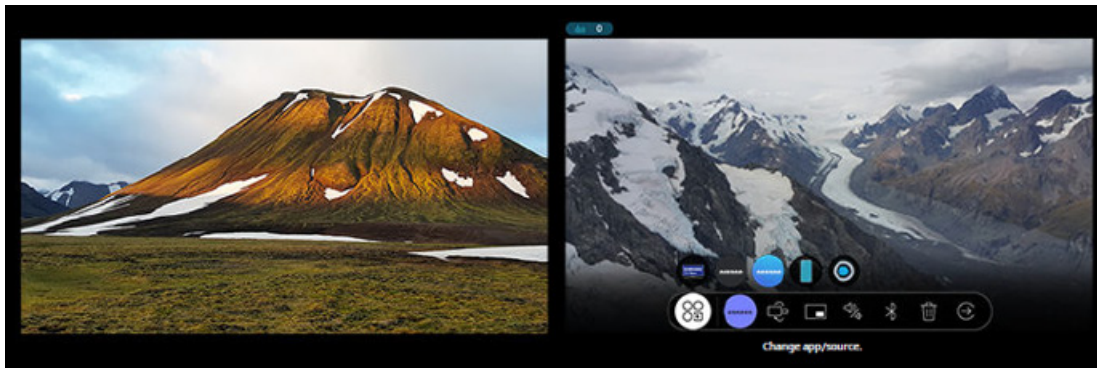
- Select content from this app/source.

You can select from the content list displayed above.

🔳 **Change app/source.**

You can change the content for the selected window.

🖥 **Change screen size.**

Selects the desired size of Multi View.

▭ **Set Picture-in-Picture.**

Selects the position of a small screen on the full screen. The focusing left or right screen appears as small window.

🔊 **Listen to the sound from two screens.**

You will hear the sound of both screens at the same time by adjusting the ratio of each screens sound.

❋ **Connect Bluetooth Speaker.**

You can hear the sound by connecting the Bluetooth speaker.

🗑 **Delete screen.**

You can delete the selected screen.

↪ **Exit to full screen.**

Multi View is ended and than the full screen appears.

2-5. Supported Formats

■ Supported external subtitles

Name	Format
MPEG-4 Timed text	.ttxt
SAMI	.smi
SubRip	.srt
SubViewer	.sub
Micro DVD	.sub or .txt
SubStation Alpha	.ssa
Advanced SubStation Alpha	.ass
SMPTE-TT Text	.xml

■ Video formats with subtitles

Name	Format
Xsub	AVI
SubStation Alpha	MKV
Advanced SubStation Alpha	MKV
SubRip	MKV
VobSub	MKV
MPEG-4 Timed text	MP4
TTML in smooth streaming	MP4
SMPTE-TT Text	MP4
SMPTE-TT PNG	MP4

■ Supported image formats and resolutions

File extension	Format	Resolution
*jpg *jpeg	JPEG	15360 x 9024
*png	PNG	4096 x 4096
*bmp	BMP	4096 x 4096
*mpo	MPO	15360 x 8640
*.heic	HEIF	12000 x 9000

🖋 The MPO format is supported partly.

🖋 The HEIF format is may not be supported depending on the model or geographical area.

🖋 HEIF supports only the single image of grid type (grid) and its minimum resolution must be at least 512 pixels in width or height.

■ Supported music formats and codecs

File extension	Format	Codec	Note
*.mp3	MPEG	MPEG1 Audio Layer 3	
*.m4a *.mpa *.aac	MPEG4	AAC	
*.flac	FLAC	FLAC	Supports up to 16/24 Bit, 48/96/192 kHz, 5.1 channel
*.ogg	OGG	Vorbis	Supports up to 2 channels
*.wma	WMA	WMA	WMA is supported up to 10 Pro 5.1 channels. WMA lossless audio is not supported.
*.wav	wav	wav	
*.mid *.midi	midi	midi	Supports type 0 and type 1. Seek is not supported. Supports USB device only.
*.ape	ape	ape	
*.aif *.aiff	AIFF	AIFF	
*.m4a	ALAC	ALAC	

Product specifications

■ upported video codecs (QLED TV/The Frame)

File format	Container	Video codecs	Resolution	Frame rate (fps)	Bitrate (Mbps)	Audio codecs
*.avi *.mkv *.asf *.wmv *.mp4 *.mov *.3gp *.vro *.mpg *.mpeg *.ts *.tp *.trp *.flv *.vob *.svi *.m2ts *.mts	AVI MKV ASF MP4 3GP MOV FLV VRO VOB PS TS SVAF	H.264 BP/MP/HP	4096 x 2160	4096 x 2160: 60 3840 x 2160:60 1920 x 1080:120	60	Dolby Digital LPCM ADPCM(IMA, MS) AAC HE-AAC WMA Dolby Digital+ MPEG(MP3) AC-4 G.711(A-Law, μ-Law) OPUS
		HEVC (H.265 - Main, Main10)	4096 x 2160	4096 x 2160: 60 3840 x 2160: 120	80	
		Motion JPEG	3840 x 2160	30	80	
		MVC	1920 x 1080	60	20	
		MPEG4 SP/ASP				
		Window Media Video v9 (VC1)				
		MPEG2				
		MPEG1				
		Microsoft MPEG-4 v1, v2, v3		30		
		Window Media Video v7 (WMV1), v8 (WMV2)				
		H.263 Sorrenson				
		VP6				
		AV1	3840 x 2160	60	40	
*.webm	WebM	VP8	1920 x 1080	60	20	Vorbis
		VP9 (Profile 0, profile 2 supported)	3840 x 2160	60	80	
		AV1	3840 x 2160	60	40	
*.rmvb	RMVB	RV8/9/10 (RV30/40)	1920 x 1080	60	20	RealAudio 6

■ Other Restrictions

- Codecs may not function properly if there is a problem with the content.
- Video content does not play or does not play correctly if there is an error in the content or container.
- Sound or video may not work if they have standard bit rates/frame rates above the TV's compatibility ratings.
- If the Index Table is has an error, the Seek (Jump) function will not work.
- When playing video over a network connection, the video may not play smoothly because of data transmission speeds.
- Some USB/digital camera devices may not be compatible with the TV.
- HEVC codec is only available in MKV / MP4 / TS containers.
- The MVC codec is supported partly.

■ Video decoders

- H.264 UHD is supported up to Level 5.1.
  - TV does not support FMO / ASO / RS
  - Resolution is changed during video playback (Up to 3840 x 2160 is supported)
- H.264 FHD is supported up to Level 4.2.
  - TV does not support FMO / ASO / RS
- HEVC UHD is supported up to Level 5.2.
  - QLED TV (except for Q6*B Series), The Frame
  - Resolution is changed during video playback (Up to Level 5.1 3840 x 2160 is supported)
- HEVC FHD is supported up to Level 4.1.
  - QLED TV (except for Q6*B Series), The Frame
- VC1 AP L4 is not supported.
- GMC 2 or above is not supported.

■ Audio decoders

- WMA is supported up to 10 Pro 5.1 channels, M2 profile.
- WMA1, WMA lossless / Voice are not supported.
- QCELP and AMR NB/WB are not supported.
- Vorbis is supported for up to 5.1 channels.
- Dolby Digital+ is supported for up to 5.1 channels.
- The supported sample rates are 8, 11.025, 12, 16, 22.05, 24, 32, 44.1, and 48 KHz, and differ with the codec

3. Disassembly and Reassemble

This section of the service manual describes the disassembly and reassembly procedures for the LED TV.

⚠️
CAUTION

1. Disconnect the LED TV from the power source before disassembly.

2. Follow these directions carefully.

   - Use the Samsung Open Jig and Cushion to remove the Rear Cover.

     • Open Jig Tool, Protection Cushion (curved models Only)

   - Recommended Torque for Cabinet/Stand screws : 10 ~ 12kgf

     • A strength of Torque can be changed depending on the situation.

• **For information about purchasing arts and jigs for EU region, please visit http://www.samsung.com/support Samsung ASC can purchase listed Jigs on GSPN.**

Assembly Misc P-jig-2017 (BN81-14946A)	Assembly Misc P-jig-2017 (TV OCB Models : BN81-14946B)	Service Jig-Capacitor Discharge (BN81-16292A)
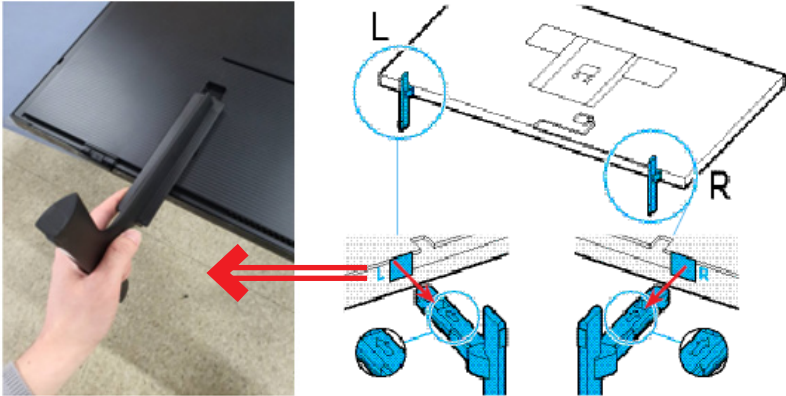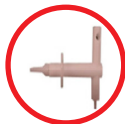
3-1. TV Disassembly

1	• Remove the Deco (if Deco is installed) and Place the Frame TV on the table. • Remove power cord and connections and place the TV down onto a protected surface.	Remark

Disassembly and Reassemble

2	Remove the two stands by pulling them down..	Remark

3-1	• Using the "Open Jig" tool, slightly lift the groove located at the bottom left (right) of the cover and work towards the side. Release each tab by sliding it straight out of each notch position. • Move up left (right) side with hand to release.	Remark
		 BN81-14946B (Open Jig)

3-2	It will open more easily if you hold the cover slightly with your hand and follow the open jig (if you lift it up with force, it will break).	Remark
	Lightly lift and loosen the HOOK located in the middle.	
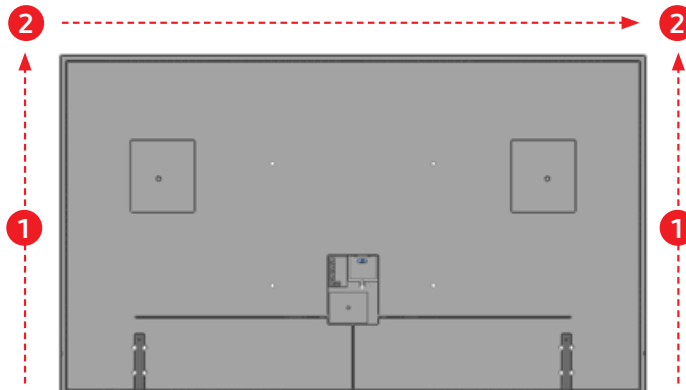
3-3	Now lift up the cover-rear across the top to release. 📝 NOTE • Each location varies by inches.	Remark
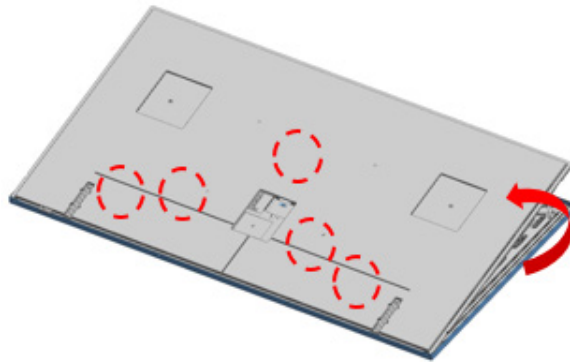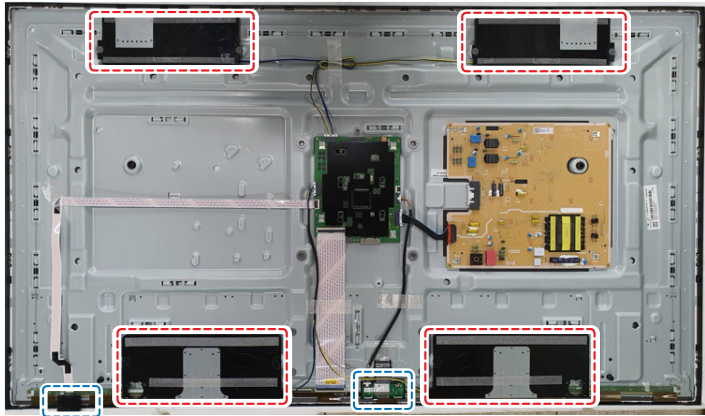
3-4	Remove the cover-rear by lifting the bottom slightly. 📝 NOTE • If you lift too strongly as below, the bottom hook may be broken.	Remark
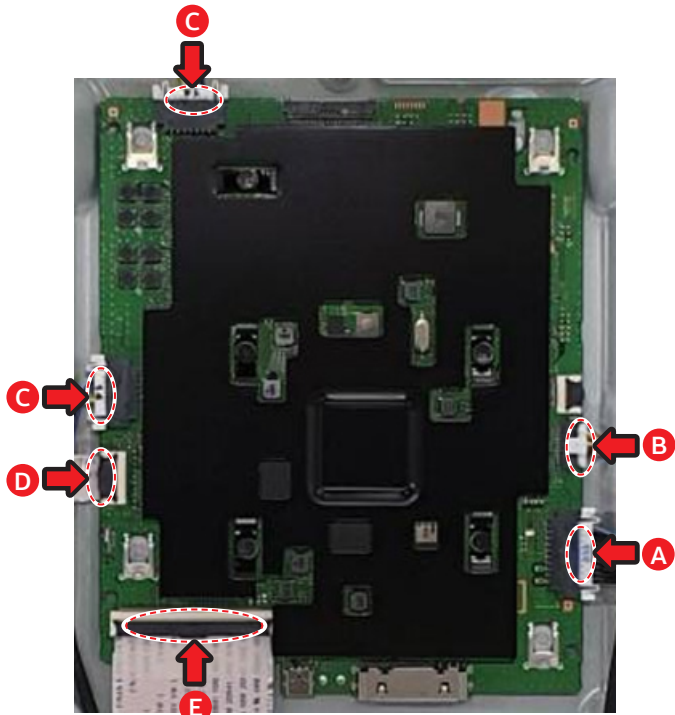
4	It will open more easily if you hold the cover slightly with your hand and follow the open jig (if you lift it up with force, it will break).	Remark

5	Remove the Power Cable(A), BT/WiFi Cable(B), Speaker Cable(C), IR/Function Cables(D), and USIT Cables(E)	Remark

| 6 | Replacing SMPS board
　- Remove All Cables from the board.
　- Press the middle panel locking, then slightly lift the upper left corner.
　- Use both hands to hold the 'SMPS' and slide the board to the RIGHT to release the board.
　- Then carefully remove the 'SMPS'.

※ When installing the SMPS board, verify the board is properly positioned in all 4 mounting slots, Then slide to the LEFT.

⚠ CAUTION　　The SMPS will hold electrical charge. Handle from the edges.

 | 3-5

Remark |

Disassembly and Reassemble
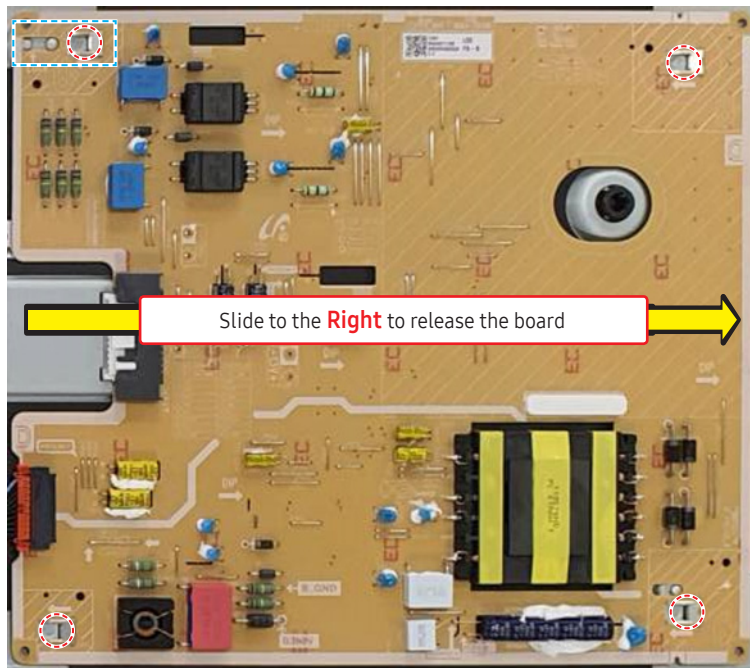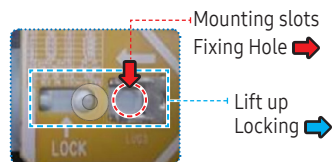
7	Replacing Main board
	
	   - Remove All Cables from the Board.
	   - Slightly lift the edge of the upper right corner and lower corner from the notch.
	   - Use both hands to hold the 'TV Board' and slide the board down to release the board.
	   - Then carefully remove the Main Board
	
	※ When installing the SMPS board, verify the board is properly positioned in all 4 mounting slots, Then slide to the LEFT.
		Remark
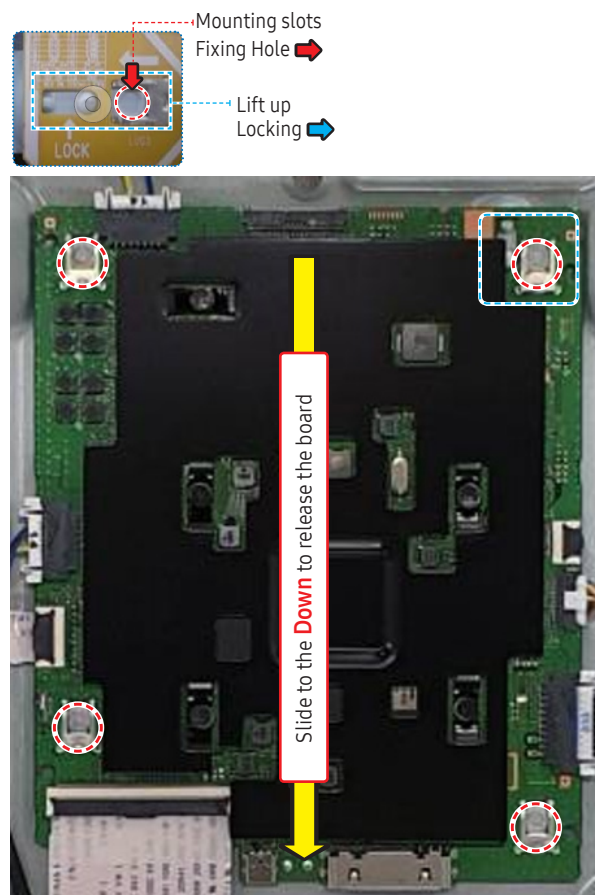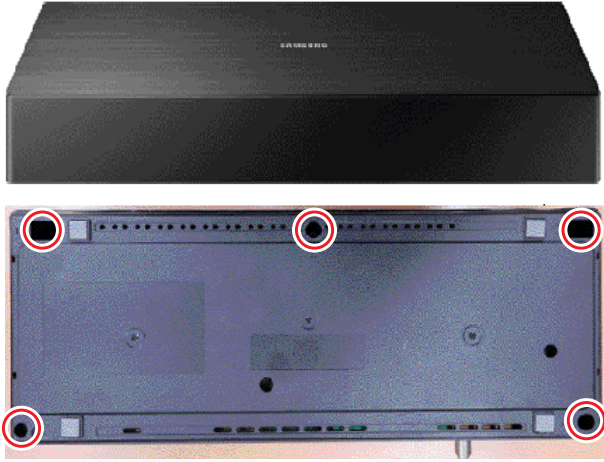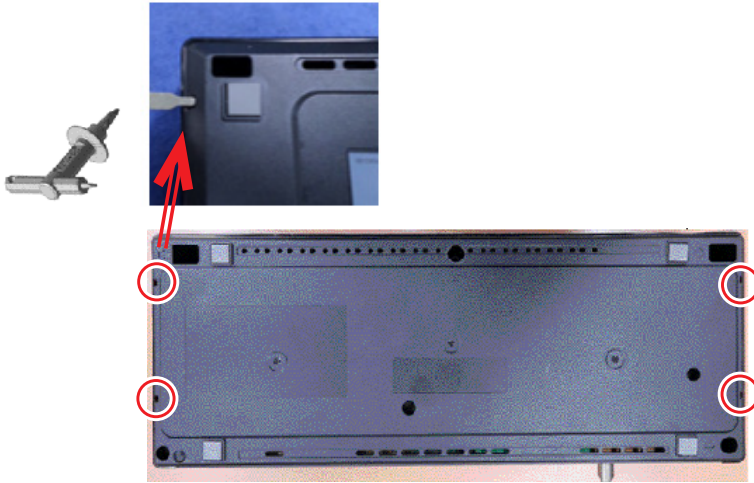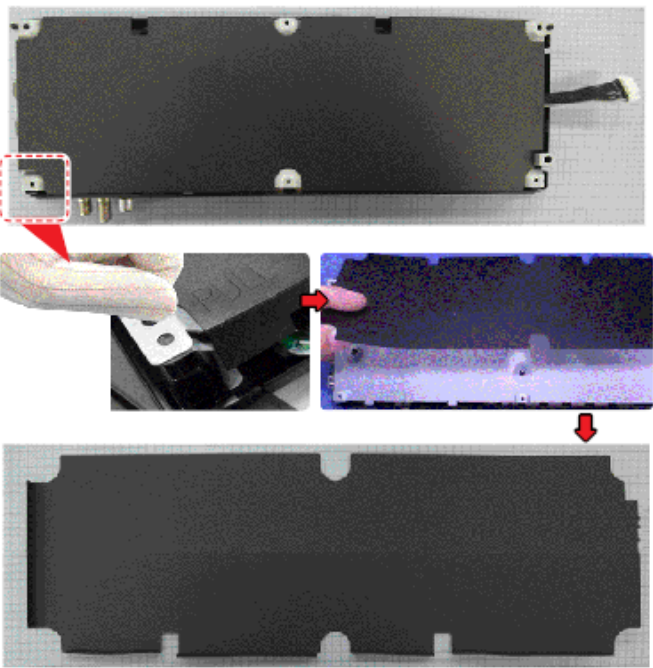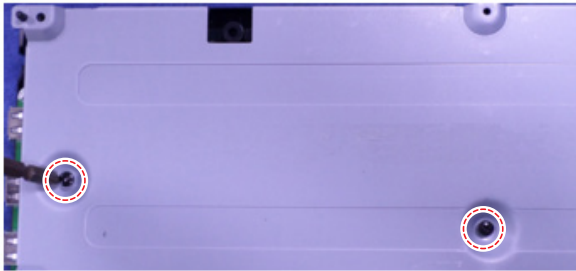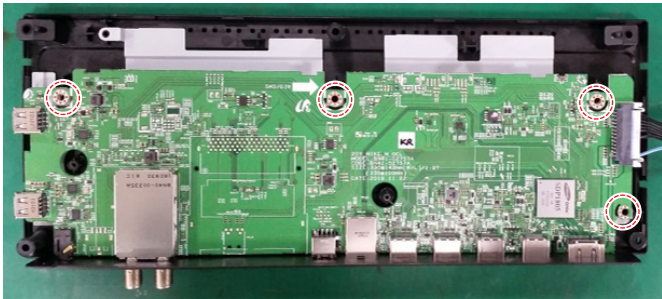
📝 **NOTE**
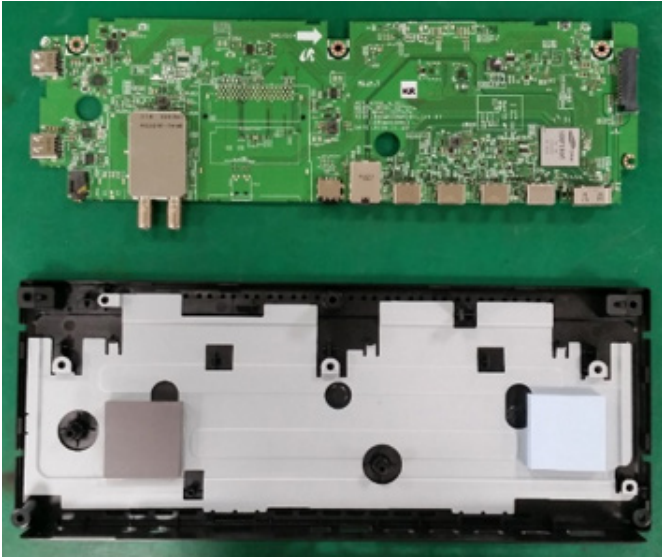
- Reassembly procedures are in the reverse order of disassembly procedures.

3-2. One Connect Disassembly

1	Remove 5 Bottom Cover screws at Arrow Markings on the Cover.	Remark

2	Use New Open Tool or a similar tool at each Bottom tab to release top Cover.	Remark
		 BN81-14946B (Open Jig)

3	• Turn One Connect Box upright and Remove Top Cover. • Connect Discharge Tool Across leads of each large Capacitor to remove its charge.	Remark
	  Discharge Point	
	Service Jig-Capacitor Discharge • If **LED ON** & **LED OFF** discharge is completed. BN81-16292A ⚠ **WARNING** **Before Removing SMPS Board** • Across leads of each large Capacitor to remove its charge. ✓ An LED light indicator on the tool will flash each time a charge is removed.	 LED ON LED OFF ‹Before discharging› ‹After discharging›	Service Jig-Capacitor Discharge (BN81-16292A)

4	Lift off the black Insulator Sheet taped to the plate assembly at "PULL" marked location. Be careful not to tear it.	Remark

5	Remove the 2 screws on the plate Assembly then remove the assembly.	Remark
		 6003-000283 (M3xL8)

6	Remove the 4 screws on the One Connect Board.	Remark
		 6003-000283 (M3xL8)

7	Completed the disassembly.	Remark

📝 **NOTE**

• Reassembly procedures are in the reverse order of disassembly procedures.

4. Troubleshooting

4-1. Diagnostic Guide

4-1-1. Using the Diagnostic Guide App

1. Download the free app from your Android phone called **Diagnostic Guide**.

Diagnostic Guide

2. Select Diagnostic Guide.
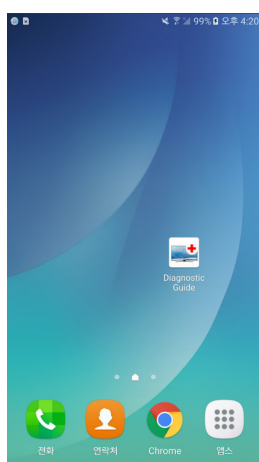
3. TV **Power ON**.
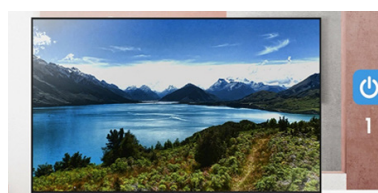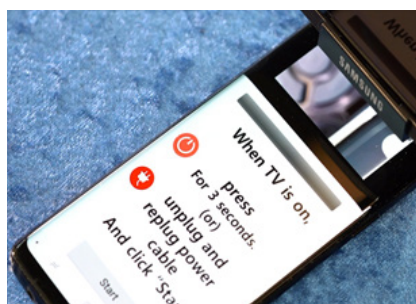
Method 1.
When the TV is on, press the TV power button for 3 seconds.

Method 2.
Unplug the power cable and connect it again.

Power ON

4. Press the **Start** button.

diagnosing...

5. The Diagnostics Results screen appears.

4-1-2. Flashing Symtom Codes

- After TV is "**COLD BOOTED**" (AC Power Re-Cycled), Flashing symptom codes will operate and show the defect block with number of LED flash.
- Place a mirror or phone directly under Standby LED to observe flashing.

■ Defect type and Number of LED flash

Defect Block	Detection Method	Number of LED Flash	
OCB	-	LED Off	No Blinking
Main Board	• Watch Dog Count → Reboot → Flash • Error → Flash	1 time	Blinks 1 time when cold Boot 4 sec / x 5 fois 1 sec 4 sec
Panel	• Error → Reboot → Flash • Error → Flash (after 10m)	2 time	4 sec / x 5 fois 4 sec (10min)
SMPS	• Error → Reboot → Flash • Error → Flash	3 time	4 sec / x 5 fois 4 sec
BT/WiFi	• Cold Boot → 30 sec after module starts	4 time	4 sec / x 5 fois 20~30sec
AOC	• Cold Boot → 30 sec after module starts • Signal level below threshold	5 time	4 sec / x 5 fois 4 sec (30sec)

↑ Cold Boot

- **OCB** – One Connect Box   **AOC** – Active Optical Cable

Troubleshooting

■ Diagnostic Method - LED flashing

After the TV is " COLD BOOTED " (AC Power Restart), flash symptoms occur and the number of LEDs blinking can be used to detect bad blocks.

If you put a mirror or cell phone under a standby LED, you can check the flash.

Problem item	Inspection contents	Cold Boot test method	LED Blinking - Repeat 5 times after Cold Boot	
OCB	• LED Off (A13V Not Detected)		LED Off	
Main Board Hardware: (BT/WiFi, Function, etc.)	• LED off (A13V not connected) WD - Watch dog count: Items that affect Main CPU such as WiFi / BT / Function, etc.	• LED flashing in case of error / Cold Boot	LED flash once	
	• T-CON error	• LED flashing in case of error / Cold Boot		
Panel / USIT Cables	• PI_DSF_MON Error Count • OCP-PMIC / USIT-OVP Connect	• LED blinking after 10 seconds of Cold Boot	LED blinking twice	
SMPS	• A13V / B350 error / not detected	• LED Flickering in Error / Cold Boot	LED blinking three times	
BT/WiFi	• BT detection error	• LED blinking after 20 seconds of Cold Boot	LED blinking four times	
	• WIFI detection error	• LED blinking after 30 seconds of Cold Boot		
AOC (Optical Cable)	• Serdes error count • RSSI signal error (TV only) (Signal below threshold)	• LED blinking within 60 seconds after Cold Boot	LED blinking five times	 Blink 0.3 seconds, then stop for 4 seconds

■ How to COLD BOOT the TV

Method 1) Unplug and re-plug in the power cord

Method 2) While TV is on, Press & Hold Power Button of TV remote for 4 seconds.
　　　　TV will turn off and on by itself.

- When wrong OCB is connected to TV and power consumption is different, an error message will display.

- If wrong OCB is connected to TV but power consumption is the same, an error message will not display.

  - See chart below for details

<Error Message on the Screen>

■ OCB SMPS Power Consumption Type

No	Inch	Matching Panel Type	Power Consumption
1	43	43L6RUAQB	230W
2	50	50L6RUAQB	230W
3	55	55L1RUAQB	230W
4	65	65S1RUAQB	270W
5	75	75S1RUAQB	370W
6	85	85L1RUAQB	370W

4-2. Function / IR Control

4-2-1. Function Test
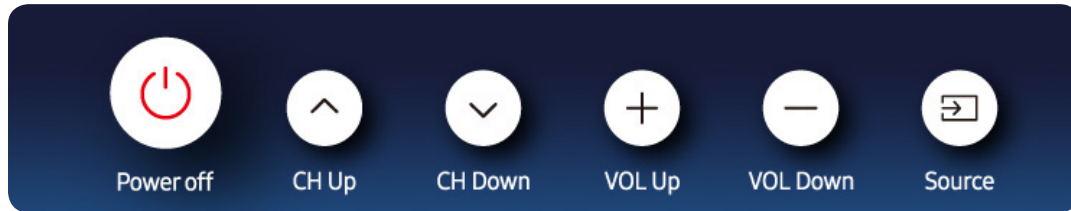
[On Screen Selections with Function Control]
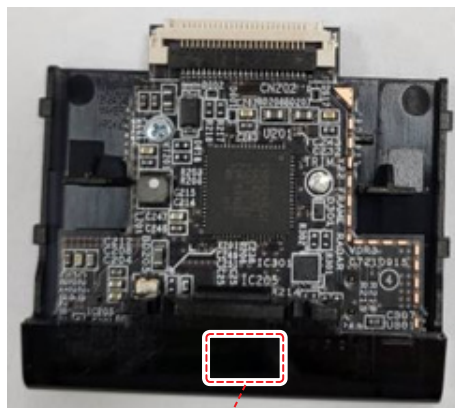
**LED Status /
TV Power on/off Button**

CN1905 (Redar Function / TV Main Side)

Description	Pin no		Description
A3.3V	1	13	GND
A5V	2	14	RADAR_SPI_MOSI
GND	3	15	RADAR_SPI_MISO
MIC_MOTION_CLK	4	16	RADAR_SPI_CLK
MIC_MOTION_DATA	5	17	RADAR_SPI_CS
GND	6	18	GND
MIC_SWITCH	7	19	RADAR_NRESET
KEY_INPUT1	8	20	RADAR_WAKE
LED_STB_OUT	9	21	MOTION_SDA_I2C
GND	10	22	MOTION_SCL_I2C
SENSOR_SCL_I2C	11	23	RADAR_IRQ
SENSOR_SDA_I2C	12	24	IR

‹Main Board Connector Function Pins›

■ **FUNCTION/IR Control Test**

1. Place TV in Power Standby :

2. Check **LED Status**

3. If **LED is OFF**

   ✓ Check LED VCC 3.3Vdc (pin 13).
   - If OK replace Function Assy.
   - If Missing check Main Assy/Function Cable

4. If LED is ON

   ✓ Check "**Switch Operation Test Chart**" for operation command changes.
   - If wrong or no change suspect a stuck switch which can hold data to Main Board preventing TV operation.

5. Check **SDA, SCL** for effective 3.3Vdc. (after power on)

6. Check **IR** with Standard Remote command changes. (3.3V to 2.5V effective DC)

7. Check **MIC_MOTION_CLK, MIC_MOTION_DATA** for effective 3.3Vdc. (after power on, Slide Switch On)

8. Check **MIC_SWITCH** with Slide Switch Operation. (Up - 3.3V On, Down - 0V Off)

4-2-2. Motion Sensor Test

4-7

1. Check both Motion Sensor Detection & Motion Sensor Connection

2. Latest Motion Sensor Version is 1.00 (201209 basis)

3. Motion Sensor Update appears 'Failure' Initially.
   It can be manually updated and change into 'Success'.

4. If motion detect, (Waving hand at sensor should vary reading), the Sensor is OK

5. If motion not detected.

6. Check the 13p and switch a Function Module for 3.3Vdc

Home	Updates	Exit
Picture Direct On/Off		OFF
Source Direct On/Off		OFF
Auto Direct Group		O
Motion Sensor		
V APP		OFF
SWI		OFF

‹Select Motion Sensor›

Home	Updates	Exit
Motion Sensor Version		1.**
Motion Sensor Update		Sucess
Motion Test		

‹Select Motion Test›

Home	Updates	Exit
Motion Sensor Detection		
Motion Sensor Connection		
Motion Sensor Detection : Motion Detected		
Motion Sensor Connection : Connected		

‹Select Motion Sensor Detection›

4-3. Power

■ SMPS Board
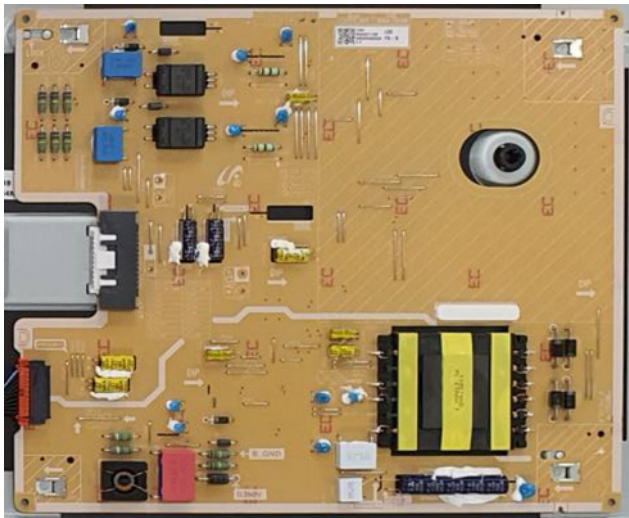
CNM803 (Main Connector)

Description	Pin no		Description
GND(Signal)	1	2	BLU_ON/PWM1
ANA_DIM	3	4	BLU_ON/PWM2
GND	5	6	GND
B13V	7	8	B13V
B13V	9	10	B13V
GND	11	12	GND
N.C	13	14	N.C
B350V	15	16	B350V
N.C	17	18	N.C
B_GND	19	20	B_GND

CNL802 (PANEL)

NO	Description
1	1H-
2	1L-
3	1+
4	1+
5	2H-
6	2L-
7	2+
8	2+
9	NC
10	NC
11	NC
12	NC

CH1 / PWM1

CH2 / PWM2

4-3-1. TV POWER ON SEQUENCE TEST

1. Power TV On

    ✓ POWER ON .2Vdc (when off) changes to 3.3Vdc (on)
    - Note: Will stay On for short time when powered off.
    - Frame TV will only go to standby with Function Assy Power Off command.

2. If voltage error or no change:

    ✓ Jog Function & IR Control Test

3. If OK remove One Connect Cable to Main Board.

    ✓ TV power's on

4. If TV Power's On

    ✓ One Connect Box & Cable for errors

5. IF TV still won't power on

    ✓ All B13V supplies for approx. 12.9 VDC

    ✓ All Vamp supplies for approx. 12.9 VDC

6. If any wrong voltages, remove SMPS connector to Main Board

    ✓ B13V again for approx 12.9 VDC

    ✓ All Vamp supplies for approx. 12.9 VDC

7. If OK replace TV Main Board

8. If still wrong voltage replace SMPS.

    ✓ BLU_PWM Backlight On/Off & Dim Control: 1Vdc – 3.3Vdc depending on backlight dimming level for video.
    - If missing/error replace Main Board.

4-3-2.Simplified: SMPS/PANEL BACKLIGHT TEST:

(Series Wired SMPS Panel Connections)

1. **Activate Backlights Test :** TV Screen for active backlight LEDs

2. If NO BACKLIGHTS (Series wired SMPS Panel Connections)

    ✓ Plus (+) & Minus (-) pin voltages on the Panel Connector.
       - If no pin voltages replace SMPS.
       - If voltages exist but no backlight:

    ✓ The highest pin voltage (BL Drive Supply)
       - Remove Panel connector and measure again to compare.
       - If the voltage was high and stays the same high reading a string of Panel LEDs are open. Replace the Panel.
       - If the voltage was low and remains low the SMPS is defective.
       - If the voltage was low and goes high a string of panel LEDs are shorted replace the Panel.

BACKLIGHT DIMMING PROBLEMS

   • Go to Menu/Picture/Expert/Backlight and vary level (0 – 20)

   • If no backlight changes are observed:

    ✓ Panel Connector pin voltages and BLU_PWM voltages (CNM803)   while changing backlight level.
       - If Panel voltages don't change, and BLU_PWM changes, replace SMPS.
       - If BLU_PWM doesn't change replace Main/T-Con Board.

4-3-3. BACKLIGHT Test

1.   Activate Backlight (TV set)

2.   Check Ch2 Voltage between Pin3(+) and Pin1(-) on SMPS CNL802 (Min. 159Vdc)

3.   Check Ch1 Voltage between Pin3(+) and Pin2(-) on SMPS CNL802 (Min. 159Vdc)

4.   If Missing remove CNL802 and test again. If still missing replace SMPS, If OK replace Panel.

•   **65-inch TV Sample**

CNL802

Pin no	Description	
1	1H-	
2	1L-	CH1 / PWM1
3	1+	
4	1+	
5	2H-	CH2 / PWM2
6	2L-	
7	2+	
8	2+	
9	NC	
10	NC	
11	NC	
12	NC	

<LED Connector : 43"/50"/55">

CNL802

Pin no	Description	
1	1H-	CH2 / PWM2
2	1L-	
3	1H/L +	
4	2H-	
5	2L-	CH1 / PWM1
6	2H/L+	
7	3H-	
8	3L-	
9	3H/L+	
10	4H-	
11	4L-	
12	4H/L+	

<LED Connector : 65">

CNL802

Pin no	Description	
1	1H-	CH2 / PWM2
2	1L-	
3	1H/L +	
4	2H-	
5	2L-	CH1 / PWM1
6	2H/L+	
7	3H-	CH4 / PWM2
8	3L-	
9	3H/L+	
10	4H-	
11	4L-	CH3 / PWM1
12	4H/L+	

<LED Connector : 75/85">

4-4. Video

4-4-1. Customer Picture Test

■ MAIN/T-CON BOARD

Main Section	Pre-FRC	Post FRC	Results	Problem
Pass	Pass	Pass		✓ Check Signal Source and other inputs
Fail	Pass	Pass		✓ Replace Main/T-CON Board
Fail	Fail	Pass		✓ Replace Main/T-CON Board
Fail	Fail	Fail		✓ Replace Main/T-CON Board or Panel (verify symptom)

4-4-2. Test Patterns
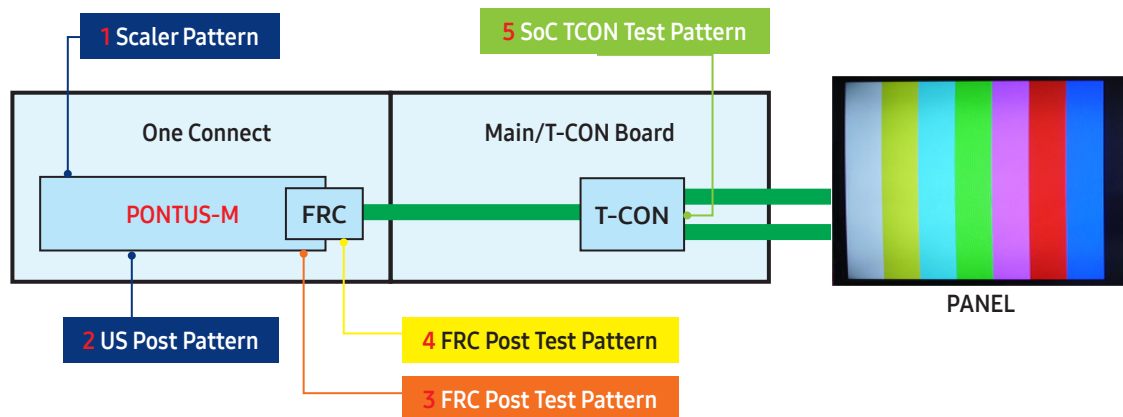
■ **Check Test Patterns**

- **ENTER :** Factory mode → SVC → Test Pattern

1. Verify "**Scaler Pattern**".
2. Verify "**US Post Pattern**".
3. Verify "**FRC Pre Test Pattern**".
4. Verify "**FRC Post Test Pattern**".
5. Verify "**SoC TCON Test Pattern**".

4-4-3. ONE CONNECT

- **ONE CONNECT → Main Section → PRE FRC Section → POST FRC Section → T-CON Section → PANEL**

■ Main Section

Cable

Video Operation

- **If No Video**
  - ✓ Check connection status of One Connect Cable
  - ✓ Reconnect One Connect Cable both side (TV and OCL)
- **If NG:**
  - ✓ Replace One Connect Box / Cable (defective)
  - ✓ TV MAIN (defective)

4-4-4. TROUBLESHOOTING VIDEO PROBLEMS – OCB Models

■ **VIDEO Test**

MAIN / T-CON BOARD

Pre Scaller & US Post	PRE FRC Section	POST FRC Section	TCON Section	PANEL
Customer Picture & New Video Test	Customer Picture Test 2	Customer Picture Test 3		
Mute 147 Mute	**PRE FRC** (Factory Mode)	**POST FRC** (Factory Mode)	Mute 369 Mute	

✓ **Video Operation** Generated on Main Section.	✓ **Video Operation** Generated at Pre FRC Section	✓ **Video Operation** Generated at Post FRC Section	✓ **Video Operation** Generated at T-CON Section.	• **Check Panel**
• **If OK:**	• **If OK:**	• **If OK:**	• **If OK:**	• **If Noisy Video:**
✓ Source & Input Cables	✓ Replace Main Board	✓ Replace Main Board	✓ Replace Main Board	✓ SocTCON Pattern in Factory Mode
✓ Other inputs	• **If Noisy:**	• **If Noisy:**	• **If Noisy:**	• Use type of Noise observed (Bars, single lines, video distortion, etc to help).
✓ Check OCB & Cable	✓ Post FRC Section	✓ Mute 369 Mute	✓ Main Board	
• **If Noisy:**			✓ Panel	• If noise is only on one half of screen check / swap panel cables.
✓ Pre FRC Section Test Patterns				• Verify Defective Panel Cables, Main Board or Panel.

4-5. AUDIO

■ AUDIO Troubleshooting: (One Connect Models)

| Soure (One Connect) | ➡ | Main Board / T-Con | ➡ | Speakers |

AUDIO TEST

- No TV Sound
✓ Menu/Audio/Speaker Settings/set to TV Speaker

- Noisy/Distorted TV Audio
✓ Customer Menu/Support/ SOUND TEST

- If SOUND TEST FAILS (Missing/Noisy Audio)
✓ Main Board /Connector/Cable
✓ Speakers (compare resistance/quality)

- Compare audio level out to speakers with multi meter.
✓ Replace defective Speakers or Main Board or Cable

- IF SOUND TEST OK
✓ Audio Source & External Cables
✓ With external Audio Generator (device or App)
✓ Other Inputs
✓ OCB/Cables (One Connect models)

- Optical Digital Out Errors
✓ Red light from Optical Digital Out
   If missing replace OCB Main board (OCB Models)

- No HDMI Audio
✓ Source / HDMI Cable & OCB

- Swap with other HDMI Inputs/Sources
- Perform EDID Write in Factory Mode (Can restore missing HDMI Audio).
✓ Bulletins and Latest firmware on TV

- If not restored replace OCB Main Board
- External Receiver Issues: Check Audio Format PCM/Dolby based on external Receiver

- ARC Issues
✓ HDMI Cable is input to the ARC Designated HDMI port
✓ ARC (HDMI Control) is enabled on the external Receiver.

- Bluetooth Audio "Sound Share" Connection Issues
✓ Sound Bar is in TV Mode

- To Connect, Press & Hold Play Button until Sound Bar pairing mode begins.

4-6. Network

When the TV has difficulties connecting to the Internet, these steps may help resolve the problem.

| TV | Router | Internet |
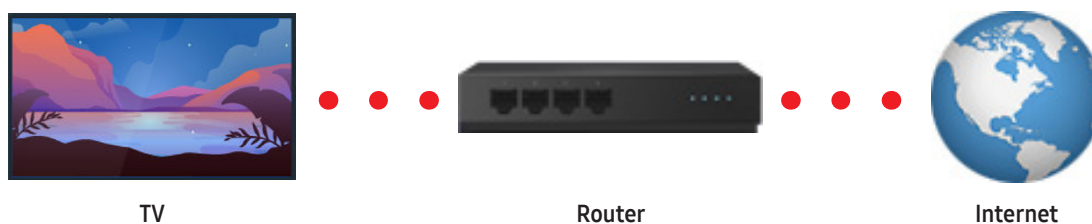
TV to Router "Failure"

✓ Check Network Status
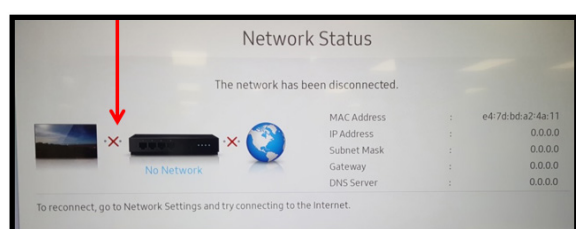
✓ Wired & Wireless MAC Address in Customer Support Menu.

• No Wired MAC Address: Replace Main Board

• No Wireless MAC Address:

✓ Module cabling & voltages from Main Board.

• If operating voltages are OK but signal missing Replace WiFi Module (WiFi / Bluetooth Module)

✓ Proper security passcode

✓ Check Wi-Fi signal strength at TV (use Wi Fi Analyzer or similar App)

• Try another source (Hot spot or Test Router)

✓ Check related Bulletins

✓ Check Factory Mode / SVC / Info/ Wi Fi Error Count (replace module for high error counts)

Router to Network "Failure"

✓ Check Network Status

• Instruct the customer the TV has proper connection to the router and is likely OK.

✓ Check other devices using network are OK. If they test OK this does not mean the TV should be working.

• Try another source (Hotspot) to test/show TV Network operation.

Troubleshooting

■ Using the Wifi Analyzer App

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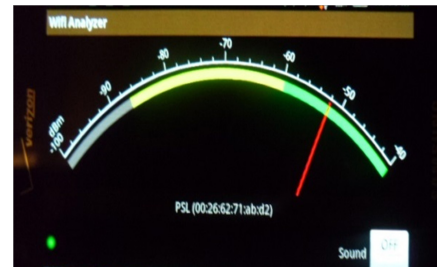
   ✓ Check other Wi-Fi Signals in the area.

   ✓ Check for competing adjacent channels.

   ✓ Check for current & recommended Channel Locations.

    ‹Wi-Fi Signals›   ‹Competing›   ‹Ideal Channel Location›
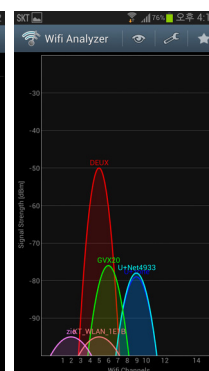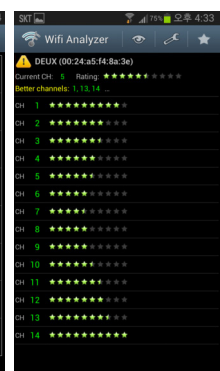
■ Wired LAN Operation (TV to Router) Test

- **Use an external Router and LAN Cable for testing.**
  (No Internet connection required or used in this example)

External Router And LAN Cable

Wireless

Network type   ✓ Wired

Network type   Wired
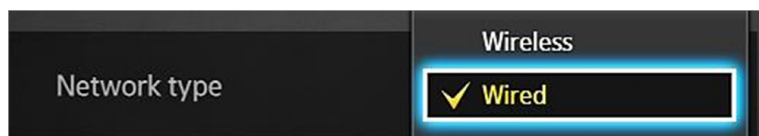
Connect   **(NOTE: Previous Model Year – On Screen Display Example)**

- **Wired LAN Operation Test**

1. Connect a known good external LAN Cable and Router to the TV for testing,

2. Select Menu / Network / Network Settings / Network Type / Wired / Connect

3. Verify connection: TV to router. The Router to Internet will not connect in this test.

The TV is OK if connection to the Router is verified . Inform the customer to check their LAN Cable and Router.

Connected to the wired network, but not the Internet

MAC Address	:	fe:0b:15:33:6d:7c
IP Address	:	192.168.1.104
Subnet Mask	:	255.255.255.0
Gateway	:	192.168.1.1
DNS Server	:	192.168.1.1

✓ TV properly connected to Router

1) Wi-Fi Security Key

2) Distance between the wireless router and TV

3) Go to TV Web Browser / Go to speedof.me / testmy.net
- HD Video Streaming   - 5Mbps and up
- UHD Video Streaming - 25Mbps and up
- Check Latency less than 50ms

4-7. Smart Hub

■ Smart Hub Connection Test

| ⟨TV⟩ | ⟨Router⟩ | ⟨Internet⟩ | ⟨Samsung Server⟩ |
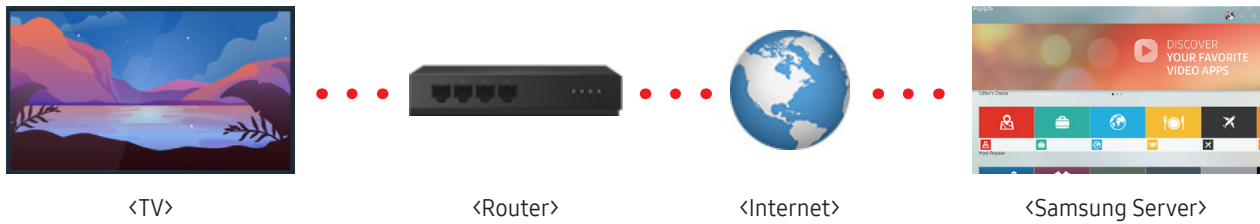
▶ Go to Menu › Support › Self Diagnosis › Start Smart Hub Connection Test

Network/ Gateway	DNS Test	ISP Blocking	Samsung Server Test	Samsung Apps Test
• If it Fails ✓ TV to Router Connection Test in **"Network Trouble - shooting"**	• If it fails ✓ DNS setting in "Network Settings" • If DNS is set manually ✓ settings are correct (may be set to 8.8.8.8 to prevent Netflix issues) • If it still fails ✓ DNS Test with setting to Auto Mode • If it fails both Manual & Auto • problem is ISP or Router	• If it fails ✓ Internet Service Provider is Active ✓ With DNS setting at 8888 ✓ With Hot Spot	• If it fails ✓ Network Status • If OK • Reset Smart Hub ✓ Terms of Agreement are accepted.	• If it Fails • **Reset** Smart Hub ✓ Samsung Apps load correctly • If it Fails • Perform **"Apps Reset"** in Factory Mode • Go to Smart Hub and complete Terms of Agreement and set up information ✓ Samsung Apps load correctly • Before selecting an App, allow Apps to load or failure will re-occur.

For Netflix Operation/Connection Issues:

✓ Check Certificate & Netflix ESN Status in Factory Mode.

• If Certificate and ESN exists, "CO", "NfO", change the DNS to 8.8.8.8

• If Certificate is missing, "C/" replace the TV's Main board.

• If ESN number is missing: NF/ do not replace the Main Board.

   - Reset TV Clock and check for correct Time & Date. Netflix relies on correct settings.

   - Reset Smart Hub. / Reset Apps In Factory Mode

For Streaming Issues:

• Go to YouTube - Select a 4K Video

• Go to Menu at bottom / Select More Options

✓ Check "Stats for Nerds"

✓ Check Speed for 5 Mbps (minimum HD streaming)

✓ Check Speed for 25 Mbps (minimum 4K Streaming)

4-8. BlueTooth/WiFi Module

Pin1   Pin10

CN1403 (Bluetooth / Wifi Module)		
Description	Pin no	Description
BTWIFI_NRSEET	1	2	WIFI_WOW
WIFI_5V	3	4	GND
D-_USB_BTWIFI	5	6	D+_USB_BTWIFI
GND	7	8	WIFI_PHY_ON
BT_UART_TXD	9	10	BT_WAKE

‹Main Board Connector Function Pins›

■ **About This TV to check**

• Go To **Menu** → **Support** → **Contact Samsung**

About This TV

- Status Code: 20401_Z_Z
- Sub-micom Version: T-NLTVTV-0011_D
- e-Manual Version: NIKATSCT-0.1.4
- Wired MAC Address: fe:a0:6b:95:a1:d8
- Wireless MAC Address: d4:9d:c0:9a:26:56
- Bluetooth Address: D4:9D:C0:9A:26:57
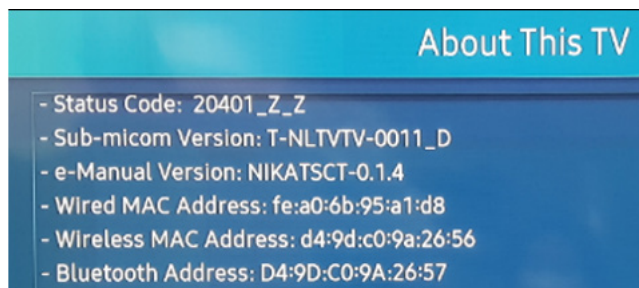
✓ Wired MAC Address (missing or error - replace Main Board)

✓ Wireless MAC Address

✓ Bluetooth Address
  - If Bluetooth Address or Wireless MAC Address are missing or errors exist

✓ BT & Wi-Fi Connector Voltages. If Voltages are OK but no BT or Wi-Fi Signals voltage(s), replace defective Module.

4-9. Device Care

You can run Device Care to diagnose and optimize your TV. Device Care can also check and optimize the TV's storage.
If any problem is found, the TV needs technical support.
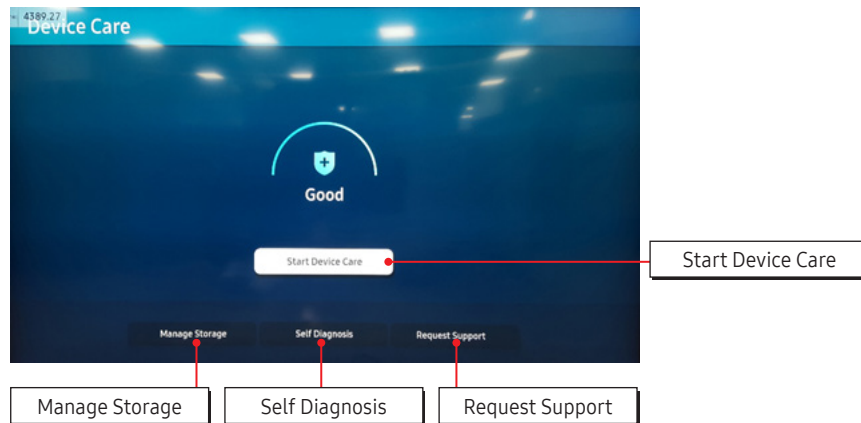
Start Device Care
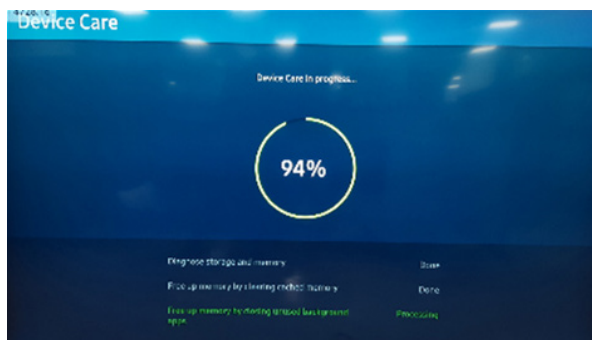
Manage Storage

Self Diagnosis
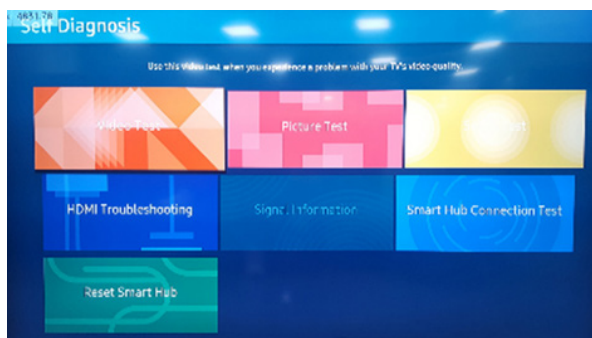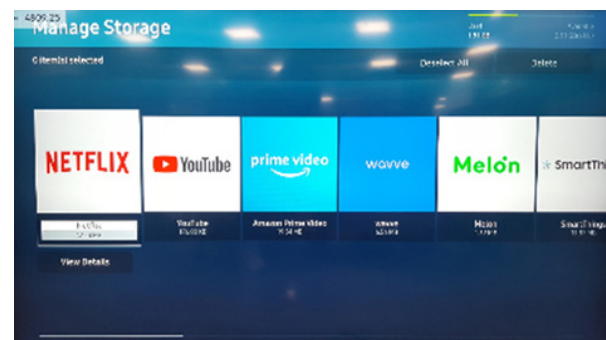
Request Support

■ Start Device Care

- 🏠 › ⚙ › **Settings** › **Support** › **Device Care** › Start Device Care
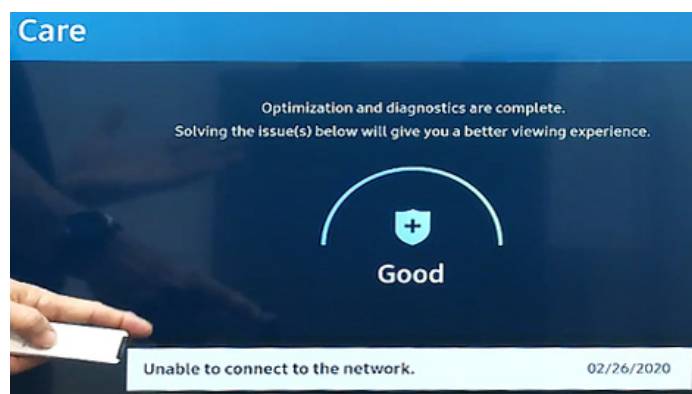
Auto Status Test: Start Device Care

- Diagnose power on/off
- Diagnose picture quality
- Diagnose sound quality
- Diagnose external device connection
- Diagnose network connection
- Diagnose TV remote
- Diagnose broadcast signal and channel status
- Diagnose HDMI Inputs Status
- Diagnose storage and memory
- Free up memory by clearing cached memory
- Free up memory by closing unused background apps

4-10. Factory Mode

4-10-1. Setting TV into Factory Mode

AA81-00243A
(Service Remotes)

Factory Remote

1. Power TV ON.

2. Select TV Source.

3. Info → Factory.

4. Use MENU for return.

AA81-00243B
(Recommended)

Samsung IR Remote

1. TV Power Standby.

2. Press as follows.

   • Remote Button

NTSC	MUTE → 1 → 8 → 2 → POWER
PAL	INFO → MENU → MUTE → POWER

4-10-2. Important Items to check and perform

- Option (must set Option Bytes when replacing Main Board.)
- Option → Factory Reset (returns TV to out of box condition.)
  - Must perform when replacing Main Board or Full One Connect)
- SVC → Info → ER Count (Important to check for errors.)
  - Resets to 0 with Factory Reset.
    ✓ Check before resetting TV
- SVC → Test Patterns (Use to check / troubleshoot) videos errors.
- Control → EDID (Use to Reset HDMI Operational Errors)

■ Setting Option Bytes Table

1. Enter Factory Mode with **Service Remote** (only).

2. Check "Option Bytes Table" located on **GSPN** (Fast Track or Tips).

3. Select **Option**.

4. Select each item to change.

5. Can Use new **Writing Type** to enter model.
   (if entered wrong it will not change.)

6. Soft power TV Off to load.

Home	Updates	Exit
Factory Reset		
Type		65L1ZE8TA
Writing Type		Success
Local Set		NA
SW Model		LS03B
Front Color		QBLS03M-Q65AA
Writing Front Color		
Model Code		QN65LS03BAFXZA
TUNER		-
Ch Table		NONE

■ Performing Factory Reset

1. Enter Factory Mode.

2. Select **Option** → **Factory Reset**

3. TV will power off.

4. Perform ALL TV Settings. (New out of box condition)

First Screen Appearing in Factory Mode

- Sample : QN65LS03BAFXZA

Home	Updates	Exit
Option		
Control		
Debug		
SVC		
ADC/WB		
Advanced		

**First Screen
Appearing in Factory Mode**

T-OSCPDEUC-XXXX.XX
T-OSPOCTV-XXXX
T-OSOCJP-XXXX
T-OCP-XXXX

TIZEN-ONEMAIN-NlieL-RELEASE_XXXXXXXX.X

BT Version : ****
E-Manual : ****
Blaster Version : ****
E-POP Version : ****
EDID SUCCESS
HDCP SUCCESS
Option :XXXXXXXXX,XX,XXXXXXXXXXXXX,NONE

FRC-[MUSE-MUSIT][120Hz][HW:****]
DIMMING-[DIRECT-6X8][XX]
LDFW1 : ----
LDFW2 : ----
TCON-[LIKE-L]FW[107]DATA[T65S6U0M10]

Model : XXXXXXXXXXXXX
Wired MAC SUCCESS
Wireless MAC SUCCESS
WIFI Version : ****
CIP: FAIL/CIP ECP:----
CO Nf/ W/HX PO AO O WS/DI/I/MP S/S/N/RO FP/CO/SIO UX(X)
NS//,1100
Factory Data Ver : ** / Fixde Ver : **
EERC Version : ** / WB Ver : **
PEQ Version : 34/WB Ver : 2

SmartControl : ****
Board Info : ****/**/**/*/*/BN41-*******
Factory Reset in Production : ----
SID : ----
Date of purchase : --/--/----

SAMPLE

Important Screen info:

- Micom Version
- Sub Micom (TV)
- Sub Micom (OC)
- Tizen Platform Information

- BT Version
- E-Manual
- Blaster Version
- E-POP Version
- EDID Success (status)
- HDCP Success (status)
- HDMISW Version
- Option

- FRC
- Dimming
- LD FW version
- T-Con

- Model
- Wired MAC Success
- Wireless MAC Success
- WiFi Version

- CO Status ("O" Operational)
- Factory Data Version
- EERC Version

- Date of Purchase – default setting date (Factory Reset default)

■ Replacing Main Board

When replacing Main Board, certain values needs to be manually input in Factory menu to complete the replacement.

Steps to Replace Main Board

1. Enter Factory Menu (Use Factory Remote only).
   - Power TV on : Select **TV Source / Info / Factory / Option**

2. Change Each value according to the TV Model.
   - **Type**, **Writing Type**, Local Set, **SW Model**, **Front Color**, **Model Code** must be set to correct value.

• **Sample Model : QN65LS03BAFXZA**

Type
• Check Panel label (located in the back chassis of panel) and choose same Type code from the list.
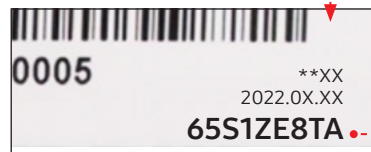
c ⓊL us   CE   CY-TA065JMHV2H/V   SAMSUNG
E232198

KR09BN9504696AS004K1R0005   **XX
MADE IN *****(***)   2020.01.XX
                                   65S1ZE8TA

0005   **XX
                     2022.0X.XX
            65S1ZE8TA

‹Panel Label›

Home	Updates	Exit
Factory Reset		
Type		65S1ZE8TA
Writing Type		
Local Set		NA
SW Model		LS03B
Front Color		QBLS03M-Q65AA
Writing Front Color		
Model Code		QN65LS03BAFXZA
TUNER		–
Ch Table		NONE

* Reference to **Type** list in the Factory Menu

Writing Type

- For Quick Entry of Type.

  1. Confirm **Type** from Option Byte Table for your TV.

  2. Select **Writing Type**.

  3. "**Set Panel Type**" appears.

  4. Enter exact Model Type using cursors.

  5. Select **OK**.

  6. **Writing Type Success** appears in the Option Table.
     - If the model Type you entered doesn't exist it will not load.
     - If you entered over 10 digits an Information screen box is full appears.

  7. Complete rest of Option Byte Table info.

  8. Press soft power off with remote to enter settings.

> 📝 **NOTE**
>
> - If you made a mistake you can unplug the TV to prevent info from changing options.

<Select Writing Type>

<Set Writing Type>

<Writing Type Success>

<Writing Type digits exceeded>
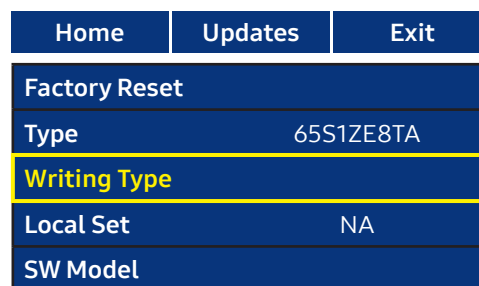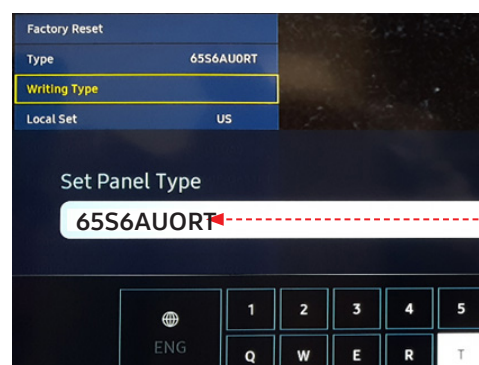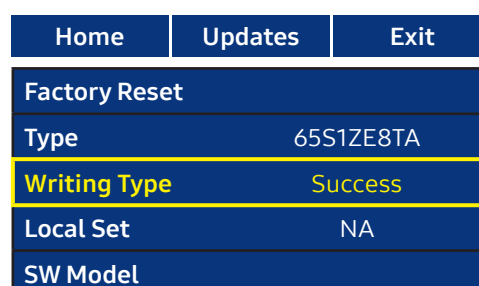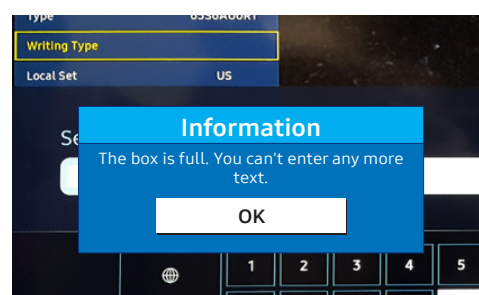
Local Set

- Set according to Local region(country)

Troubleshooting

SW Model

- Check Label Rating of the TV (located on the **Rear Cover**).
  - SW Model is digits **after "/" in Version No**.
  - Choose same SW Model code from the list.

Home	Updates	Exit
Factory Reset		
Type		65S1ZE8TA
Writing Type		
Local Set		NA
SW Model		LS03B
Front Color		QBLS03M-Q65AA
Writing Front Color		
Model Code		QN65LS03BAFXZA
TUNER		-
Ch Table		NONE

* Reference to **SW Model** list in the Factory Menu

<"SW Model" in Label Rating>

Front Color

• Check Label Rating of the TV (located on the **Rear Cover**).
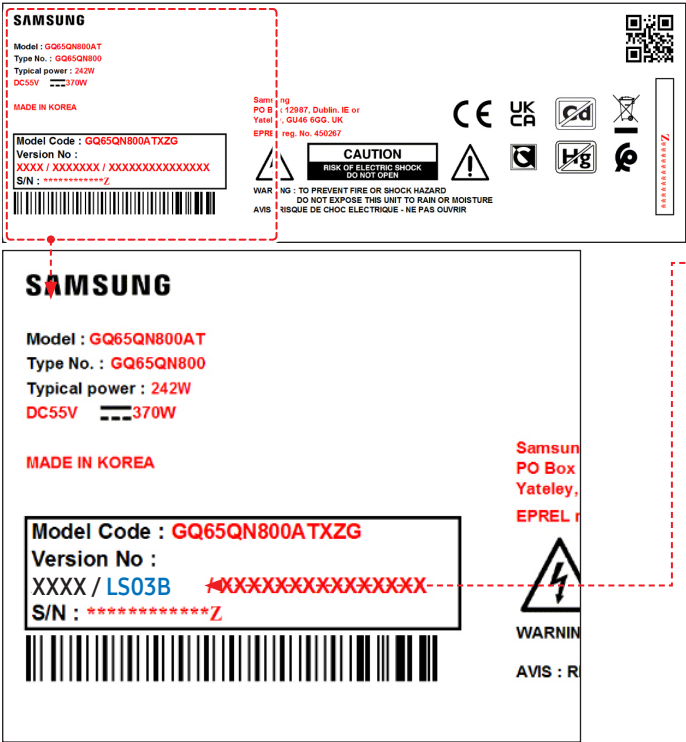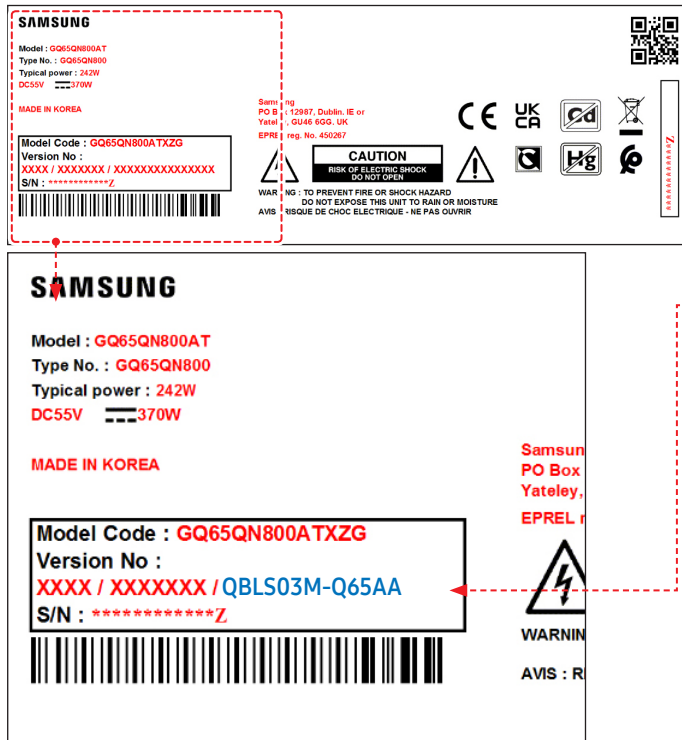
<"Front Color" in Label Rating>

Home	Updates	Exit
Factory Reset		
Type		65S1ZE8TA
Writing Type		
Local Set		NA
SW Model		LS03B
Front Color		QBLS03M-Q65AA
Writing Front Color		
Model Code		QN65LS03BAFXZA
TUNER		–
Ch Table		NONE

* Reference to **Front Color** list in the Factory Menu

Troubleshooting

Model Code

- For Quick Entry of Model Code.

   1. Confirm **Model Code** from Option Byte Table for your TV.

   2. Select **Model Code**.

   3. "**Set Model Code**" appears.

   4. Enter exact Model Code using cursors.

   5. If you entered over 19 digits an **Information** screen **box is full** appears.

   6. **IMPORTANT**: It will accept wrong model code, be sure to enter correct code

   7. Complete rest of Option Byte Table info.

   8. Press soft power off with remote to enter settings.

Home	Updates	Exit
Factory Reset		
Type	65S1ZE8TA	
Writing Type		
Local Set	NA	
SW Model	LS03B	
Front Color	QBLS03M-Q65AA	
Writing Front Color		
Model Code	QN65LS03BAFXZA	
TUNER	–	

‹Select **Model Code**›

Set Model Code

QN65LS03BAFXZA

‹Set Model Code›

Information

The box is full. You can't enter any more text.

OK
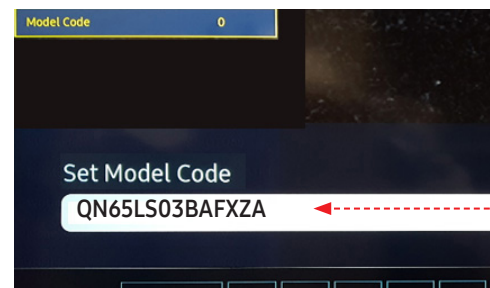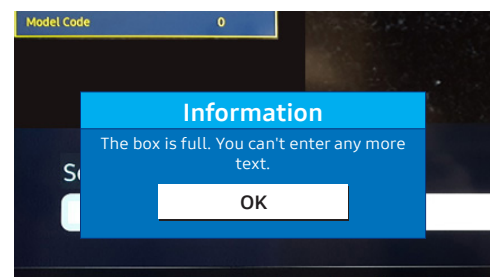
‹Model Code digits exceeded›

Home	Updates	Exit
Factory Reset		
Type	65S1ZE8TA	
Writing Type		
Local Set	NA	
SW Model	LS03B	
Front Color	QBLS03M-Q65AA	
Writing Front Color		
Model Code	QN65LS03BAFXZA	

‹Wrong Model Code Entry›

■ SVC / Test Patterns

Scaler Pattern	OFF
US Post Pattern	OFF
FRC Pre Pattern	0
FRC Post Pattern	0
SOC TCON Pattern	0
SOC TCON Pattern Level	255
FRC OSD Pre Pattern	0
FRC OSD Post Pattern	0
FRC2 Pre Pattern	0
FRC2 Post Pattern	0
SOC TCON2 Pattern	0
SOC TCON2 Pattern Level	255
SOC TCON3 Pattern	0
SOC TCON3 Pattern Level	255
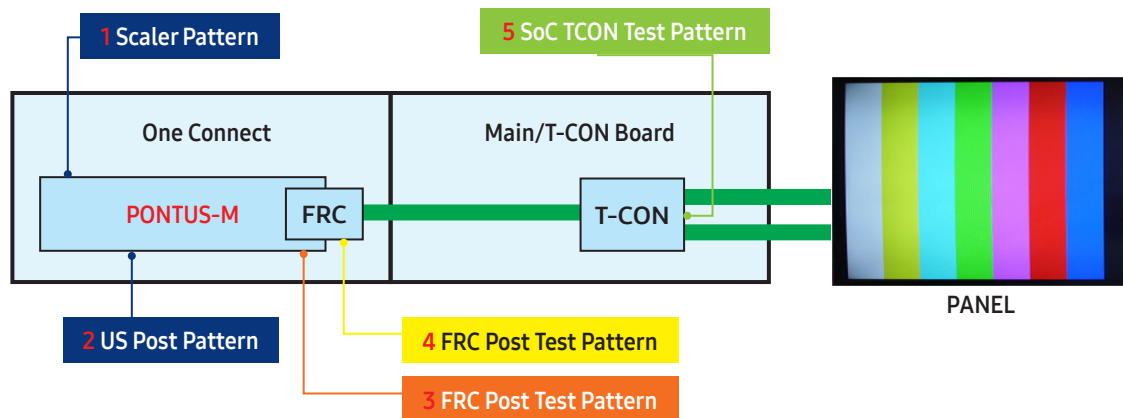
1. Verify "**Scaler Pattern**" and "**US Post Pattern**".

2. Verify "**FRC Pre Test Pattern**".

3. Verify "**FRC Post Test Pattern**".

4. Verify "**SoC TCON Test Pattern**".

■ EDID > Write

Factory Mode > Control > EDID (Restoring HDMI Inputs)

1. Remove ALL HDMI connections

2. Factory Mode/Control/EDID (Press Enter)

EDID	
Sub Option	

3. Select EDID/OFF to ON (Right Arrow Key)

4. Select EDID WRITE ALL (Enter)

EDID ON/OFF	ON
EDID WRITE ALL	Success

5. Wait to Success (Right Arrow Key)

EDID WRITE ALL	Wait

6. Confirm EDID WRITE ALL Success (Menu Key)

EDID WRITE ALL	Success

Troubleshooting

■ SVC / Info / ER Count

Check each item listed.

WD Count	0	FRC3D Emergency Reboot On/Off	ON	7915 DETACHMENT COUNT	0
AR Count	0	FRC3D ER Count	0		
RS Count	0	TCON PMIC Fault Count	0		
RS-FG Count	0	Fan Error Count	0		
RS-Launch Count	0	TV2OC Serdes Reset Count	0		
RS-BG Count	0	OC2TV Serdes Reset Count	0		
WIFI NO DETECTION COUNT	0	AOC Diagnosis			
WIFI DETACHMENT COUNT	0	Serdes History			
BT NO DETECTION COUNT	0	Serdes History Reset			
BT DETACHMENT COUNT	0	Serdes WatchDog On/Off	OFF		
BT MGT OPEN FAIL COUNT	0	Vcc Fail Count	0		
BT MGT DISCONNECT COUNT	0	HDMI No Signal			
BT TV AUDIO DROP	0	HDMI Blinking			
BT AUDIO TIMER EXP	0	HDMI Color Space			
Camera ER Count	0	7915 NO DETECTION COUNT	0		

- Important Items

  - ✓ **WD Count**: Watch Dog
    - → Hardware related issue.

  - ✓ **AR Count**: Auto Reset
    - → Software (i.e. Apps) related.

  - ✓ **WiFi Count**
    - → Check all listed items

  - ✓ **BT Count**
    - → Check all listed items

  - ✓ **VCC Fail Count**
    - → DC Supply related - New 2018

■ Hi Serdes Error Count

WD Count	0	Serdes Error Count	25
AR Count	0	Serdes Reset Count	35
RS Count	0	Serdes WatchDog On/Off	ON
WIFI NO DETECTION COUNT	49	AC Over-Voltage Detect	0
WIFI DETACHMENT COUNT	90	Vcc Fail Count	0
BT NO DETECTION COUNT	10	HDMI No Signal	
BT DETACHMENT COUNT	27	HDMI Blinking	
BT MGT OPEN FAIL COUNT	4	HDMI Color Space	
BT MGT DISCONNECT COUNT	0		
BT TV AUDIO DROP	0		
BT AUDIO TIMER EXP	0	- Serdes Error Count - High	
Camera ER Count		- Serdes Reset Count – High	
FRC3D Emergency Reboot On/Off ON		- Wi Fi Error Count – High	
FRC3D ER Count	0	- BT Error Count - High	
Fan Error Count	0		

- Important Items

  - ✓ **High Serdes (communication) Error/Reset Count**
    - → Check and repair Optical Cable, TV Main Board or One Connect failures.

  - ✓ **This may create high WiFi/BT Error counts**
    - → Do not replace WiFi/BT Module.

  - ✓ **After repair reset error counts with Factory Reset.**
    - → Test WiFi/BT Operation

Troubleshooting

■ Writing Serial Number

Writing Serial Number

When replacing the main board, the replacement mainboard may have a serial number already entered.
This serial number is invalid and must be replaced with the serial number from the label on the back of the TV.

After replacing the main board, turn on the TV and go to **Settings > Support > About This TV**. If a serial number exists,
It must first be erased, follow the instructions below to enter the correct serial number.

1. Take a picture of the serial number on the label on the back of TV.

2. Enter the Factory Menu using a Factory remote.

3. Select **SVC > S/N > Writing S/N**.

4. When the soft keypad is displayed, if a serial number already exists,
   select "**Delete All**" to erase the existing serial number.

5. Use the soft keypad to enter the correct serial number from the Back
   Cover label.
   - **Carefully Check** each digit to make sure all digits are entered
     correctly.

6. You must enter all 15 digits.

7. Click "**Done**" on the soft keypad to exit and save the serial number.

8. Power off the TV, and then power it back on.

9. Go to **Settings > Support > About This TV**, and then verify that the
   correct serial number now appears in the **About This TV** screen.

About This TV
Please contact Samsung if you are probles operating this device.
Contact Samsung
- Web Site: Visit www.samsung.com, then select your contry.
- You can find the latest phone number of our Call Center on the website.
Product Information
- Model Code: xxxxxxxxxxx
- Serial Number: xxxxxxxxxxxxxxxxx
- Software Version: xxxxxxxxxxxxxx
- Status Code: xxxx_x_x
- Sub-micom Version: xxxxxxxxx

Open Source License	QR Code	Close

Option
Control
Debug
SVC
ADC/WB
Advanced

<Select SVC>

Test pattern
Upgrade
Other Setting
SVC Panel
S/N

<Select S/N>

Serial number
Writing S/N

<Select Writing S/N>

SAMSUNG

Model : GQ65QN800AT
Type No. : GQ65QN800
Typical power : 242W
DC55V ⎓370W

MADE IN KOREA

Samsung
PO Box 12987, Dublin. IE
Yateley, GU46 6GG. UK

EPREL reg. No. 450267

Model Code : GQ65QN800ATXZG
Version No :
VVVV / VVVVVVV / XXXXXXXXXXXXXX
S/N : **********

WARNING : TO PREVENT
DO NOT EXPO
AVIS : RISQUE DE CHOC E

<Back Cover label>

Set Serial Number(Length must be 15)

4M7P

K		KNOW		KEEP		
1	2	3	4	5	6	7
Q	W	E	R	T	Y	U
A	S	D	F	G	H	J
Z	X	C	V	B	N	M
V	B	N	M	,	.	?	^	-
⇧	#@!	⎵	✓ Done	↵	<	∨	>

<Soft keypad>

4-11. Detail Factory Option

> 📝 **NOTE**
>
> - If you replace the main board with new one, please change the factory option as well.
>   The options you must change are "**Type**".
> - "**Option Setting Table**" depends on the models or region.
>   - After checking the exact model information, select the values for the "**Option Setting Table**".

- **QN******LS03BAFXZA** information only. (** : 43/50/55/65/75/85 inches)

■ PANEL Information

- QN43LS03BAFXZA

Side Version		AA01
PANEL	Vendor	**AUO**
	Code	BN95-08402A
	Spec	CY-QB043HHAV1H/V
	Type	**43L6RUAQB**

- QN50LS03BAFXZA

Side Version		AA01
PANEL	Vendor	**AUO**
	Code	BN95-08403A
	Spec	CY-QB050HHAV1H/V
	Type	**50L6RUAQB**

- QN55LS03BAFXZA

Side Version		AA01
PANEL	Vendor	**AUO**
	Code	BN95-08404A
	Spec	CY-QB055FHAV1H/V
	Type	**55L1RUAQB**

- QN65LS03BAFXZA

Side Version		CA01
PANEL	Vendor	**CSOT**
	Code	BN95-08407A
	Spec	CY-QB065FHHV1H/V
	Type	**65S1RUAQB**

Troubleshooting

- **QN75LS03BAFXZA**

Side Version	CA01

PANEL	Vendor	**CS0T**
	Code	BN95-08409A
	Spec	CY-QB075FHHV1H/V
	Type	**75S1RUAQB**

- **QN85LS03BAFXZA**

Side Version	AA01

PANEL	Vendor	**AUO**
	Code	BN95-08410A
	Spec	CY-QB085FHAV1H/V
	Type	**85L1RUAQB**

4-12. RS-232C

■ **RS232C Control**

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

■ **Description of RS232C**

-P1-
FEMALE

	-P1-		-P2-	
Rx	2	←	1	Tx
Tx	3	→	2	Rx
Gnd	5	—	3	Gnd

-P2-
(STEREO PLUG)
(3.5Ø)
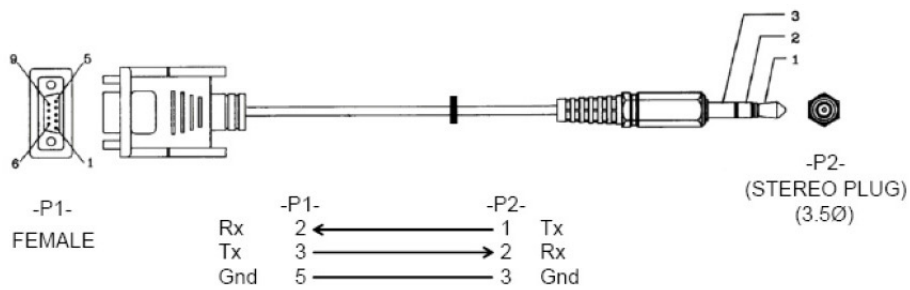
Pin#	Name	Full Name	Pin#	Name	Full Name	Pin#	Name	Full Name
1	CD	Carrier Detect	4	DTR	Data Terminal Ready	7	RTS	Request To Send
2	RxD	Received Data	5	GND	Signal Ground	8	CTS	Clear To Send
3	TxD	Transmitted Data	6	DSR	Data Set Ready	9	RI	Ring Indicator

4-13. Updating the TV's Software

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

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

- ⌂ ⟩ ☰ **Menu** ⟩ ⚙ **Settings** ⟩ **Support** ⟩ **Software Update**

▪ Updating through the Internet

- ⌂ ⟩ ☰ **Menu** ⟩ ⚙ **Settings** ⟩ **Support** ⟩ **Software Update** ⟩ **Update Now**

🖉   Updating from the Internet requires an active Internet connection.

▪ Updating through a USB device

- ⌂ ⟩ ☰ **Menu** ⟩ ⚙ **Settings** ⟩ **Support** ⟩ **Software Update** ⟩ **Update Now**

After downloading the update file from the Samsung website and storing it on a USB device, connect the USB device to the TV to update.

🖉   To update using a USB device, download the update package from Samsung.com to your computer. Then, save the update package in the USB device's top-level folder. Otherwise, the TV will not be able to locate the update package.

▪ Updating the TV automatically

- ⌂ ⟩ ☰ **Menu** ⟩ ⚙ **Settings** ⟩ **Support** ⟩ **Software Update** ⟩ **Auto Update**

If the TV is connected to the Internet, you can have the TV update its software automatically while you are watching the TV. When the background update is completed, it is applied the next time the TV is turned on.

If you agree to the Smart Hub terms and conditions, **Auto Update** is set to **On** automatically. If you want this function disabled, use the Select button to turn it off.

🖉   This function may take a longer time if another network function is running concurrently.

🖉   This function requires an Internet connection.

5. Wiring Diagram

5-1. Wiring Diagram

- **Layout**
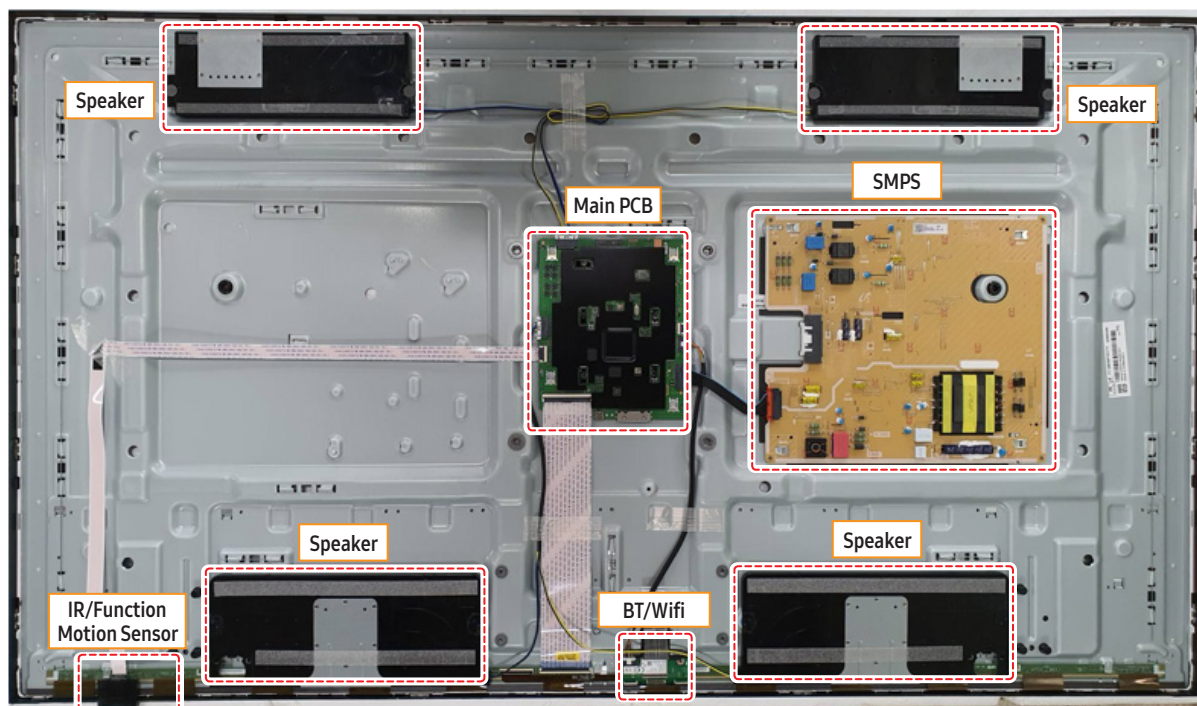
Wiring Diagram

- **Wiring Diagram (43/50")**

PANEL

SMPS

TV Board

SPEAKER

SPEAKER

FUNCTION
MOTION
SENSOR
MODULE

BT/WIFI

ONE
CONNECT
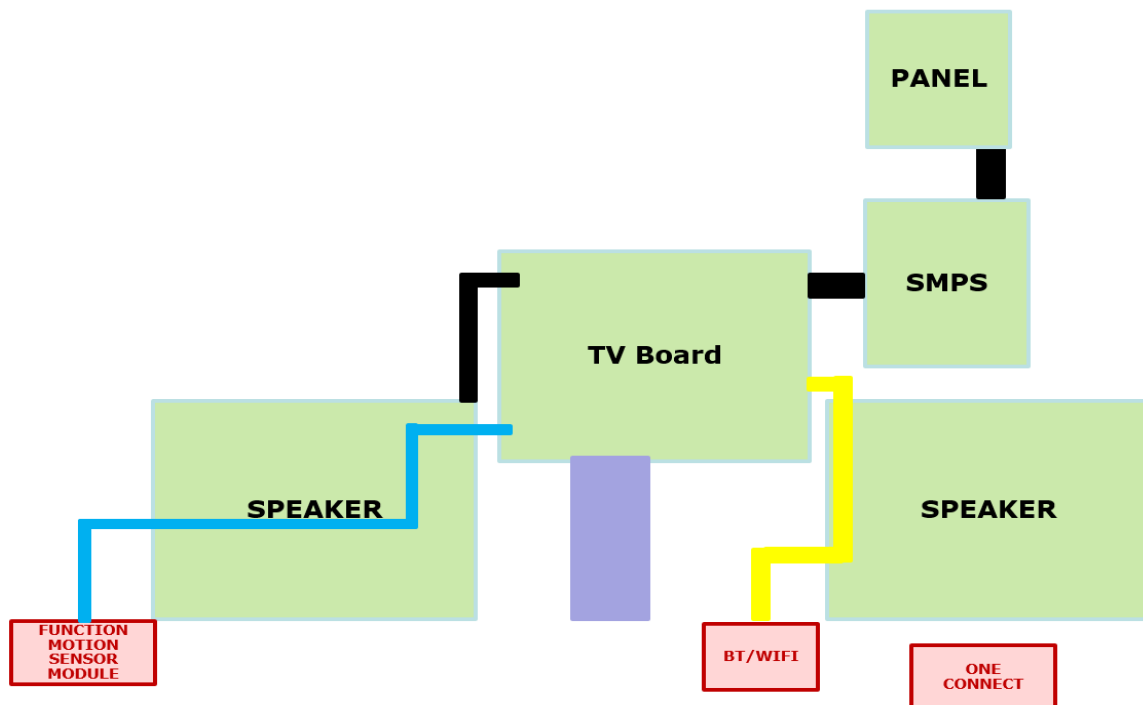
- **Wiring Diagram (55/65/75/85")**

TOP SPEAKER

TOP SPEAKER

TV Board

SMPS

PANEL

BOTTOM
SPEAKER

BOTTOM
SPEAKER

FUNCTION
MOTION
SENSOR
MODULE

BT/WIFI

ONE
CONNECT
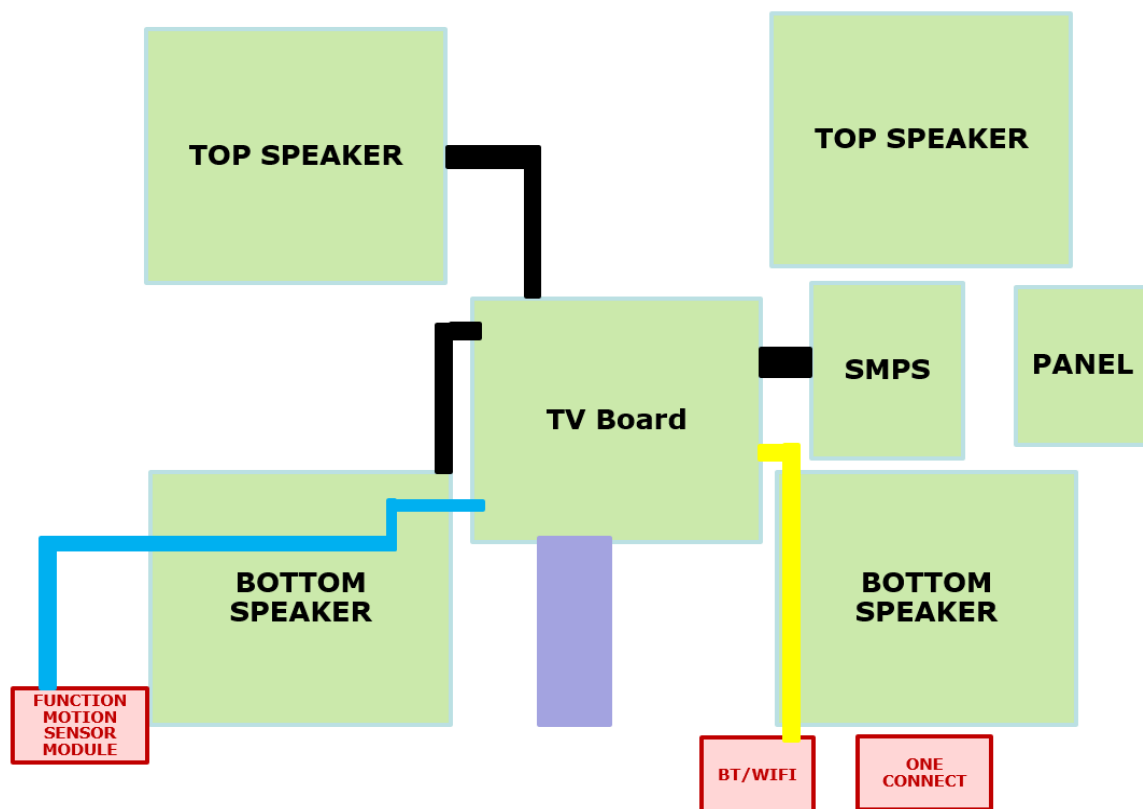
• Block Diagram
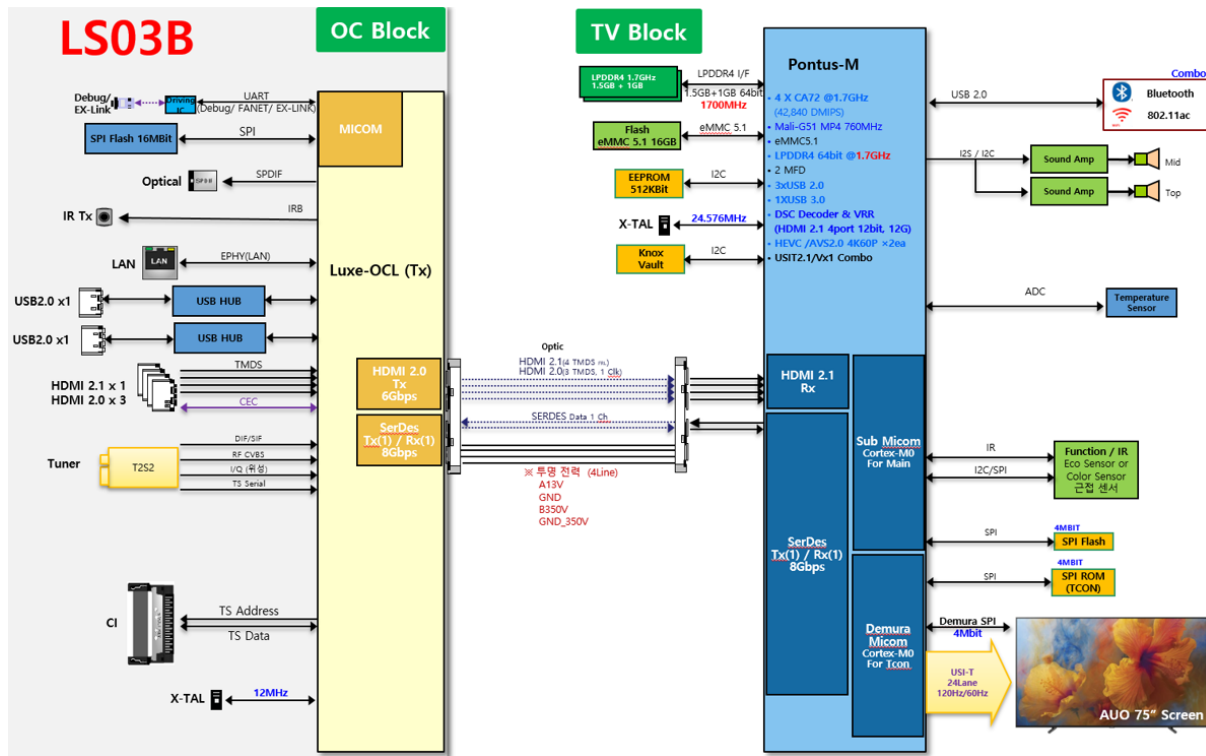
5-2. Connector

5-2-1. Main Board
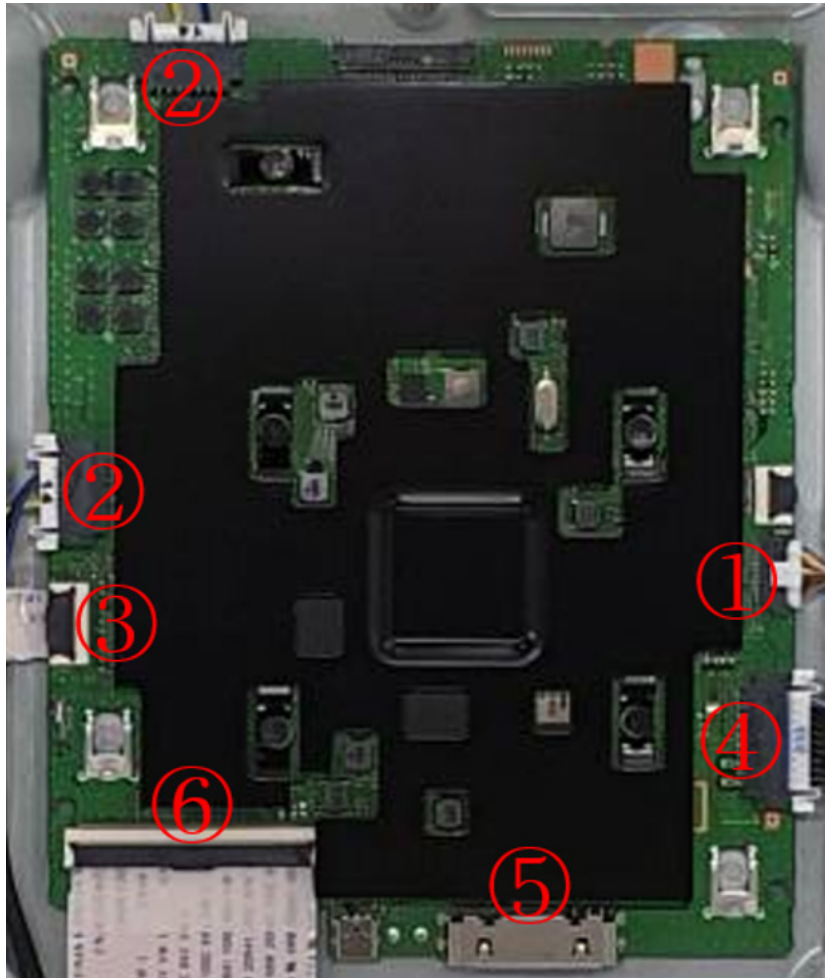
■ Main Board Pin Map

1. CN1403 (BT & Wifi)			
1	BTWIFI_NRESET	2	WIFI_WOW
3	WIFI_5V	4	GND
5	D-_USB_BTWIFI	6	D+_USB_BTWIFI
7	GND	8	WIFI_PHY_ON
9	BT_UART_XT	10	BT_WAKE

2. ACN01_14P (SPEAKER)			
1	N.C	2	N.C
3	MID_R+	4	MID_R-
5	TW_R+	6	TW_R-
7	N.C	8	N.C
9	MID_L+	10	MID_L-
11	TW_L+	12	TW_L-
13	N.C	14	N.C

2. ACN03_4P (SPEAKER)			
1	MID_R+	2	MID_R-
3	MID_L+	4	MID_L-

3. CN1905 (Radar Function/TV Main Side)			
1	A3.3V	2	A5V
3	GND	4	MIC_MOTION_CLK
5	MIC_MOTION_DATA	6	GND
7	MIC_SWITCH	8	KEY_INPUT1
9	LED_STB_OUT	10	GND
11	SENSOR_SCL_I2C	12	SENSOR_SDA_I2C
13	GND	14	RADAR_SPI_MOSI
15	RADAR_SPI_MISO	16	RADAR_SPI_CLK
17	RADAR_SPI_CS	18	GND
19	RADAR_NRESET	20	RADAR_WAKE
21	MOTION_SDA_I2C	22	MOTION_SCL_I2C
23	RADAR_IRQ	24	IR

4. CN201 (Power)			
1	GND	2	GND
3	N.C	4	N.C
5	B350V	6	B350V
7	N.C	8	N.C
9	GND	10	GND
11	VAMP(B13V)	12	B13V
13	VAMP(B13V)	14	B13V
15	GND	16	GND
17	ANA_DIM	18	PWM_DIMMING_OUT2
19	N.C	20	PWM_DIMMING_OUT1

5. CN200 (19Y_OC)			
1	INSERT_DET	2	DGND
3	SERDES_RX_L1-	4	SERDES_RX_L1+
5	DGND	6	SERDES_TX_L1+
7	SERDES_TX_L1-	8	DGND
9	OCL_M_RXCLK-_HDMI	10	OCL_M_RXCLK+_HDMI
11	DGND	12	OCL_M_RX0-_HDMI
13	OCL_M_RX0+_HDMI	14	DGND
15	OCL_M_RX1-_HDMI	16	OCL_M_RX1+_HDMI
17	DGND	18	OCL_M_RX2-_HDMI
19	OCL_M_RX2+_HDMI	20	ACT
21	CABLE_DETECT	22	A3.3V_PW
23	IMON	24	SIGNAL_DETECT
25	A13V_PW	26	PGND
27	PGND	28	PGND
29	B350V_PW	30	NC
31	B350V_PW		

Wiring Diagram

6. CN1300 (USIT)							
1	FB_TRDY_1	2	GND	3	PANEL_3.3V_PW	4	PANEL_3.3V_PW
5	FB_VCOM1_2_CELL	6	VCOM1_CELL	7	VCOM2_CELL	8	VCOM3_CELL
9	VSS_OUT1_CELL	10	VOFF_-11V_PW	11	VGHD_30V_PW	12	CKV1_GOA
13	CKV2_GOA	14	CKV3_GOA	15	CKV4_GOA	16	CKVB1_GOA
17	CKVB2_GOA	18	CKVB3_GOA	19	CKVB4_GOA	20	STVP1_GOA
21	LC1_VGP1_GOA	22	ST_GOA	23	DEMURA_SSPFRM_SPI	24	DEMURA_SSPCLK_SPI
25	DEMURA_SSPHOLD_SPI	26	DEMURA_SSPWP_SPI	27	DEMURA_SSPRXD_SPI	28	DEMURA_SSPTXD_SPI
29	DEMURA_SSPFRM_SPI	30	SFC2	31	DGND	32	TX_CH0_A1+_VX1
33	TX_CH0_A1-_VX1	34	GND	35	TX_CH0_B1+_VX1	36	TX_CH0_B1-_VX1
37	GND	38	TX_CH1_A1+_VX1	39	TX_CH1_A1-_VX1	40	GND
41	TX_CH1_B1+_VX1	42	TX_CH1_B1-_VX1	43	GND	44	TX_CH2_A1+_VX1
45	TX_CH2_A1-_VX1	46	GND	47	TX_CH2_B1+_VX1	48	TX_CH2_B1-_VX1
49	GND	50	TX_CH3_A1+_VX1	51	TX_CH3_A1-_VX1	52	GND
53	TX_CH3_B1+_VX1	54	TX_CH3_B1-_VX1	55	GND	56	TX_CH4_A1+_VX1
57	TX_CH4_A1-_VX1	58	GND	59	TX_CH4_B1+_VX1	60	TX_CH4_B1-_VX1
61	GND	62	TX_CH5_A1+_VX1	63	TX_CH0_A1-_VX1	64	GND
65	TX_CH5_B1+_VX1	66	TX_CH5_B1-_VX1	67	GND	68	TX_CH6_A1+_VX1
69	TX_CH6_A1-_VX1	70	GND	71	TX_CH6_B1+_VX1	72	TX_CH6_B1-_VX1
73	GND	74	TX_CH7_A1+_VX1	75	TX_CH7_A1-_VX1	76	GND
77	TX_CH7_B1+_VX1	78	TX_CH7_B1-_VX1	79	GND	80	SFC1
81	DGND	82	PI_DSF_MON	83	PORTNUM	84	VCCA_1.9V_PW
85	VCCB_1.8V_PW	86	LL_CELL	87	LH_CELL	88	HAVDD_8.5V_PW
89	UL_CELL	90	UH_CELL	91	AVDD_17V_PW	92	AVDD_17V_PW
93	AVDD_17V_PW	94	AVDD_17V_PW	95	VBY1_13V_PW	96	FB_TRDY_2

5-2-2. One Connect Board
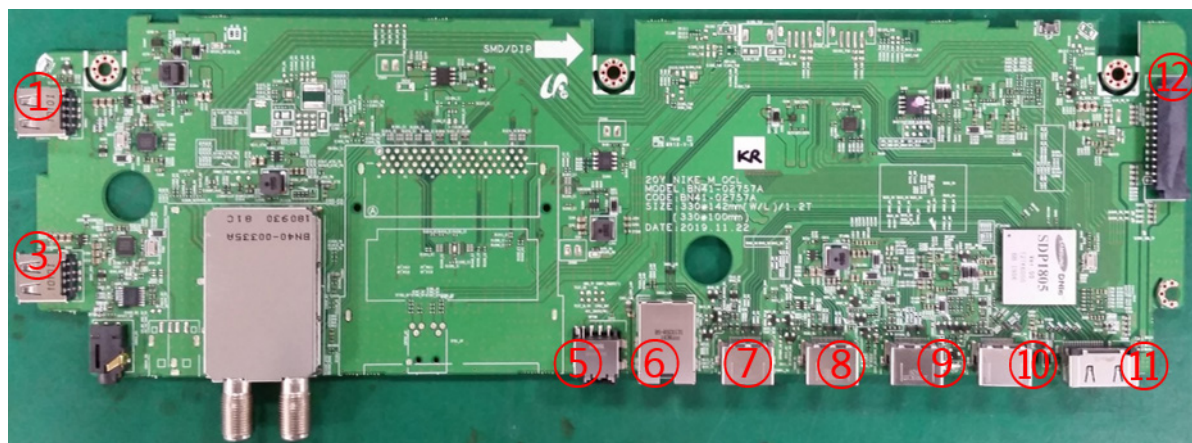
1. CN501 (USB1)			
1	USB1_VCC_5V_PW	2	JACK1_D-_USB
3	JACK1_D+_USB	4	GND

3. CN500 (USB3)			
1	USB3_VCC_5V_PW	2	JACK3_D-_USB
3	JACK3_D+_USB	4	GND

4. CN603_RS (EX-LINK)			
1	GND	2	EX_TX_TP
3		4	EX_TX_TP
5		6	
7	GND		

5. OP700 (OPTICAL)			
1	VIN	2	VCC
3	GND	4	SW1
5	SW2		

6. CN602_LAN (LAN)			
1	EPHY_TXP	2	LAN_GND
3	EPHY_TXN	4	EPHY_RXP
5	LAN_GND	6	EPHY_RXN
7		8	LAN_GND

7. CN801_H1 (HDMI)			
1	HDMI1_RX2+_HDMI	2	GND
3	HDMI1_RX2-_HDMI	4	HDMI1_RX1+_HDMI
5	GND	6	HDMI1_RX1-_HDMI
7	HDMI1_RX0+_HDMI	8	GND
9	HDMI1_RX0-_HDMI	10	HDMI1_RXC+_HDMI
11	GND	12	HDMI1_RXC-_HDMI
13	CEC	14	
15	HDMI1_SCL_DDC	16	HDMI1_SDA_DDC
17	HDMI1_CABLE_DET	18	HDMI1_5V_PW
19	HDMI1_HPD		

8. CN800_H2 (HDMI)			
1	HDMI2_RX2+_HDMI	2	GND
3	HDMI2_RX2-_HDMI	4	HDMI2_RX1+_HDMI
5	GND	6	HDMI2_RX1-_HDMI
7	HDMI2_RX0+_HDMI	8	GND
9	HDMI2_RX0-_HDMI	10	HDMI2_RXC+_HDMI
11	GND	12	HDMI2_RXC-_HDMI
13	CEC	14	
15	HDMI2_SCL_DDC	16	HDMI2_SDA_DDC
17	HDMI2_CABLE_DET	18	HDMI2_5V_PW
19	HDMI2_HPD		

Wiring Diagram

11. CN901_H4 (HDMI)			
1	HDMI4_RX2+_HDMI	2	GND
3	HDMI4_RX2-_HDMI	4	HDMI4_RX1+_HDMI
5	GND	6	HDMI4_RX1-_HDMI
7	HDMI4_RX0+_HDMI	8	GND
9	HDMI4_RX0-_HDMI	10	HDMI4_RXC+_HDMI
11	GND	12	HDMI4_RXC-_HDMI
13	CEC	14	EARC+
15	HDMI4_SCL_DDC	16	HDMI4_SDA_DDC
17	HDMI4_CABLE_DET	18	HDMI4_5V_PW
19	HDMI4_HPD		

12. CN201 (POWER)			
1	B350V_GND	2	B350V_GND
3	B350V_GND	4	B350V_GND
5		6	
7	B350V_2_PW	8	B350V_2_PW
9		10	
11	B350V_1_PW	12	B350V_1_PW
13		14	
15	GND	16	GND
17	A13V_PW	18	A13V_PW
19	A13V_PW	20	A13V_PW
21	GND	22	GND
23	TV_A13V_PW	24	SW_POWER_350V
25	TV_A13V_PW	26	IR_SMPS

13. CN301 (SERDES)			
1	GND	2	HDMI_TMDS_DATA0-
3	HDMI_TMDS_DATA0+	4	GND
5	HDMI_TMDS_DATA1-	6	HDMI_TMDS_DATA1+
7	GND	8	HDMI_TMDS_DATA2-
9	HDMI_TMDS_DATA2+	10	GND
11	SERDES_TX_L1+	12	SERDES_TX_L1-
13	GND	14	SERDES_RX_L1+
15	SERDES_RX_L1-	16	B350V_1_PW
17	GND	18	HDMI_TMDS_CLK-
19	HDMI_TMDS_CLK+	20	B5V_PW
21	CABLE_DETECT	22	A3.3V_PW
23	ACT	24	SIGNAL_DETECT
25	IMON	26	TV-A13V_PW
27	B350V_GND	28	B350V_GND
29	B350V_GND	30	
31	B350V_2_PW		

5-2-3. SMPS Board
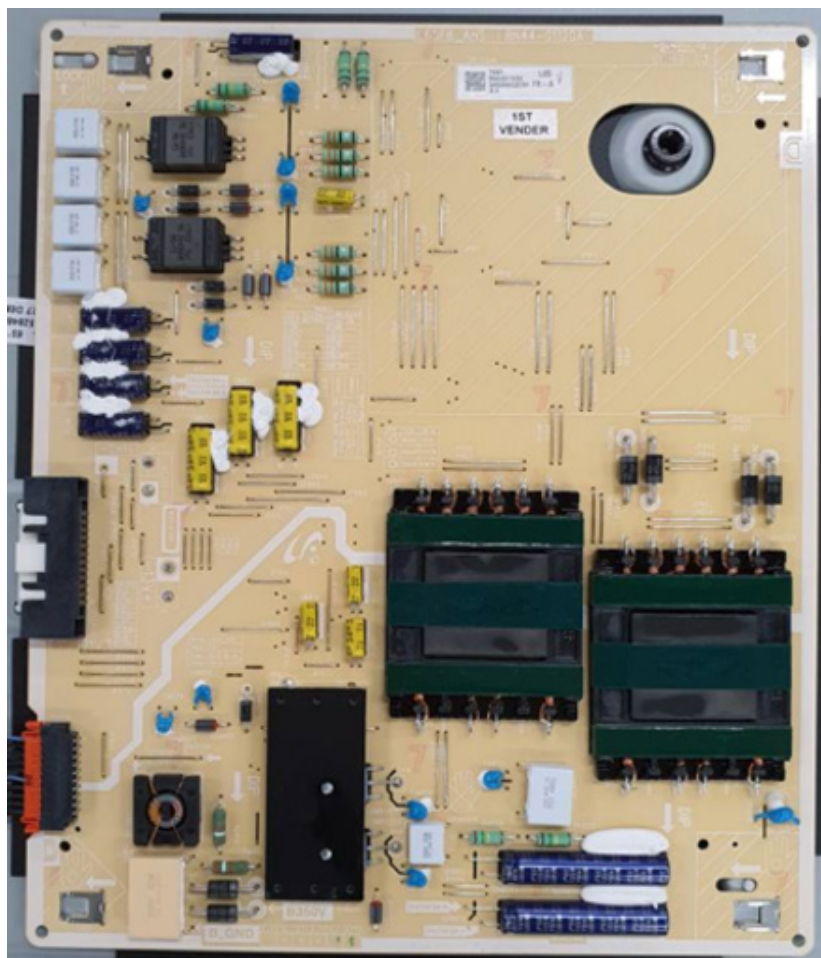
PIN MAP			
1	GND(Signal)	2	BLU_ON/PWM1
3	ANA_DIM	4	BLU_ON/PWM2
5	GND	6	GND
7	B13V	8	B13V
9	B13V	10	B13V
11	GND	12	GND
13	N.C	14	N.C
15	B350V	16	B350V
17	N.C	18	N.C
19	B_GND	20	B_GND