

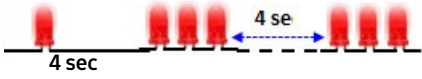
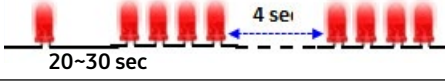
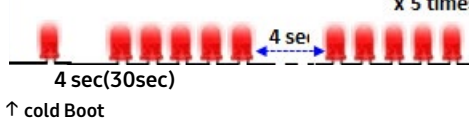
4. Troubleshooting

4-1. Diagnostic Methods (Flashing Symptom 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	
OC Box	-	LED Off	No Blinking
Main Board	- Watch Dog Count > Reboot > Flash - Error > Flash	1 time	 , Blinks 1 time when cold Boot 1 sec 4 sec x 5 time
Panel	- Error > Reboot > Flash - Error > Flash (after 10m)	2 time	 4 sec(10mm) 4 se x 5 time
SMPS	- Error > Reboot > Flash - Error > Flash	3 time	 4 sec 4 se x 5 time
BT/WiFi	Cold Boot > 30 sec after module starts	4 time	 20~30 sec 4 se x 5 time
AOC	- Cold Boot > 30 sec after module starts - Signal level below threshold	5 time	 4 sec(30sec) 4 se x 5 time ↑ cold Boot

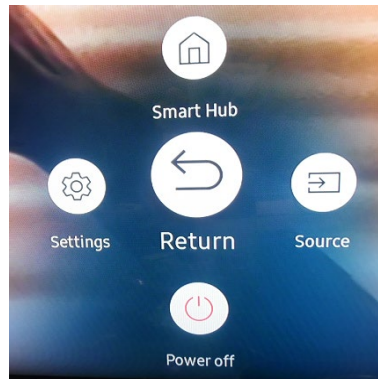
■ How to COLD BOOT the TV

1. Unplug and re-plug in the power cord.
 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

■ OCB SMPS Power Consumption Type

No	OCB SMPS TYPE (in Factory Menu)	Matching Model Code	Matching Panel Type	Power Consumption
1	65Q900	QRQ900	65A1ME9TN	
2	75Q900	QRQ900	75A1ME9TN	
4	82Q900	QRQ900	82A1ME9TN	
5	85Q900	QRQ900	85L1ME9TN	890W

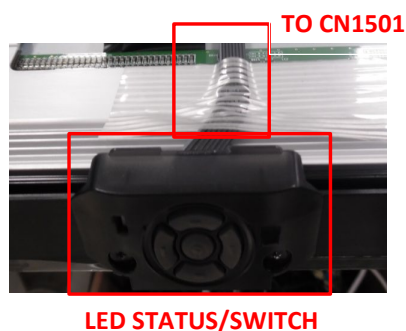
4-2. Function Control Operation Test



[On Screen Selections with Function Control]

■ FUNCTION/IR Control Test

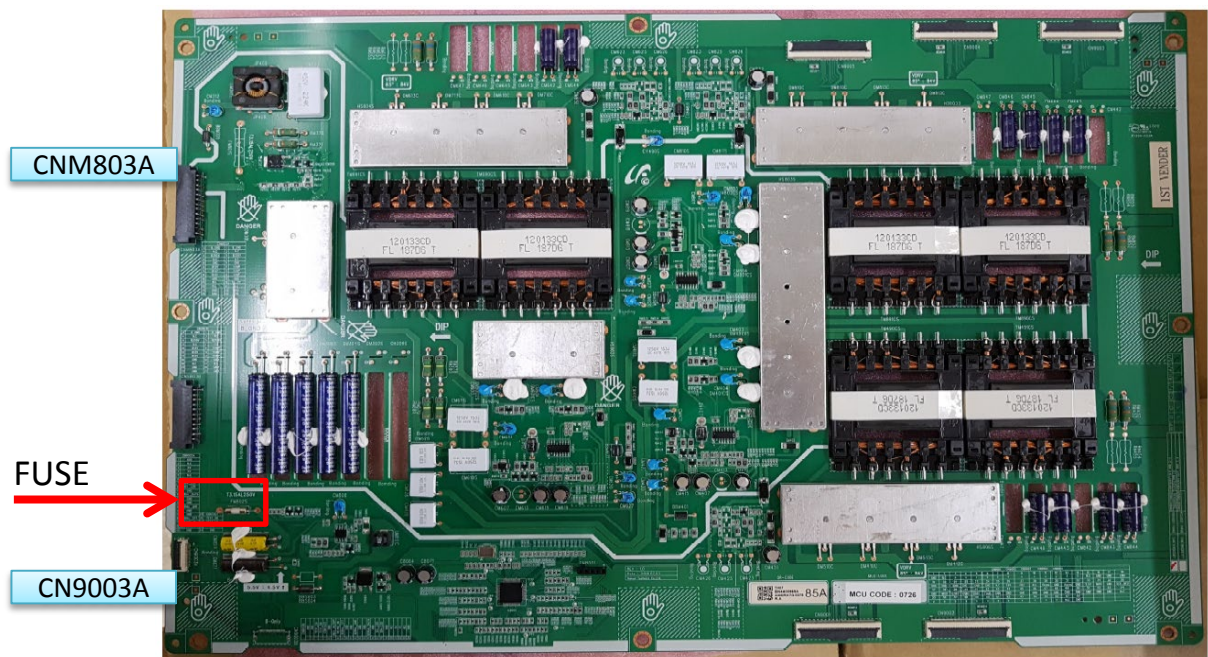
1. Place TV in Power Standby :
2. Check **LED Status**. (Note: Can be turned off in menu)
3. If **LED** is **OFF** (& **LED should be on with menu setting**)
 - ✓ LED 1.7Vdc (pin 8) and VCC for 3.3Vdc (pin 3)
 - If missing suspect Function Assy/Cable/Main board.
4. If **LED** is **ON**
 - ✓ Switch Operation activates on screen display
 - If missing:
 - ✓ Key _Input1(Pin 6) or Key _Input2(Pin 7) change to 0V with a command.
 - If wrong voltage or no change:
 - ✓ Switch for stuck or miss-operation.
5. Check IR operation with Standard Remote command changes. (3.3V to 2.5V effective DC)
6. SDA, SCL for effective 3.3Vdc (after power on)
 - If missing suspect Function Assy/Cable Assy./Main Assy.



LED STATUS/SWITCH

CN1501 (FUNCTION/IR)			
1	IR 3.3Vdc to 2.5Vdc (Effective DC)	2	GND
3	A3.3V_PW	4	SENSOR_SCL_I2C 3.3Vdc (effective DC)
5	SENSOR_SDA_I2C 3.3Vdc (effective DC)	6	KEY_INPUT1 1.8dc to 0V with command
7	KEY_INPUT2 1.8dc to 0V with command	8	LED_STB_OUT 1.7Vdc STBY

4-3. Power



CNM803A (SMAW250-H26S5)									
1	B-GND	2	B-GND	3	N.C	4	N.C	5	B350V
6	B350V	7	N.C	8	N.C	9	GND	10	GND
11	VAMP	12	B13V	13	VAMP	14	B13V	15	GND
16	GND	17	GND	18	PS_ON	19	N.C	20	N.C
21	GND	22	GND	23	GND	24	GND	25	GND
26	GND	27	GND	28	GND	29	GND	30	GND

CN9003A (05002HR-H24J05)									
1	GND	2	N.C	3	5V	4	5V	5	N.C
6	GND	7	SDA_LED	8	SDA_LED	9	GND	10	SERIAL_DATA
11	GND	12	GND	13	SERIAL_UHR	14	GND	15	GND
16	SERIAL-STT	17	VSTNC_IN	18	BLU_ON_OFF	19	GND	20	CONTACT
21	TEST_SD	22	TEST_LD	23	GND	24	GND	25	GND

4-3-1. TV POWER STANDBY TEST

1. TV in Standby
 - ✓ **Standby LED Indicator** (Note: Status can be changed in user menu and may default off)
2. If Not Lit: (and should have been lit with status setting)
 - ✓ B350V Line / One Connect Cable
3. If missing:
 - ✓ One Connect Cable status
4. If TV does not power on:
 - ✓ Resistance on SMPS **FUSE** after first removing AC power cord.
5. If fuse is open:
 - ✓ replace SMPS.
6. If fuse is OK:
 - ✓ **Standby: A13V** (Always On) supplies to Main Board.
 - ✓ replace **Main Board**
7. If still missing:
 - ✓ replace **ONE Connect Cable**.

4-3-2. TV POWER ON SEQUENCE TEST

1. **PowerTV On**
 - ✓ **PS_ON .2Vdc** (when off) changes to **3.3Vdc** (on)
 - Note: Will stay On for short time when powered off.
2. If voltage error or no change:
 - ✓ Jog Function & IR Control Test
3. If OK :
 - ✓ Check a connecting status of One Connect Cable between TV and OC
 - ✓ Remove and reconnect the AC power cord
 - ✓ Change One Connect Cable
4. IF TV still won't power on
 - ✓ All **A13V** supplies for approx. 12.7VDC(CDR)
 - ✓ All **Vamp** supplies for approx. 18 VDC
5. If any wrong voltages:
 - ✓ Replace SMPS
6. If still wrong voltage:
 - ✓ replace TV Board and OC Box
7. **Backlight ON**
 - ✓ **Backlight On/Off** 0V Off to 3.4Vdc ON (CNM803 PIN.26)
 - ✓ replace TV Board or OC Box

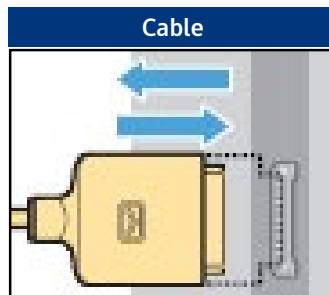
4-3-2. TV POWER ON SEQUENCE TEST

- ✓ In 2018 OC model, system power is supplied by OC Box.
- ✓ We can't SMPS/PANEL Backlight test without OC Box and TV Board
- ✓ If we use OC Box and TV Board, It is the same test condition as TV POWER SEQUENCE TEST

4-4. Video

4-4-1. ONE CONNECT

■ Main Section



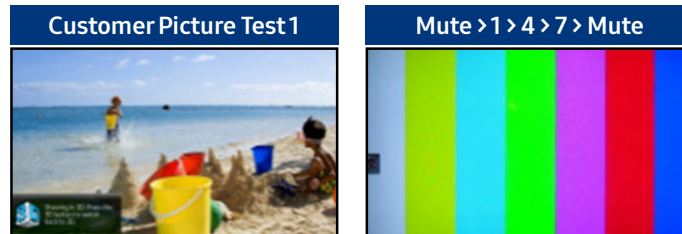
Video Operation

- **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)

4-4-2. MAIN/T-CON BOARD

- Scaller & US Post of KANT-M2 Main CPU Section > PRE FRC Main Section > POST FRC Main Section > T-CON Section

■ Scaller & US Post of KANT-M2 Main CPU Section

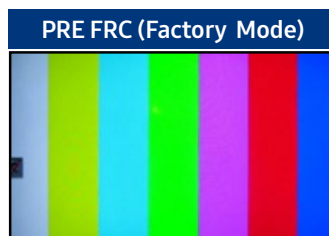


Video Operation

Generated on Main CPU Section.

- **If OK:**
 - ✓ Source & Input Cables
 - ✓ Other inputs
- **If Noisy:**
 - ✓ Pre Scaler Patterns
 - ✓ US Post Patterns
 - ✓ Pre FRC Pattern

■ PRE FRC Main Section

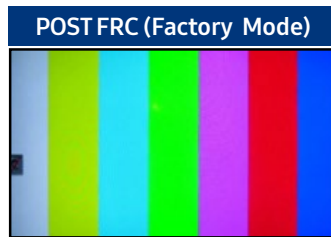


Video Operation

Generated at Pre FRC, in TV Main Board.

- **If OK:**
 - ✓ Check/Replace defective TV Main Board
- **If Noisy:**
 - ✓ Post FRC Pattern

■ POST FRC Main Section



Video Operation

Generated at Post FRC in TV Main Board

- **If OK:**
 - ✓ Check/Replace defective TV Main Board
- **If Noisy:**
 - ✓ Mute > 3 > 6 > 9 > Mute

■ T-CON Section



[May not be available for Larger models over 70 inches.]

Video Operation

Generated at T-CON Section in TV Main/T-CON

1. **If OK:**
 - ✓ Check/Replace defective TV Main/T-CON Board
2. **If Noisy:**
 - ✓ Main/T-CON Board
 - ✓ Panel

4-4-3. PANEL



1. If Noisy Video:

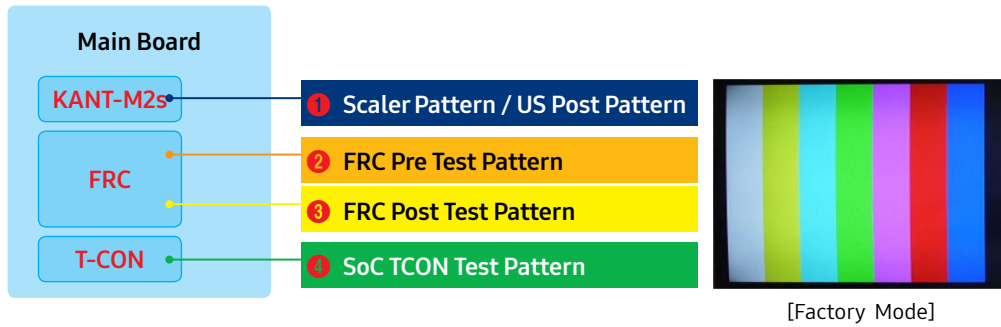
- ✓ Soc T-CON Pattern in Factory Mode
 - Use type of Noise observed (Bars, single lines, video distortion, etc to help.)
 - If noise is only on one half of screen check / swap panel cables.
 - Verify Defective Panel Cables, TV Main/T-CON Board or Panel.

2. If No Video & Back Lights are OK (on):

- ✓ If sound is OK check Panel 13Vdc supplies to Panel
- ✓ If No sound replace TV Main Board

4-4-4. Check Test Patterns

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



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"

4-5. Audio

- Source (One Connect) > One Connect/TV Main Board > Speakers

■ Source (One Connect)

- **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)**
 - ✓ Speakers (compare resistance/quality)
 - ✓ Main Board /Connector/Cable
 - ✓ With external Audio Generator (device or App)
 - 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
 - ✓ Other Inputs
- **Optical Digital Out Errors**
 - ✓ Red light from Optical Digital Out.
 - If missing replace OC or TV's Main Board

■ One Connect/TV Main Board

- **No HDMI Audio**
 - ✓ Source / HDMI Cable & One Connect Mini Connectors
 - 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 One Connect
 - 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.

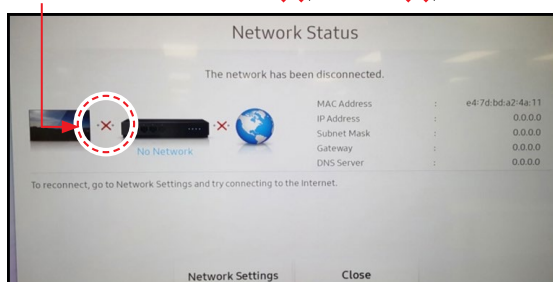
4-6. Network



■ TV to Router "Failure"

- ✓ **Check** Network Status

Check Network Status (TV ~~→~~ Router ~~→~~ Internet)



- ✓ **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 WiFi Analyzer or similar App).
 - Try another source (Hot spot or Test Router)
- ✓ **Check** related Bulletins.
- ✓ **Check** **Factory Mode** → **SVC** → **Info** → **WiFi Error Count** (replace module for high error counts).

■ Router to Network "Failure"

- ✓ **Check** Network Status

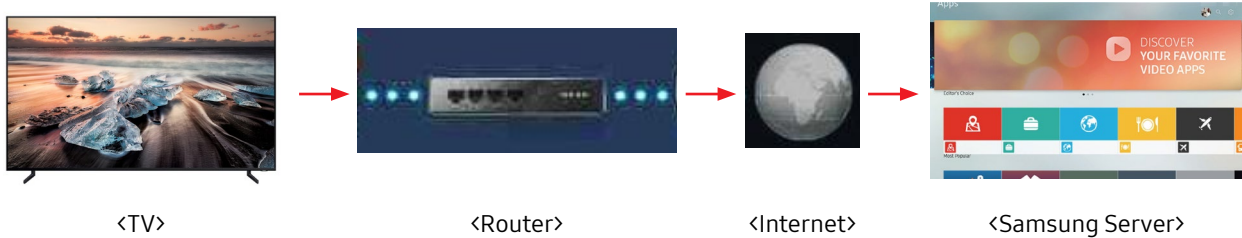
Check Network Status (TV → Router ~~→~~ Internet)



- 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.

4-7. Smart Hub

- [Network Test/Gateway Test](#) > [DNS Test](#) > [ISP Blocking](#) > [Samsung Server Test](#) > [Samsung Apps Test](#)



Go to [Menu](#) > [Support](#) > [Self Diagnosis](#) > [Smart Hub Connection Test](#)

■ Network / Gateway

- If it Fails:
 - ✓ TV to Router Connection Test in "[Network Trouble shooting](#)"

■ DNS Test

- 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.

■ ISP Blocking

- If it Fails:
 - ✓ Internet Service Provider is Active.
 - ✓ With DNS setting at 8888.
 - ✓ With Hot Spot.

■ Samsung Server Test

- If it Fails:
 - ✓ Network Status.
- If OK:
 - ✓ Reset Smart Hub.
 - ✓ Terms of Agreement are accepted.

■ Samsung Apps Test

- If it Fails:
 - ✓ **Reset** Smart Hub.
 - ✓ Samsung Apps load correctly.
 - ✓ 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 wilre-occur.

4. Troubleshooting

For Netflix Operation/Connection Issues:

- ✓ **Check** Certificate & Netflix ESN Status in Factory Mode.

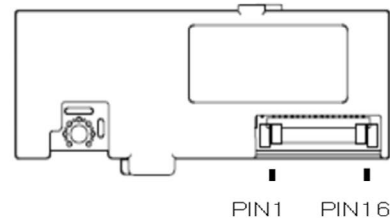


- If Certificate and ESN exists, "CO", "Nfo", change the DNS to 8.8.8.8
- If Certificate is missing, "C/" replace the TV's Main Board.
- If ESN number is missing: NF/ do not replace the Main Board.
 - Reset TV Clock and check for correct Time & Date. Netflix relies on correct settings.
 - Reset Smart Hub. / Reset Apps In Factory Mode.

For Streaming Issues:

- Go to TV Web Browser / Go to speedof.me / testmy.net
 - ✓ **Check Speed** for at least 5 Mbps(HD streaming) / 25 Mbps (4K Streaming).
 - ✓ **Check Latency** for less than 50ms.

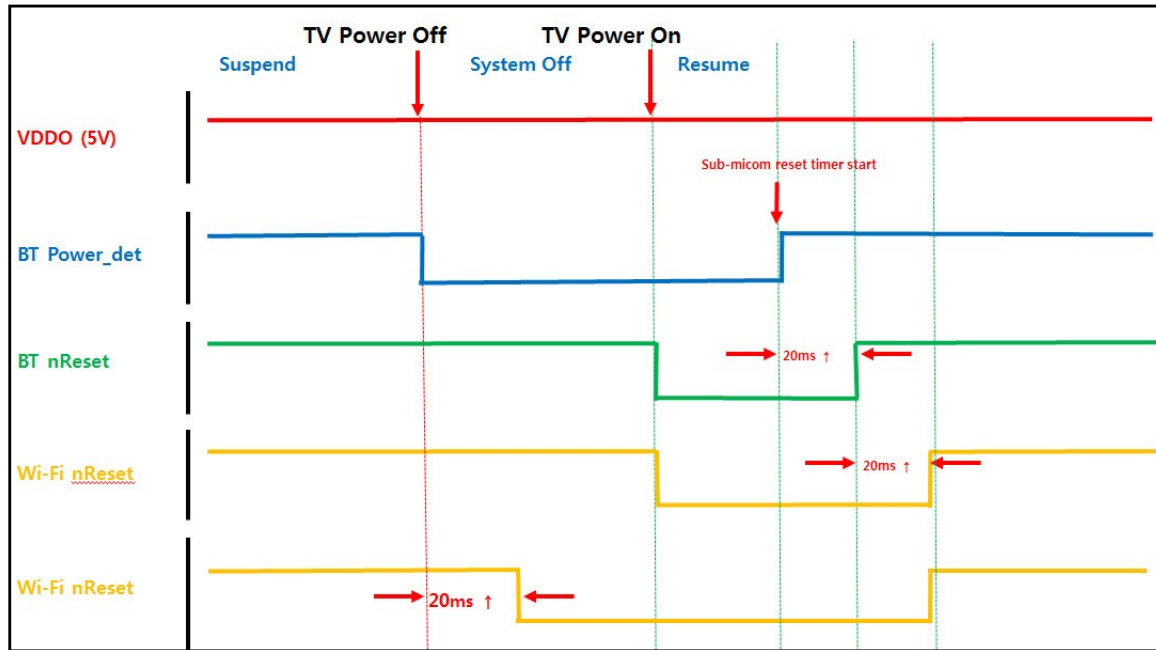
4-8. Bluetooth / WiFi Module



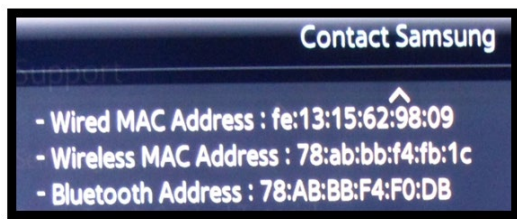
Pin1

■ Pin Description

Pins	Name	Interface	I/O	Description	Standby	Power ON
1	BT_RESET	Digital	I	BT Block Reset	3.3 Vdc	3.3 Vdc
2	BT_POWER DET	Digital	I	BT power detect	0	3.3 Vdc
3	BT_WAKE_UP	Digital	O	BT host wake up	3.3 Vdc	3.3 Vdc
4	GND	Analog	-	Ground	NC	
5	BT_USB DM	Digital	I/O	BT USB interface negative	0	0.7V eff.dc BT Sig (DM) 4V p-p
6	BT_USB DP	Digital	I/O	BT USB interface positive	0	2.5V eff.dc BT Sig (DM) 4V p-p
7	GND	Analog	-	Ground	0	0
8	BT_3D_SYNC_IN	Digital	I	BT VSYNC input	0V	0V
9	WIFI_USB_SUSPEND	Digital	I	WiFi USB PHY On/Off Ctrl	0V	3.3 Vdc
10	GND	Analog	-	Ground	0	0
11	WIFI_USB DP	Digital	I/O	WiFi USB interface positive	3.3 Vdc	2.5V eff.dc WiFi Sig (DP) 0.5V p-p
12	WIFI_USB DM	Digital	I/O	WiFi USB interface negative	0	2.5V eff.dc WiFi Sig (DM) 0.5V p-p
13	GND	Analog	-	Ground	0	0
14	VCC	Analog	I	DC +5V Power supply input	5 Vdc VCC	5 Vdc VCC
15	WIFI_WAKE UP	Digital	O	WiFi host wake up	3.3 Vdc	3.3 Vdc
16	WIFI_RESET	Digital	I	WiFi Block Reset	3.3 Vdc	3.3 Vdc



- Go to Menu/Support/Contact Samsung



- ✓ 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. 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**

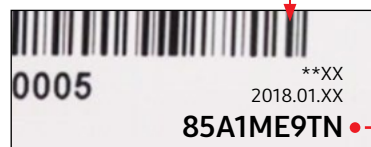
2. Change Each value according to the TV Model.

- Type, Local Set, SW Model, BOM Model** must be set to correct value.

- Sample Model : QN85Q900RAFXZA**

Type

- Check Panel label (located in the back chassis of panel) and choose same Type code from the list.



<Panel Label>

Home	Updates	Exit
Factory Reset		
Type	85A1ME9TN	
Local Set	US	
SW Model	QNQ900	
BOM Model	90RA	
TUNER	S_T2C	
Ch Table	NONE	
MRT Option		
Production Option		
Engineer Option		
55A1QU7QN	55L1QU7QN	
75L1QU7QN	55A1QU8XN	
55L1QU7QN	55A1QU7QN	
65A1MU9TN	85A1ME9TN	
65A1QU7QN	65L1QU7QN	
65A1QU8XN	65L1QU8XN	
55A6AU0NN	55L6AU0NN	

<Type list in the Factory Menu>

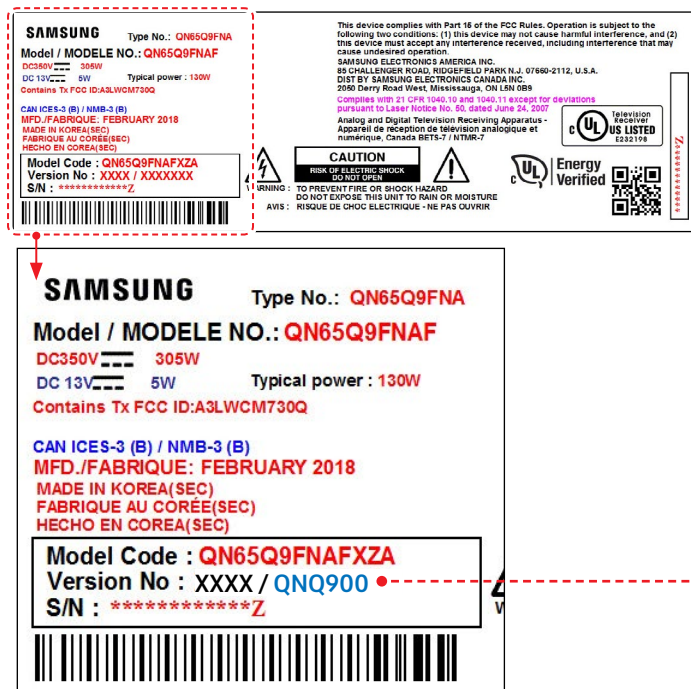
Local Set

- Set according to Local region(country).

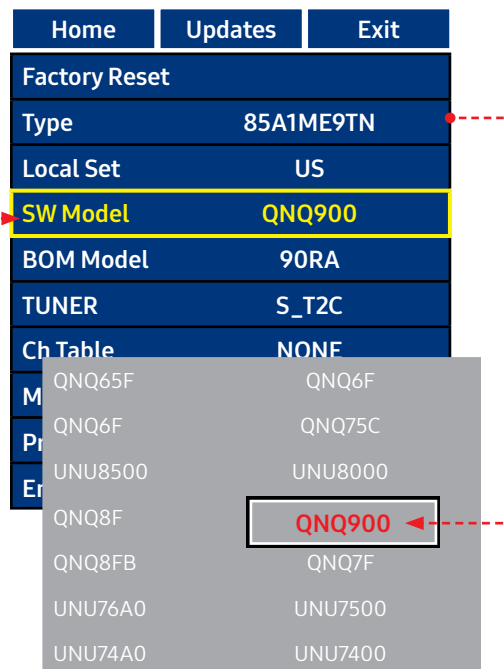
4. Troubleshooting

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.



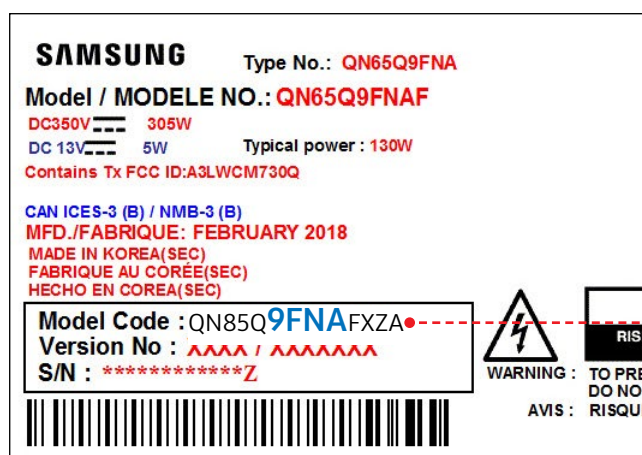
<"SW Model" in Label Rating>



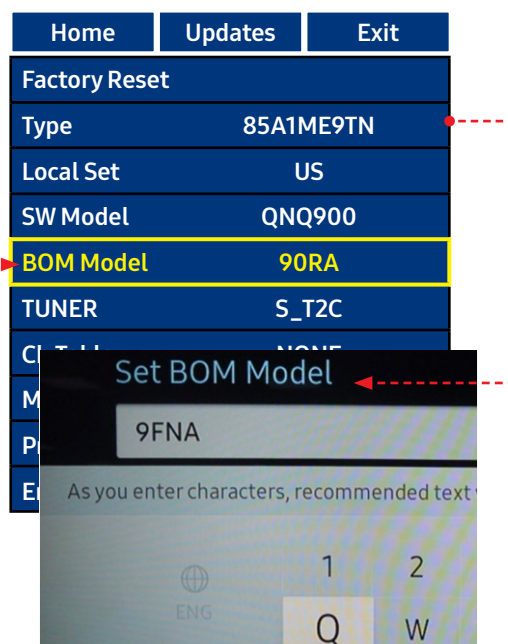
<SW Model list in the Factory Menu>

BOM Model

- 6th~9th Digit of Model Code.
 - Check 6th~9th digit of Model code and type in.
 - e.g.) Model Code : QN85Q**9FNA**FXZA then BOM Model : **90RA**



<"BOM Model" in Label Rating>



<BOM Model input in Factory Menu>

4-10. Factory Mode

■ Setting TV into Factory Mode



AA81-00243A

Factory Remote

1. Power TV ON.
2. Select TV Source.
3. **Info** → **Factory**.
4. Use **MENU** for return.

Samsung IR Remote

1. TV Power Standby.
2. Press as follows.

- Remote Button

NTSC **MUTE** → **1** → **8** → **2** → **POWER**

PAL **INFO** → **MENU** → **MUTE** → **POWER**

■ Important Items

- **Option** (must set Option Bytes when replacing Main Board.)
- Option → **Factory Reset** (returns TV to out of box condition. Does not reset Apps.)
 - **Factory Reset** : Select Factory Reset

Factory Reset	
Type	85A1ME9TN
Local Set	US
SW Model	QNQ900
BOM Model	90RA
TUNER	S_T2C
Ch Table	NONE

← Ex. Sample Model

- SVC → **Test Patterns**
- SVC → Info → **ER Count** (Important to check for errors.)
 - Resets to 0 with Factory Reset.

Setting Option Bytes

1. Enter Factory Mode with **Service Remote** (only).
2. Check Option Byte Table located on **GSPN** (Fast Track or Tips).
3. Select each item to change.
4. Soft power TV Off to load.

First Screen Appearing in Factory Mode

- Ex. Sample Model

MODE : DTV, RES : NOTSUPPORT

Home

Updates

Exit

Option

Control

Debug

SVC

ADC/WB

Advanced

T-KTM2AKUC-0824.20

T-KTM2OCTV-0043_D

T-KTM2OCIP-1030_D

TIZEN-4.0-MAIN2018-KantM2-RELEASE_20180224.2 (Debug)

BT Version : BLUETOOTH-VER-1302

E-Manual : KM2ATSCN-1.0.5

Blaster Version : A70304-U61001-170201

E-POP Version : KANTMUD-0.2.5

EDID FAIL

HDCP SUCCESS

CALIB : AV / COMP / PC / HDMI /

Option : 6SA1MU9TN,US,9FNA,NONE

DICP : Not Supported (0)

FRC-[KANT-M2 USIT](120Hz)[HW:07/01]

DIMMING-[DIRECT-30X16](04)

TCOM-[KANT-M2] FW[8914] DATA[N55ABUQM1B]

Model : QN65Q9FNA

Wired MAC SUCCESS

Wireless MAC SUCCESS

WiFi Version : 4.5.30.016.068.fw11

CO NI/ W/ MO D/ H2 PO AO O S/ N/ RO SC/ SIO WS/ DI/ UX I/ (P)

NSOO,0000000007000002,0000

Factory Data Ver: 18141 / Fixed Ver: 1804

EERC Version : 79 / WB Ver: 1

CPLD/LD : N/A

SmartControl : A7810300

Board Info : 2018/01/02/PR/PR/BN41-02634A

Factory Reset In Production : ----

SID : others

Date of purchase : 2/27/2018

QUICK TIPS:-

* Set value of HV Flip from shell prompt without launching factory app. For detail check Updates window

* Launch Factory:- "org.tizen.factory"

* Get value of any item from shell prompt without launching factory app. For detail check Updates window

* Launch Factory:- "org.tizen.factory"

* Set value of type localset and model from shell prompt along with factory reset:-
"launch_app org.tizen.factory type value
localset value model value"

* Use channel up/down to toggle items when at last depth

* Use arrow right/left to toggle values when at last depth

* Home button can be used to jump directly to home screen of factory app from any level

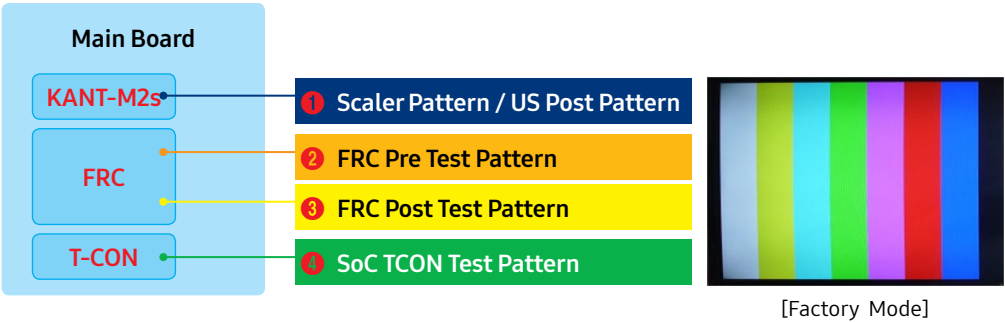
* Exit button can be used to Exit factory app without launching aging app

Slide Details

- Sample Model : QN65Q9FNAFXZA

Home	Updates	Exit		✓ Testing Items
Option			T-KTM2AKUC-XXXX.XX	✓ Micom Version
Control			T-KTM2OCTV-XXXX	✓ Sub Micom_TV
Debug			T-KTM2OCJP-XXXX	✓ Sub Micom_JP
SVC			TIZEN-4.0-17-COMMON-KantM2-RELEASE_XXXXXXXX.X	✓ Tizen
ADC/WB			BT VERSION : ****	✓ BT Version
Advanced			E-MANUAL : ****	✓ E-Manual
			Blaster Version : ****	✓ Blaster Version
			E-POP Version : ****	✓ E-Pop Version
			EDID SUCCESS	
			HDCP SUCCESS	
			CALIB : AV/COMP/PC/HDMI/	
			Option :--A1ME9TN,US, 90RA,NONE	
			DTCP : Not Supported (X)	
			FRC-[LUXE-O][120Hz][OC][HW:****]	
			DIMMING-[DIRECT-30X16][XX]	
			[LUXE-T]B[0001]FW[09000000A/F:0900000A]	
			MD[N75ABQ0F16/F:N75ABQ0F16]	
			SD[N75ABQ0F16/F:N75ABQ0F16]	
			Model : QN75Q90RA	
			Wired MAC SUCCESS	✓ Wired MAC Success
			Wireless MAC SUCCESS	✓ Wireless MAC Success
			WIFI Version : ****	
			CO Nf/ W/ M/ D/ H2 PO AO O SO N/ RO SC/ SiO WS/ DI/ UX I/ (T)	✓ CO Status ("O" Operational)
			NS//.1100	
			Factory Data Ver : ** / Fixde Ver : **	
			EERC Version : ** / WB Ver : **	
			CPLD/LD : N/A	
			SmartControl : ****	
			Board Info : ****/**/**/**/BN41-*****	
			Factory Reset in Production : ----	
			SID : ----	
			Date of purchase : --/--/----	

■ SVC ➤ Test Patterns



- 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".

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

■ SVC > Info > ER Count

WD Count	0	Serdes Error Count	2
AR Count	0	Serdes Reset Count	0
RS Count	1	Serdes WatchDog On/Off	OFF
WIFI NO DETECTION COUNT	3	AC Over-Voltage Detect	0
WIFI DETACHMENT COUNT	2	Vcc Fall Count	0
BT NO DETECTION COUNT	0	HDMI No Signal	
BT DETACHMENT COUNT	1	HDMI Blinking	
BT MGT OPEN FAIL COUNT	0	HDMI Color Space	
BT MGT DISCONNECT COUNT	0		
BT TV AUDIO DROP	0		
BT AUDIO TIMER EXP	0		
Camera ER Count			
FRC3D Emergency Reboot On/Off	ON		
FRC3D ER Count	0		
Fan Error Count	0		

- **WD Count:** Watch Dog (Hardware related issue).
- **AR Count:** Auto Reset (software (i.e. Apps) related).
- ✓ **important Error Count** Status Screen.
- Verify each item listed.

■ Factory Mode > Control > EDID

- 1. Remove ALL **HDMI** connections.
- 2. Factory Mode → Control → **EDID**. (→ **Enter** Key)

Option	EDID
Control	Sub Option
Debug	Hotel Option
SVC	Shop Option
ADC/WB	Asia Option
Advanced	Sound

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

EDID ON/OFF	ON
-------------	----

- 4. Select EDID WRITE ALL. (→ **Enter** Key)

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
----------------	---------

4-11. Factory Mode Adjustments

4-11-1. Entering Factory Mode

- To enter [Service Mode] press the remote-control keys in this sequence :

- With Consumer Remote (IR Remote)

✓ Remote Button :

NTSC POWER OFF → MUTE → 1 → 8 → 2 → POWER ON

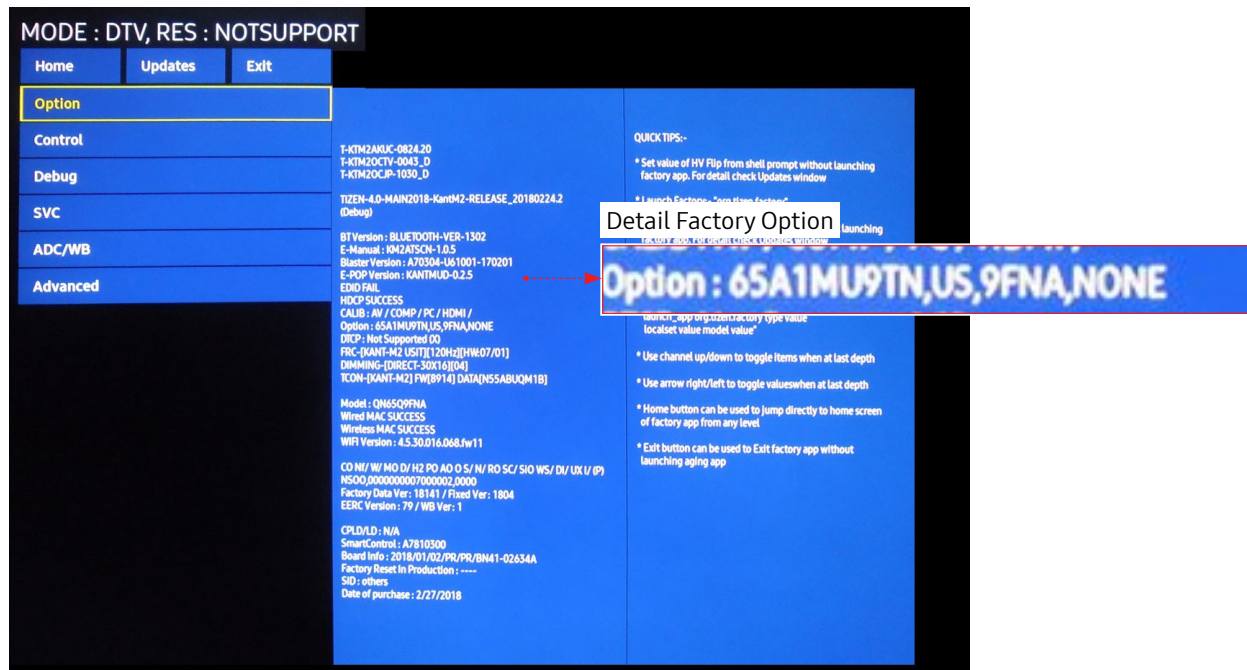
PAL POWER OFF → INFO → MENU → MUTE → POWER ON

- With Factory Remote

INFO → FACTORY

- The following screen appears.

- Please refer to "Detail Factory Option" page" for details.



4-11-2. 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**".

Model Name	QN85Q900	QN82Q900	QN75Q900	QN65Q900
Side Version	AA	FA	FA	FA
Type	85L1ME9TN	82A1ME9TN	75A1ME9TN	65A1ME9TN
Local set	US			
SW Model	QRQ900			
BOM Model	90RA			
TUNER	D_T2C			
Ch table	NONE			

Model Name		QN85Q900	QN82Q900	QN75Q900	QN65Q900
Panel	Side Version	AA	FA	FA	FA
	Vendor	AUO	SDC	SDC	SDC
	Code	BN95-05313A	BN95-05312A	BN95-05314A	BN95-05315A
	Spec	CY-EN085JLAV1V/H	CY-TN082JLLV1V/H	CY-TN075JLLV1V/H	CY-TN065JLLV1V/H
	Type	85L1ME9TN	82A1ME9TN	75A1ME9TN	65A1ME9TN
SMPS	Vendor	DYREL	DYREL	DYREL	SOLUM
	Code	BN44-00973A	BN44-00973A	BN44-00972A	BN44-00937A
	Spec	P650NQ_NDY	P650NQ_NDY	P480NQ_NDY	P400NQ_NSM

4-11-3. Factory Data

■ Option

Factory Menu Name	Data	Range
Factory Reset	-	
Type	85L1ME9TN	
Local set	US	
SW Model	QRQ900	
BOM Model	90RA	
TUNER	D_T2C	
Ch table	NONE	
MRT Option		
Engineer Option		

■ Control

Factory Menu Name	Data	Range
EDID		
EDID ON/OFF	OFF	
EDID WRITE ALL	...	
EDID WRITE HDMI	...	
EDID WRITE PC	...	
HDMI EDID Ver	...	
HDMI EDID Port	...	
Sub Option		
RS-232 Jack	UART	RS-232 mode setting
EXT Link Support	ON	
Serial Log On/Off	OFF	
Watchdog	ON	
Checksum	0x0000	
Fast Boot In Production	ON	
USB Serial	OFF	
ECO IC TYPE	NOT_DETECT	
COLOR IC TYPE	RISF315	
Info Link Server Type	operating	
Info Link Country	None	
TTX Group	UserOSD	
OPTION_SWU		
LMF LEAVE THRESHOLD	160	
LMF TRIM THRESHOLD	120	
LMF TERM THRESHOLD	80	

4. Troubleshooting

Factory Menu Name	Data	Range
FAnet Thread	2	
CI CPLD Version	1	
ACM_MC	ON	
UNIQUE TRIPLET	ON	
T-CON Device	LUXE-T	
SPI Protection		
FKP Server Type	Default	
Preloading Support	ON	
Multitasking Support	ON	
Browser preloading Support	FULL	
EXT IR Boot Support	ON	
APP BOOTING SUPPORT	ON	
Cloudscan Always Upload	OFF	
STB Power Sync Support	ON	
OOM Panic Burst Interval	60	
OOM Panic Burst Number	8	
Power off interval Reset	60	
APP Boot Support after Reset	1	
Long press Power off Reset	OFF	
Perf Mode	0	
Inhouse App upgrader	ON	
Hotel Option		
Hospitality Mode	OFF	
Power On		
Menu OSD		
Operation		
Music Mode		
External Source		
Eco Solution		
Cloning		
Shop Option		
Exhibition Mode	OFF	
Peak Mode	ON	
Metadata	ON	
Shopmode Picture Reset	ON	
Asia Option		
Unbalance	OFF	

Factory Menu Name	Data	Range
AF Level adjust	0	
TX Power Level	0	
Mono Last Memory	OFF	
H Shaking	0	
SOUND		
High Devi	OFF	If the broadcast signal is not good, TV will complement the characteristics of the signal (most use when weak signal comes from the growing area countries)
Carrier_Mute	OFF	If the noise comes from weakness-electromagnetic field, TV will be set Mute automatically (Only default on in North America)
Pilot Level High Thld	0x70h	The High threshold value of stereo signal(If Pilot level is greather than High threshold value, recognize Stereo signal)
Pilot Level Low Thld	0x20h	The Low threshold value of stereo signal(If Pilot level is less than Low threshold value, recognize Mono signal)
Amp Volume	0xc4h	
Amp Scale	0x3dh	
Amp EQ Check Sum	0x00003655	
Subwoofer Support	3	
Woofer Type	0	
Woofer Volume	0xc7h	
Woofer Scale	0x3dh	
Woofer Check sum	0x000074CA	
Woofer DRC Check sum	0x00000000	
PEQ Inx	198	
PEQ Test	Ready	
Speaker EQ	ON	
Amp Recoerty	ON	
Bottom Checksum	0x000053F3	
SPDIF PCM Gain	-9	
NTV CU Delay	NORMAL	
Lipsync Inx	45	
Lipsync Checksum	0x151E	
Lipsync USB Test	Ready	
Lipsync BT Checksum	0x0000	
TP volume	0xc4h	
TP Scale	0x35h	
TP EQ CheckSum	NONE	

■ Debug

Factory Menu Name	Data	Range
Spread Spectrum		
MAIN DDR SSC ON OFF	ON	
MAIN DDR SSC Value	0	
MAIN Vx1 SSC ON/OFF	OFF	
MAIN Vx1 SSC Value	1	
TCON-B DDR SSC ON/OFF	ON	
TCON-B DDR SSC Period	0	
TCON-B DDR SSC Modulation	0	
MAIN USIT SSC ON/OFF	BYPASS	
MAIN USIT SSC MF	0	
MAIN USIT SSC MR	0	
OCL Serdes SSC ON OFF	ON	
OCL Serdes SSC Value	0	
TCON-B USIT SSC ON/OFF	2	
TCON-B USIT SSC Period	0	
TCON-B USIT SSC Modulation	0	
8K Vx1 SSC Value	1	
8K DDR SSC Value	1	
8K EBUS SSC Value	1	
8K SSC ON/OFF	ON	
RF Mute Time	600ms	
Tuner Margin	3	European specifications
FRC		
FRC FDISPLAY ON/OFF	OFF	
PC Mode ON/OFF	OFF	
FRC VX1 RX EQ SETTING	OFF	
FRC VX1 TX Pre_emphasis setting	0	
Netflix OSD Threshold	179	
TCON		
TCON_TEMP READ	34	
TEMP LAST	6000	
DCC VERSION	0x0	
TCON Demura Bypass	OFF	
TCON FDisplay	OFF	
Panel Code 1	*****	
Panel Code 2	**	
Panel Revision	***	
Panel Menu Week	****	
Panel S/N 1	*****	
Panel S/N 2	**	
Panel S/N 3		
Panel S/N 4		
MPEG Margin	20	
H.264 Margin	15	

Factory Menu Name	Data	Range
Voice Debug	OFF	
Power Management		
Cert Option	Waiting	
RM_BIST_DTV	5	
RM_BIST_ATV	0	
RM_BIST_CABLE	29	
Stress Mode	OFF	
Log Analyzer	ON	
Error Popup On/Off	OFF	
DeadLock KILL	OFF	
CES Option	OFF	
CES Convergence Option	OFF	
CES ATSC 3_0	OFF	
CES OOB E MVPD SUPPORT	OFF	
BT DUT	OFF	
BT EU DUT		
BT Throughput	Failure	
Reproduce Module	ON	
21_9		
L-DETECT STABLE TIME	7	
L-DETECT UNSTABLE TIME	3	
L-DETECT USB SUPPORT	0	
DB Download		
MRT Option Dump	Failure	
Sub Option Dump	Failure	
Engineer Option Dump	Failure	
Picture Data Dump	Failure	
VCONF Dump	Failure	
Read Eco Sensor Data	0	
No Signal Power OFF	ON	
Default HDMI1 Booting	OFF	
Run EW	720h	

■ SVC

Factory Menu Name	Data	Range
Self Test(for HW)		the Output of test pattern from each IC
Info		
Reset		
Apps Reset		
SVC Reset		
SPI Flash Reset		
Data Sync Reset		
Factory Data Reset		

4. Troubleshooting

Factory Menu Name	Data	Range
OPTION_HDMI		
HOT PLUG DURATION	800ms	
HDMI FLT CNT SIG	0ms	
HDMI FLT CNT LOS	0ms	
HDMI MUTE TIME	0ms	
HDMI NFST UNMUTE TIME	600ms	
HdmiRx EQ	0	
HDMI TMDS ERR DET	1	
Auto EQ sweep	READY	
VMD OPT	0	
HdmiRx PLL_BW	0	
DVB CI		
TS Clock delay TC	0	
TS Clock delay S	0	
CI Control Buf ON	ON	
TS Clock delay CPU	2	
EW Diagnosis	Failure	
Test Pattern		
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	
Upgrade		
T-CON DATA UPGRADE		
T-CON FW UPGRADE		
T-CON CheckSum		
T-CON2 DATA UPGRADE		
T-CON2 FW UPGRADE		
T-CON2 CheckSum		
PANEL EEPROM UPGRADE		
PANEL FLASH UPGRADE		
Logic Usb D/L		
SUBMICOM UPGRADE		Upgrade Sub-Micom Program
SUBMICOM JP USB UPGRADE		
BT UPGRADE		
BT FREEPAIRING		

Factory Menu Name	Data	Range
Function Upgrade		
FRC3D FW UPGRADE		
FRC3D SRP UPGRADE		
FRC3D LD UPGRADE		
FRC2 3D FW UPGRADE		
Camera Upgrade		Upgarde Camera module(There is upgrade program in Main-Image)
Mic Upgrade		Upgarde MIC in Camera module(There is upgrade program in Main-Image)
Jump UPGRADE		
IR Blaster Upgrade		
Pic Data USB Update		
Audio Data USB Update		
Eco Data USB Update		
SC ADK Upgrade		
Other Setting		
Delete S/N		
IPERF	Stopped	
Expert		
CAL Data Backup	...	
CAL Data Restore		
MICOM POWER OFF	ON	
NTV CU FW VER	0	
ATV IF AGC SPEED	0	
Upgrade UHD OSD Test	0	
Main USB Path		
JackP USB Path		
Apps Update		
Picture Direct	OFF	
Source Banner Hide	OFF	
Auto Detection Group	0	
V APP	OFF	
SWI	OFF	
KantS Cutoff PEQ	0	
Restart No	3	
SVC Panel	ORIGINAL	
S/N		
Serial number		
Writing S/N		

■ ADC/WB

Factory Menu Name	Data	Range
ADC		
AV Calibaration		
Comp Calibration		
PC Calibration		
HDMI Calibration		7

4. Troubleshooting

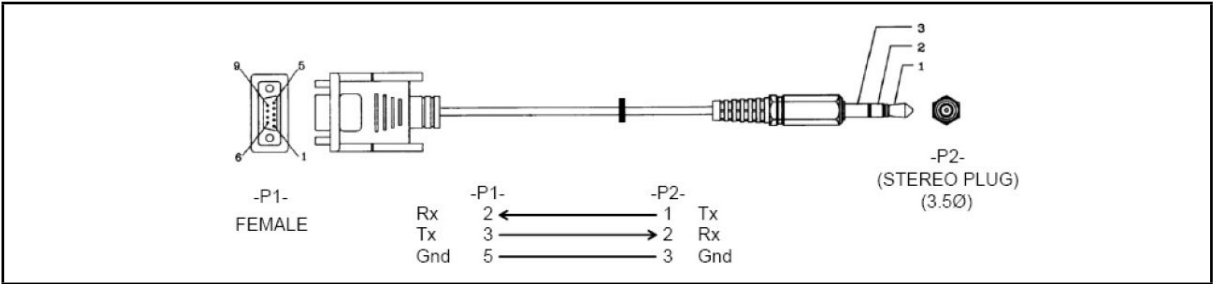
Factory Menu Name	Data	Range
ADC Result		
1st_Y_GH	0	
1st_Y_GL	0	
1st_Cb_BH	0	
1st_Cb_BL	0	
1st_Cr_RH	0	
1st_Cr_RL	0	
2nd_R_L	128	
2nd_G_L	128	
2nd_B_L	128	
2nd_R_H	69	
2nd_G_H	69	
2nd_B_H	69	
White Balance		
R-Offset	128	
G-Offset	128	
B-Offset	128	
R-Gain	128	
G-Gain	128	
B-Gain	128	
WB_W2_R_Offset	128	
WB_W2_B_Offset	128	
WB_W2_R_Gain	143	
WB_W2_B_Gain	80	
WB_N_R_Offset	128	
WB_N_B_Offset	128	
WB_N_R_Gain	132	
WB_N_B_Gain	120	
MGA		
MGA On/Off	OFF	
R1_Gain	512	
G1_Gain	512	
B1_Gain	512	
R2_Gain	512	
G2_Gain	512	
B2_Gain	512	
R3_Gain	512	
G3_Gain	512	
B3_Gain	512	
R4_Gain	512	
G4_Gain	512	
B4_Gain	512	
R5_Gain	512	
G5_Gain	512	
B5_Gain	512	
R6_Gain	512	

Factory Menu Name	Data	Range
G6_Gain	512	
B6_Gain	512	
R7_Gain	512	
G7_Gain	512	
B7_Gain	512	
R8_Gain	512	
G8_Gain	512	
B8_Gain	512	
R9_Gain	512	
G9_Gain	512	
B9_Gain	512	
R10_Gain	512	
G10_Gain	512	
B10_Gain	512	
SPI White Balance		
SPI White Balance On/Off	OFF	
SPI R-Offset	0	
SPI G-Offset	0	
SPI B-Offset	0	
SPI R-Gain	0	
SPI G-Gain	0	
SPI B-Gain	0	
SPI N Rgain	0	
SPI N Bgain	0	
SPI N Roffset	0	
SPI N Boffset	0	
SPI W2 Rgain	0	
SPI W2 Bgain	0	
SPI W2 Roffset	0	
SPI W2 Boffset	0	
SPI MGA	0	
WB Data to SPI	0	

■ Advanced

4-12. RS-232C

- **RS232C Control**
 - Port : COM#(Serial)
 - Baud rate : 9600
 - Data Bit : 8 bit
 - Parity : None
 - Stop Bits : 1
 - Flow Control : None



- Description of RS232C

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

4-13. AV Control Tab

Control Item				Cmd1	Cmd2	Cmd3	Value
General	Power	Power		0x00	0x00	0x00	0x00
		Off					0x01
		On					0x02
	Volume	Direct		0x01	0x00	0x00	(0~100)
		Up				0x01	0x00
		Down				0x02	0x00
	Mute			0x02	0x00	0x00	0x00
	Ch.	Direct		0x04	-		
		Continuous	Up	0x03	0x00	0x01	0x00
			Down			0x02	0x00
Input	Source List	TV		0x0a	0x00	0x00	0x00
		AV	AV1			0x01	0x00
			AV2				0x01
			AV3				0x02
		S-Video	S-Video1			0x02	0x00
			S-Video2				0x01
			S-Video3				0x02
		Component	Component1			0x03	0x00
			Component2				0x01
			Component3				0x02
		PC	PC1			0x04	0x00
			PC2				0x01
			PC3				0x02
		HDMI	HDMI1			0x05	0x00
			HDMI2				0x01
			HDMI3				0x02
			HDMI4				0x03
		DVI	DVI1			0x06	0x00
			DVI2				0x01
			DVI3				0x02
		RVU	RVU			0x07	0x00
PICTURE	Mode	Dynamic(Entertain)		0x0b	0x00	0x00	0x00
		Standard					0x01
		Movie					0x02
		Natural					0x03
		CAL-NIGHT					0x04
		CAL-DAY					0x05
		BD Wise					0x06
		Relax					0x07

Control Item			Cmd1	Cmd2	Cmd3	Value
PICTURE	BackLight(CellLight)			0x01	0x00	(0~20)
	Contrast			0x02	0x00	(0~100)
	Brightness			0x03	0x00	(0~100)
	Sharpness			0x04	0x00	(0~100)
	Color			0x05	0x00	(0~100)
	Tint	G/R		0x06	0x00	(0~100)
	Advanced Settings	Black Tone	Off	0x07	0x00	0x00
			Dark			0x01
			Darker			0x02
			Darkest			0x03
		Dynamic Contrast	Off		0x01	0x00
			Low			0x01
			Medium			0x02
			Hlgh			0x03
		Gamma	-3 ~ 3		0x03	(-3~3)
		RGB Only Mode	Off		0x05	0x00
			Red			0x01
			Green			0x02
			Blue			0x03
		Color Space	Auto		0x06	0x00
			Native			0x01
			Custom			0x02
		White Balance	R-Offset(LCD)		0x07	(-50~50)
		White Balance	G-Offset(LCD)		0x08	(-50~50)
		White Balance	B-Offset(LCD)		0x09	(-50~50)
		White Balance	R-Gain(LCD)		0x0a	(-50~50)
		White Balance	G-Gain(LCD)		0x0b	(-50~50)
		White Balance	B-Gain(LCD)		0x0c	(-50~50)
		White Balance	Reset(LCD)		0x0d	0x00
		Flesh Tone	-15 ~ 15		0x0e	(-15~15)
		xvYCC	Off		0x10	0x00
			On			0x01
		Motion Lighting	Off		0x11	0x00
			On			0x01
		Color Space Custom Color	Red		0x12	0x00
			Green			0x01
			Blue			0x02
			Yellow			0x03

Control Item				Cmd1	Cmd2	Cmd3	Value
PICTURE			Cyan				0x04
			Magenta				0x05
		Color Space Custom Color Red Value	0~100			0x13	0~100
		Color Space Custom Color Green Value	0~100			0x14	0~100
		Color Space Custom Color Blue Value	0~100			0x15	0~100
		Reset				0x16	0x00
		LED Motion Plus	Off		0x0a	0x07	0x00
			On(Normal)				0x01
			Cinema				0x02
			Ticker				0x03
		10p White Balance	Off		0x0e	0x00	0
			On			0x00	1
			Red		0x0f	(1~10)	(-50~50)
			Green		0x10	(1~10)	(-50~50)
			Blue		0x11	(1~10)	(-50~50)
			Reset		0x12	0	(1~10)
			10 Point		0x13	0x00	0x00
			Interval		0x14	0x00	0x00
	Picture Option	Color Tone	Cool		0x0a	0x00	0x00
			Standard				0x01
			Warm1				0x02
			Warm2				0x03
		Digital Noise Filter	Off			0x02	0x00
			Low				0x01
			Medium				0x02
			High				0x03
			Auto				0x04
			Auto Visualization				0x05
		MPEG Noise Filter	Off			0x03	0x00
			Low				0x01
			Medium				0x02
			High				0x03
			Auto				0x04
		HDMI Black Level	Normal			0x04	0x00
			Low				0x01

Control Item				Cmd1	Cmd2	Cmd3	Value
PICTURE		Film Mode	Off			0x05	0x00
			Auto1				0x01
			Auto2				0x02
			Cinema Smooth				0x03
		Auto Motion Plus	Off			0x06	0x00
			Clear				0x01
			Standard				0x02
			Smooth				0x03
			Custom				0x04
		Blur Reduction				0x07	value
		Judder Reduction				0x08	value
		LED Clear Motion				0x09	Off
		Reset				0x10	0x00
		HDMI UHD Color	Off			0x11	0x00
			On				0x01
		Analog Clean View	On			0x12	0x00
			Off				0x01
	Screen Adjustment	Picture Size	16:9	0x0c	0x0a	0x01	0x00
			Zoom1				0x01
			Zoom2				0x02
			Wide Fit				0x03
			4:3				0x04
			Screen Fit				0x05
			Smart View I				0x06
			Smart View II				0x07
			Auto Wide				0x08
			Wide Zoom				0x09
			Zoom				0x0a
		Fit to Screen	Off		0x0b	0x00	0x00
		Zoom	Zoom1		0x0c	0x00	0x00
			Zoom2				0x01
			Zoom3				0x02
			Zoom4				0x03
		Position	Position1			0x01	0x00
			Position2				0x01
			Position3				0x02
			Position4				0x03
		Reset			0x0d	0x00	0x00

Control Item				Cmd1	Cmd2	Cmd3	Value
PICTURE	Reset Picture	Reset Picture		0x0d	0x0b	0x00	0x00
	Factory-SVB	Expert-N/D Adj	On	0x0b	0x0d	0x00	0x00
			Off				0x01
			Fix				0x02
	Apply Picture Mode	All Sources		0x0f	0x00	0x00	0x00
		Current Source					0x01
	Pip	Pip	Off	0x11	0x00	0x00	0x00
			On				0x01
		Antenna	Cable			0x01	0x00
			Air				0x01
		Channel	DTV Cable			0x02	0x00
			DTV Terrestrial				0x01
		Size	Size1			0x03	0x00
			Size2				0x01
			Size3				0x02
			Size4				0x03
		Position	Position1			0x04	0x00
			Position2				0x01
			Position3				0x02
			Position4				0x03
		Sound Select	Main			0x05	0x00
			Sub				0x01
		Picture Off			0x12	0x00	0x00
Sound		Sound Mode	Standard		0x0c	0x00	0x00
	Music					0x01	
	Movie					0x02	
	Clear Voice					0x03	
	Amplify					0x04	
	Equalizer	Balance			0x01	0x00	(0~20)
		100hz				0x01	(0~20)
		300hz				0x02	(0~20)
		1khz				0x03	(0~20)
		3khz				0x04	(0~20)
		10khz				0x05	(0~20)
		Reset				0x06	0x00
	SRS TruSurround HD (internalization)	Off			0x02	0x00	0x00
	Virtual Surrond (externalization)	On					0x01

Control Item			Cmd1	Cmd2	Cmd3	Value
Sound	SRS TruDialog (internalization)	Off		0x03	0x00	0x00
	Dialog Clarify (externalization)	On				0x01
	Preferred Language	English		0x04	0x00	0x00
		Spanish				0x01
		French				0x02
		Korean				0x03
		Japanese				0x04
	Multi-Track Sound	Mono		0x05	0x00	0x00
		Stereo				0x01
		SAP				0x02
	Auto Volume	Off		0x06	0x00	0x00
		Normal				0x01
		Night				0x02
	Speaker Select	TV Speaker		0x07	0x00	0x00
		External Speaker				0x01
		Audio Out				0x01
	Sound Select	Main		0x08	0x00	0x00
		Sub				0x01
	Sound Reset	Sound Reset		0x09	0x00	0x00
	3D Audio	Off		0x0a	0x00	0x00
		Low				0x01
		Medium				0x02
		High				0x03
	Auto Stereo	Manual		0x0b	0x00	0x00
		Auto				0x01
	TV Installation Type	Stand		0x0c	0x00	0x00
		Wallmount				0x01
	Audio Delay	Dealy Value (0~250)		0x0d	0x00	0~250 (0x00~0xFA)
	SRS CS Headphone	Off		0x0e	0x00	0x00
	Balance			0x0f	0x00	0x00
	Add New Device	On		0x10	0x00	0x00
		Off				0x01
	Audio Multi-Output	Off		0x11	0x00	0x00
	Multiroom Link Settings	Multiroom		0x12	0x00	0x00
	HDMI Audio Input Format	Bitstream		0x13	0x00	0x00
		PCM				0x01

Control Item			Cmd1	Cmd2	Cmd3	Value
	Audio Format	PCM		0x14	0x00	0x00
		Dolby Digital				0x01
		DTS				0x02
		DTS Neo 2:5				0x03
		AAC/HEAAC				0x04
Sound	Dolby Digital Comp	RF		0x15	0x00	0x01
		Off		0x16	0x00	0x00
	HD Audio	On				0x01
KEY	Key Generation		0x0d	0x00	0x00	Refer to next table
OSD	Show/Hide Control	Show	0x0e	0x00	0x00	0x00
		Hide				0x01
Get Status	Power (On/Off)		0xf0	0x00	0x00	0x00
	Volume(0~100)		0xf0	0x01	0x00	0x00
	Mute (On/Off)		0xf0	0x02	0x00	0x00
	Channel Number		0xf0	0x03	0x00	0x00
	Source (TV/AV/.../HDMI/...)		0xf0	0x04	0x00	0x00
	Picture Size		0xf0	0x05	0x00	0x00
	3D (On/Off)		0xf0	0x06	0x00	0x00
	Picture Mode		0xf0	0x07	0x00	0x00
	Sound Mode		0xf0	0x08	0x00	0x00

* Refer for Table

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

4-14. Updating the TV's Software

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

-  >  [Settings](#) > [Support](#) > [Software Update](#)

4-14-1. Updating the TV's software to the latest version



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.

■ Updating through the Internet

-  >  [Settings](#) > [Support](#) > [Software Update](#) > [Update Now](#)

- Updating from the Internet requires an active Internet connection.

■ Updating through a USB device

-  >  [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 flash drive, 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.

4-14-2. Updating the TV automatically

-  >  [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.