



LED TV

Chassis : U86B

Model : UA19F4000AR

UA28F4000AR

UA28F4100AR

UA22F5000AR

UA22F5100AR

SERVICE Manual

LED TV



UA22F5000AR

Contents

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2. Product specifications
3. Disassembly and Reassembly
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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



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

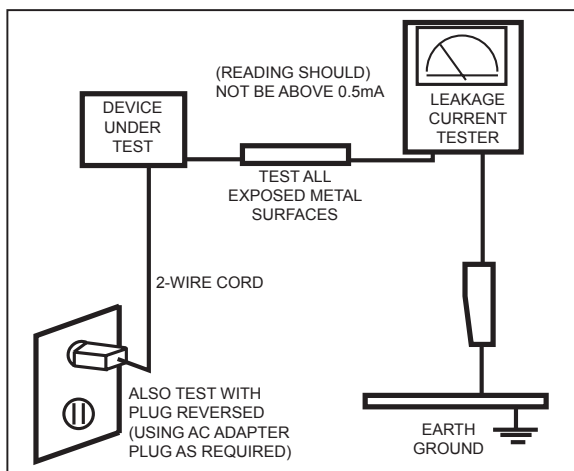
1-1-2. Servicing the LED TV

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 resistor/capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check:




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.

1-2. Servicing Precautions



An electrolytic capacitor installed with the wrong polarity might explode.



Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.



If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

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 the blades 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.



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 (0.4m) between the product and the wall for ventilation purposes. A rise in temperature within the product may cause fire.


2. Product Specifications

2-1. Product Information

2-1-1. Model Comparison

Model	UA22F5000AR / UA22F5100AR		
Front View	 <p>* W : Width H : High D : Depth</p>		
Detail View			
Front Color	Black (Panel)		
Dimensions (W x H x D)	22"	Set with Stand	513.1 x 366.5 x 169.6 mm / 20.2 x 14.4 x 6.7 inches
		Set without Stand	513.1 x 321.5 x 43.8 mm / 20.2 x 12.7 x 1.7 inches
Weight	22"	Set with Stand	2.9 kg / 6.4 lbs
		Set without Stand	2.6 kg / 5.7 lbs
Panel Type	Anti Glare		
Internal Memory	128 Mbyte		
DDR	256 Mbyte		
Feature	Media Play, Magic Angle		

2. Product specifications

Model	UA**F4000AR / UA**F4100AR		
Front View			
Detail View			
Front Color	Black (Panel)		
Dimensions (W x H x D)	19"	Set with Stand	453.7 x 314.2 x 151.4 mm / 17.9 x 12.4 x 6.0 inches
		Set without Stand	453.7 x 281.3 x 49.5 mm / 17.9 x 11.1 x 1.9 inches
	28"	Set with Stand	645.0 x 435.6 x 252.6 mm / 25.4 x 17.1 x 9.9 inches
		Set without Stand	645.0 x 384.9 x 49.5 mm / 25.4 x 15.2 x 1.9 inches
Weight	19"	Set with Stand	2.6 kg / 5.7 lbs
		Set without Stand	2.5 kg / 5.5 lbs
	28"	Set with Stand	4.7 kg / 10.4 lbs
		Set without Stand	4.2 kg / 9.3 lbs
Panel Type	Anti Glare		
Internal Memory	128 Mbyte		
DDR	256 Mbyte		
Feature	Media Play, Magic Angle(19°)		

2-1-2. Feature & Specifications

Model	UA22F5000AR / UA22F5100AR	
Feature		
<ul style="list-style-type: none">• Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V(Common Use for Component Y), 1-USB2.0, Headphone• Brightness : 250 cd/m²• Dynamic Contrast Ratio : Mega DCR• Response Time : 6.5 ms• CMR : 100		
Specifications		
Item	Description	
LCD Panel	21.5 inch FHD 60Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1920 Pixels Vertical : 1080 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	476.6(H) X 268.1(V) (mm) / 18.8(H) X 10.6(V) (inches)	
AC Power Voltage & Frequency	AC 110V ~ 240V, 50/60 Hz	
Power Consumption	35 W (Under 0.3 W, Stand by), (DC 14V)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	513.1 x 366.5 x 169.6 mm / 20.2 x 14.4 x 6.7 inches
	Set without Stand	513.1 x 321.5 x 43.8 mm / 20.2 x 12.7 x 1.7 inches
Weight	Set with Stand	2.9 kg / 6.4 lbs
	Set without Stand	2.6 kg / 5.7 lbs
TV System	Tuning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	PAL , SECAM , NT4.43, NT3.58
	Sound	PAL-B/G/I/D/K, Dolby Digital Plus/Pulse

2. Product specifications

Specifications	
Item	Description
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Storage Humidity : 5% ~ 95%, non-condensing
Audio Specifications	MAX Internal Audio Output Power : Each 3 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">• RF : 20 Hz ~ 15.4 kHz• AV/Componet/HDMI : 20 Hz ~ 20 kHz
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving, Eco sensor, Magic Angle	

Model	UA19F4000AR	
Feature		
<ul style="list-style-type: none">• Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V(Common Use for Component Y), 1-USB2.0, Headphone• Brightness : 250 cd/m²• Dynamic Contrast Ratio : Mega DCR• Response Time : 6.5 ms• CMR : 100		
Specifications		
Item	Description	
LCD Panel	18.5 inch HD 60Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1366 Pixels Vertical : 768 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	409.8(H) X 230.4(V) (mm) / 16.1(H) X 9.1(V) (inches)	
AC Power Voltage & Frequency	AC 110V ~ 240V, 50/60 Hz	
Power Consumption	35 W (Under 0.3 W, Stand by), (DC 14V)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	453.7 x 314.2 x 151.4 mm / 17.9 x 12.4 x 6.0 inches
	Set without Stand	453.7 x 281.3 x 49.5 mm / 29.1 x 11.1 x 1.9 inches
Weight	Set with Stand	2.6 kg / 5.7 lbs
	Set without Stand	2.5 kg / 5.5 lbs
TV System	Tuning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	PAL , SECAM , NT4.43, NT3.58
	Sound	PAL-B/G/I/D/K, Dolby Digital Plus/Pulse

2. Product specifications

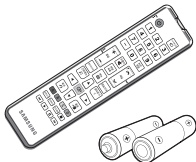


Specifications	
Item	Description
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Storage Humidity : 5% ~ 95%, non-condensing
Audio Specifications	MAX Internal Audio Output Power : Each 3 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">• RF : 20 Hz ~ 15.4 kHz• AV/Componet/HDMI : 20 Hz ~ 20 kHz
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving, Magic Angle	

Model	UA28F4000AR / UA28F4100AR	
Feature		
<ul style="list-style-type: none">• Digital-TV, RF, 2-HDMI, 1-Component, 1-A/V(Common Use for Component Y), 1-USB2.0, Headphone• Brightness : 250 cd/m²• Dynamic Contrast Ratio : Mega DCR• Response Time : 6.5 ms• CMR : 100		
Specifications		
Item	Description	
LCD Panel	27.5 inch HD 60Hz	
Scanning Frequency	Horizontal : 60 kHz ~ 73 kHz (Automatic) Vertical : 47 Hz ~ 63 Hz (Automatic)	
Display Colors	16.7M colors	
Maximum Resolution	Horizontal : 1366 Pixels Vertical : 768 Pixels	
Input Signal	Analog 0.7 Vp-p ± 5% positive at 75Ω, internally terminated	
Input Sync Signal	H/V Separate, TTL, P. or N.	
Maximum Pixel Clock Rate	74.25 MHz	
Active Display (H x V)* * Horizontal x Vertical	607.5(H) X 345.0(V) (mm) / 23.9(H) X 14.1(V) (inches)	
AC Power Voltage & Frequency	AC 110V ~ 240V, 50/60 Hz	
Power Consumption	46 W (Under 0.3 W, Stand by), (AC 220-240V, 50/60Hz)	
	47 W (Under 0.3 W, Stand by), (AC 100-240V, 50/60Hz)	
Dimensions Set (W x H x D)* * Width x High x Depth	Set with Stand	645.0 x 435.6 x 252.6 mm / 25.4 x 17.1 x 9.9 inches
	Set without Stand	645.0 x 384.9 x 49.5 mm / 25.4 x 15.2 x 1.9 inches
Weight	Set with Stand	4.7 kg / 10.4 lbs
	Set without Stand	4.2 kg / 9.3 lbs
TV System	Tuning	Frequency Synthesize (Refer to detailed Frequency Table)
	System	PAL , SECAM , NT4.43, NT3.58
	Sound	PAL-B/G/I/D/K, Dolby Digital Plus/Pulse

2. Product specifications

Specifications	
Item	Description
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10% ~ 80%, non-condensing Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Storage Humidity : 5% ~ 95%, non-condensing
Audio Specifications	MAX Internal Audio Output Power : Each 3 W(Left/Right) Equalizer : 5 Band Output Frequency : <ul style="list-style-type: none">• RF : 20 Hz ~ 15.4 kHz• AV/Componet/HDMI : 20 Hz ~ 20 kHz
Note : Dolby Digital Plus/Pulse, USB2.0, Film mode, Energy Saving	

2-2. Accessories

Product	Description	Code. No	Remark
	Remote Control & Batteries (AAA x 2)	AA59-00802A	Samsung Electronics Service center
	Power Cord	3903-000843	
	Owners Manual	BN68-04789A	

3. Disassembly and Reassembly

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



This LED TV contains electrostatically sensitive devices. Use caution when handling these components.

3-1. Disassembly and Reassembly

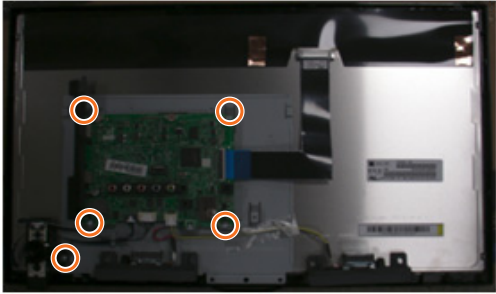

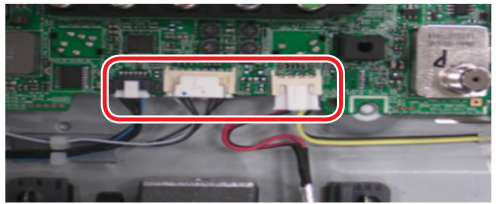
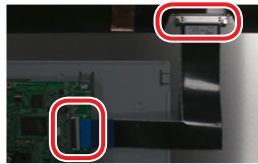
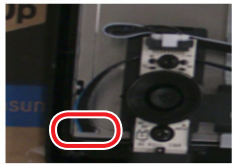



1. Disconnect the LED TV from the power source before disassembly.
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.
3. If there is no additional coment, it is same for all inches.

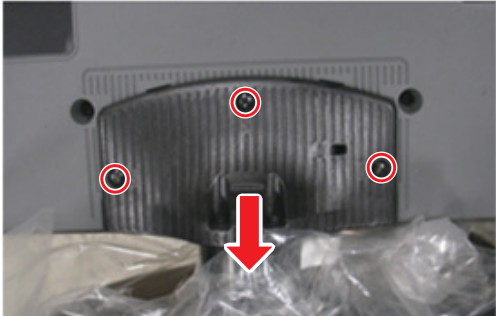

■ UA22F5000AR

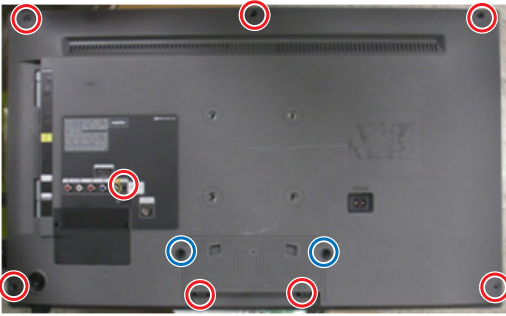


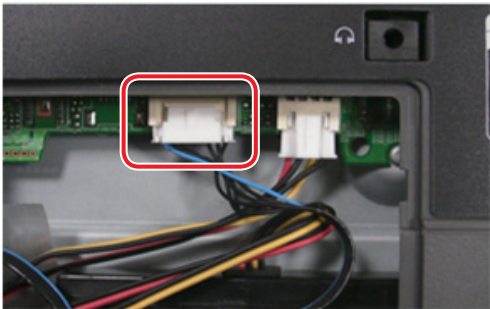

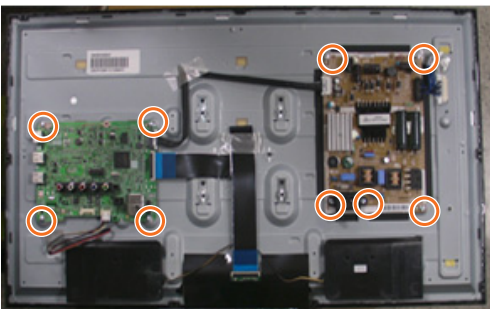

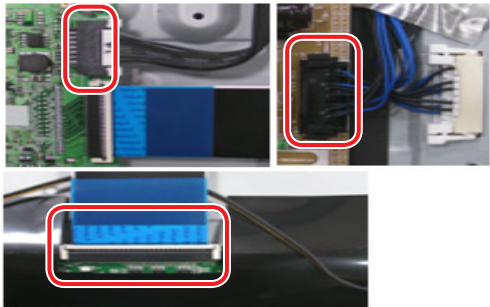
Description	Picture Description	Screws
1 Place TV face down on cushioned table.		
2 Remove 5 screws of Rear Cover.		 6003-001782
3 Remove the Rear Cover.		

3. Disassembly and Reassemble


Description	Picture Description	Screws
4 Remove 5 screws of Main Board and Function Assy.		 6001-003016
5 Remove the Speakers, Function Assy Cable, LVDS Cable and BackLight Cable.	  	
6 Completed disassembly.		

■ UA28F4000AR

Description	Picture Description	Screws
1 Place TV face down on cushioned table.		
2 Remove 3 screws from the Stand and Remove Stand.		 6003-001782

Description	Picture Description	Screws
3 Remove 10 screws of Rear Cover.		 6003-001782  6003-002755
4 Remove the Cover Jack and Function Assy Cable		
5 Remove the Rear Cover.		
6 Remove 9 screws of Main Board and Power Board.		 6001-003016
7 Remove the Speakers, Power Cables, LVDS Cable and Panel Drive Cable.		

3. Disassembly and Reassemble

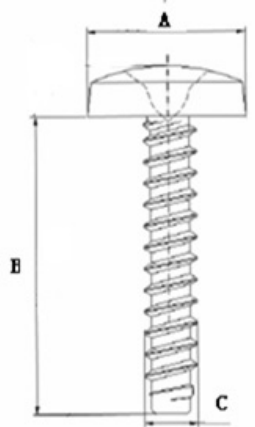
Description	Picture Description	Screws
8 Completed disassembly.		



NOTE

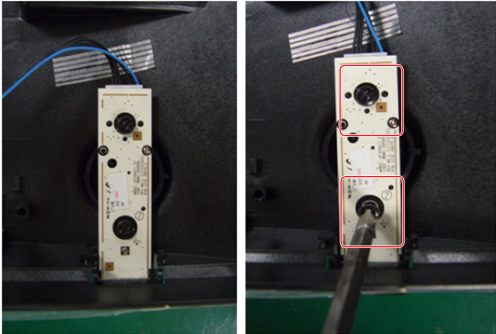
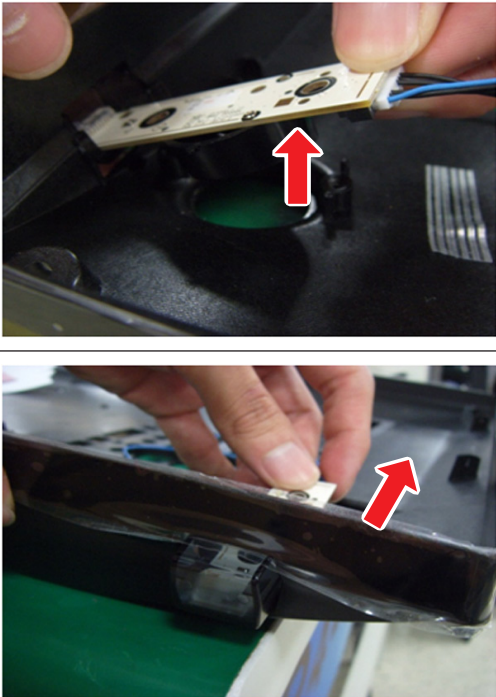
Reassembly procedures are in the reverse order of disassembly procedures.

■ Screw Size

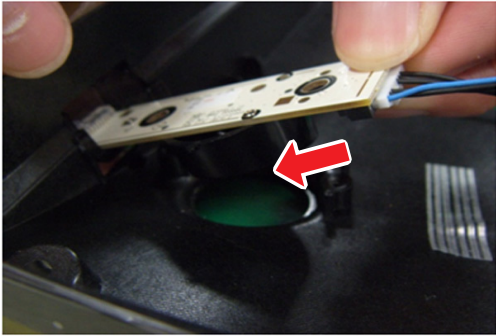
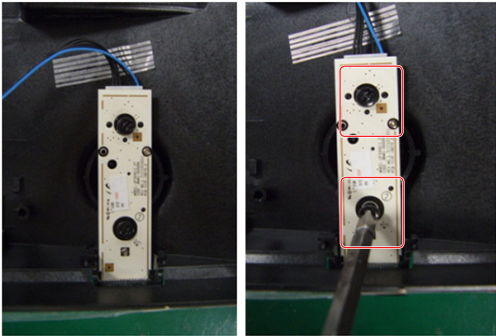
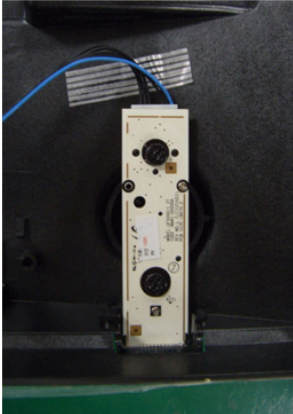
Code No.	COLOR	A (mm)	B (mm)	C (mm)	Q'ty	Screw Image
6003-001782	BLACK	7.80~8.30	11.20~12.00	3.81~3.91	19" : 5EA 22" : 5EA 28" : 7EA	
6001-003016	WHITE	7.1~7.5	4.7~5.0	2.92 ~ 2.98	19" : 4EA 22" : 5EA 28" : 9EA	
6003-000115	BLACK	5.8~6.3	5.5~6.0	2.95~3.05	19" : 2EA 28" : 2EA	

3-2. Assy Board P-Jog Switch & Ir

■ How to disassembly

Description	Picture Description	Refer
1 Loosen 2 screws.		
2 Pull out a jog function.		

■ How to assembly


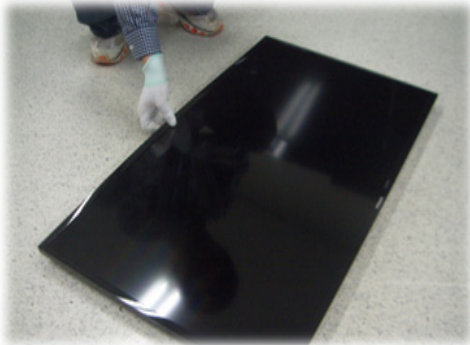

Description	Picture Description	Refer
1 Insert a jog function.		
2 Put 2 screws.		
3 Press the function assy into the cabinet until locked		

When you want to ignore the funtion key actions



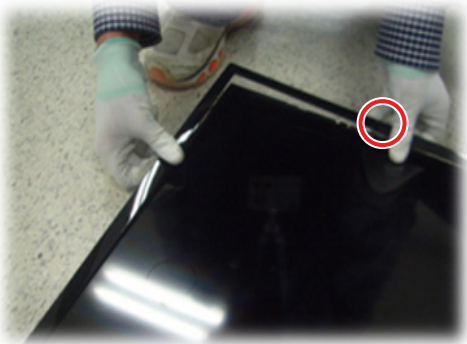
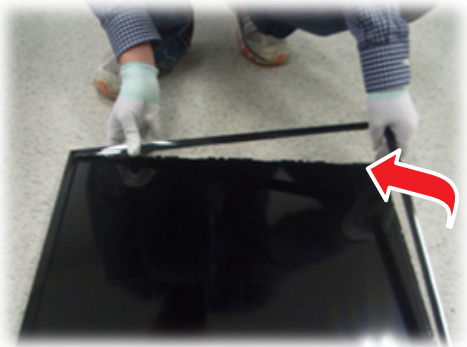
Option	Engineer Option	Type of PANEL KEY	5 way : IR + Key ➡ [Default] Old : Touch Function (C model) Key IR Only : Do not work Function key
Control			
Debug			
SVC			
ADC/WB			
Advanced			





3-3. Disassembly(PTC)

■ How to disassembly



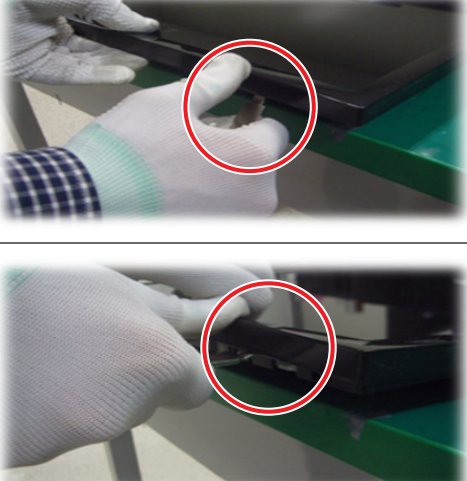
Description	Picture Description	Refer
1 Place TV face up on cushioned table.		
2 Products at the top of the central TOP-CHASSIS is rotated by 45 degrees outward and pulls.		
		

3. Disassembly and Reassemble

Description	Picture Description	Refer
3 Pull in the same way from the center of the top.		
		
4 Pull the left part of the product as shown while holding the raised portion on figure 3.		
5 Pull the bottom part of the product as figure 2 while holding the raised portion on figure 4.		

Description	Picture Description	Refer
<div data-bbox="177 293 686 347">6 As shown in the picture, Lift the bottom of the TOP-CHASSIS.</div>		
		
<div data-bbox="177 1084 691 1137">7 Pull the products at the bottom of the right side of the chassis.</div>		
		

3. Disassembly and Reassemble

Description	Picture Description	Refer
<p>8 Lift the bottom of the chassis with one hand and holding the bottom of the product after you pull the right side of the product chassis.</p>		
<p>9 Disassembly is complete.</p>		
<p>! CAUTION To use JIG : Does not lift the chassis by hand, JIG using the lift.</p>		



NOTE

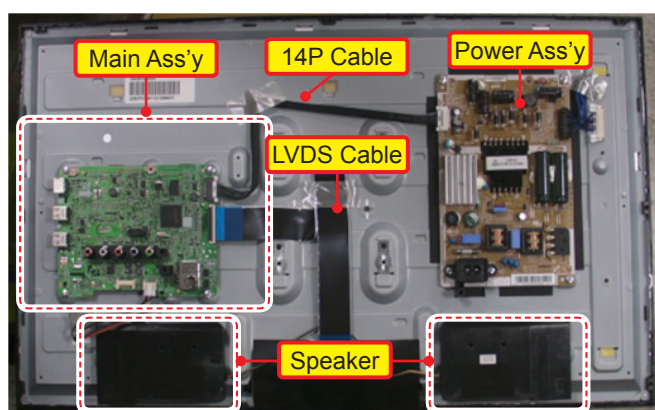
Reassembly procedures are in the reverse order of disassembly procedures.

4. Troubleshooting

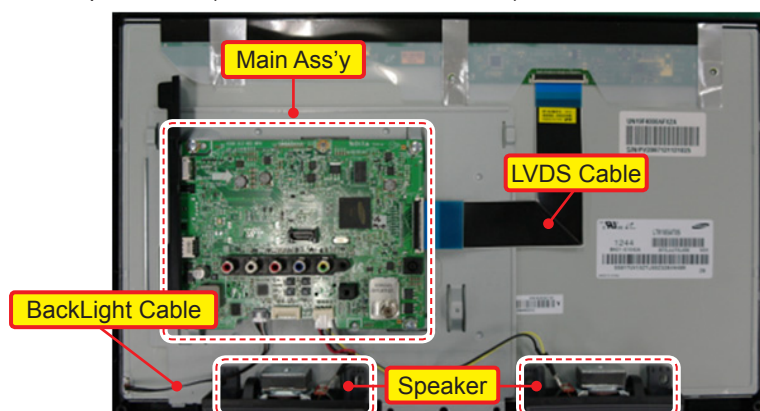
4-1. Troubleshooting

■ Previous Check

1. Check the various cable connections first.
 - Check to see if there is a burnt or damaged cable.
 - Check to see if there is a disconnected or loose cable connection.
 - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Main Board.
 - SMPS Model (UA28F4000A)



- Adaptor Model (UA19F4000A/UA22F5000A)



Main Board Assy (CN201)			
13	B13V	14	PWM_DIM
11	B13V	12	B13V
9	B13VS	10	SW_INV
7	B13VS	8	GND
5	GND	6	GND
3	B5.3V	4	A5.3V
1	B5.3V	2	SW_PW

Power Board Assy (CNM803)			
14	PS ON/OFF	13	B5V
12	A5V	11	B5V
10	GND	9	GND
8	GND	7	Vamp
6	BLU_ON/OFF	5	Vamp
4	ECO_ON/OFF	3	B13V
2	PWM_DIM	1	B13V

* Change the 14Pin to PWM_DIM(2013 years) from B13V(2012 years)

3. Check the power in & output between IP & Main Board, Main Board & Panel, IP & Panel.

■ How to know it is from Main Board or T-Con when some problems happen

1. No Picture : Backlight is on, but there is no picture and LED indicator in front of TV is blinking.
 - Check the LVDS Cable connection. If still problems, change the T-Con Board and then Main Board step by step.

2. Picture distortion : Enter the service mode → Choose 'SVC' → Check the 'internal pattern.'

- Enter 'Service Mode.'

- If you do not have Factory remote control



- If you have Factory remote control

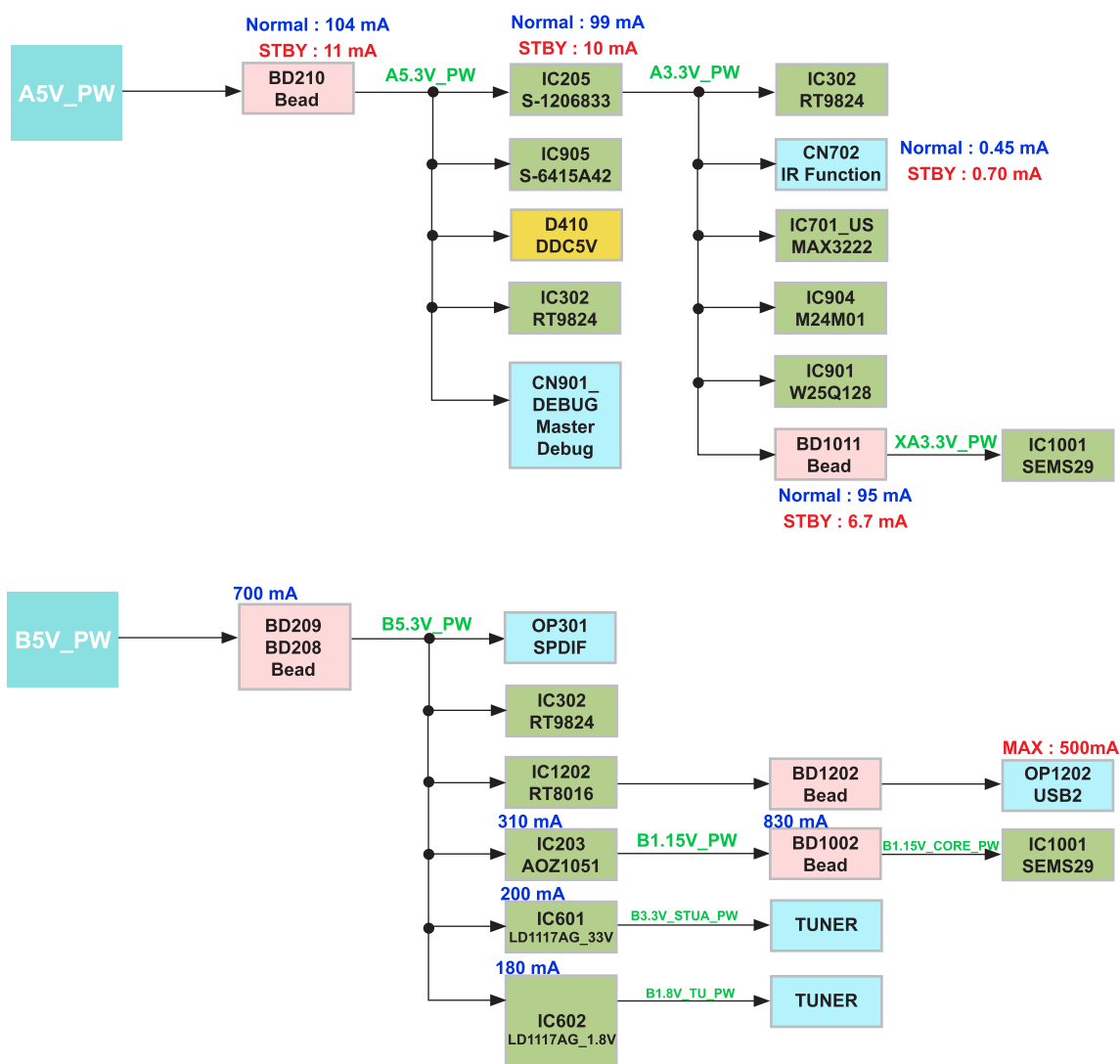


3. Choose 'SVC.'
4. Choose 'Test pattern.'
5. Select the each pattern and then check all pattern is ok or not.

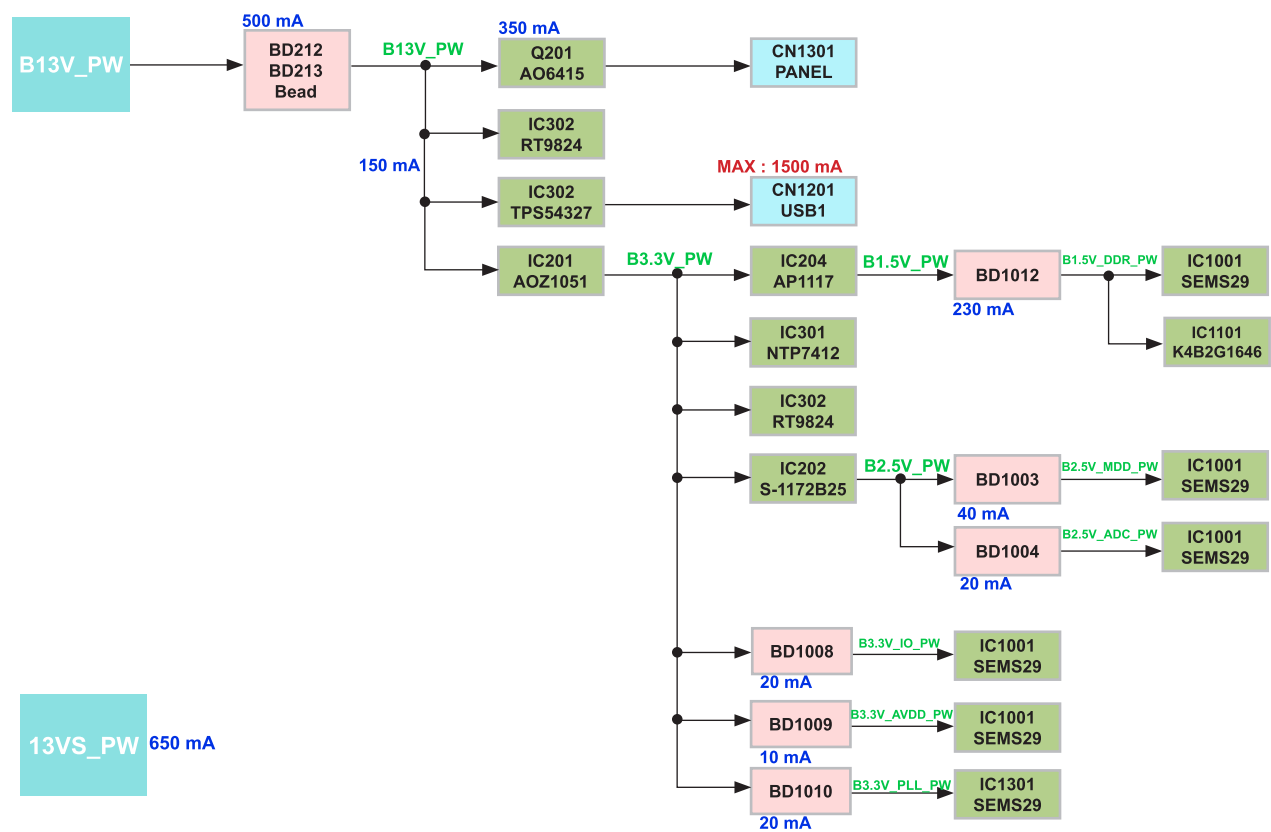


Pattern Status is	Change the	Test Pattern is made by the MSTAR IC
OK	Main Board	We guess front of MSTAR IC has problem.
NG	Panel and T-Con Board	We guess back of MSATR IC has problem.

Power-Tree



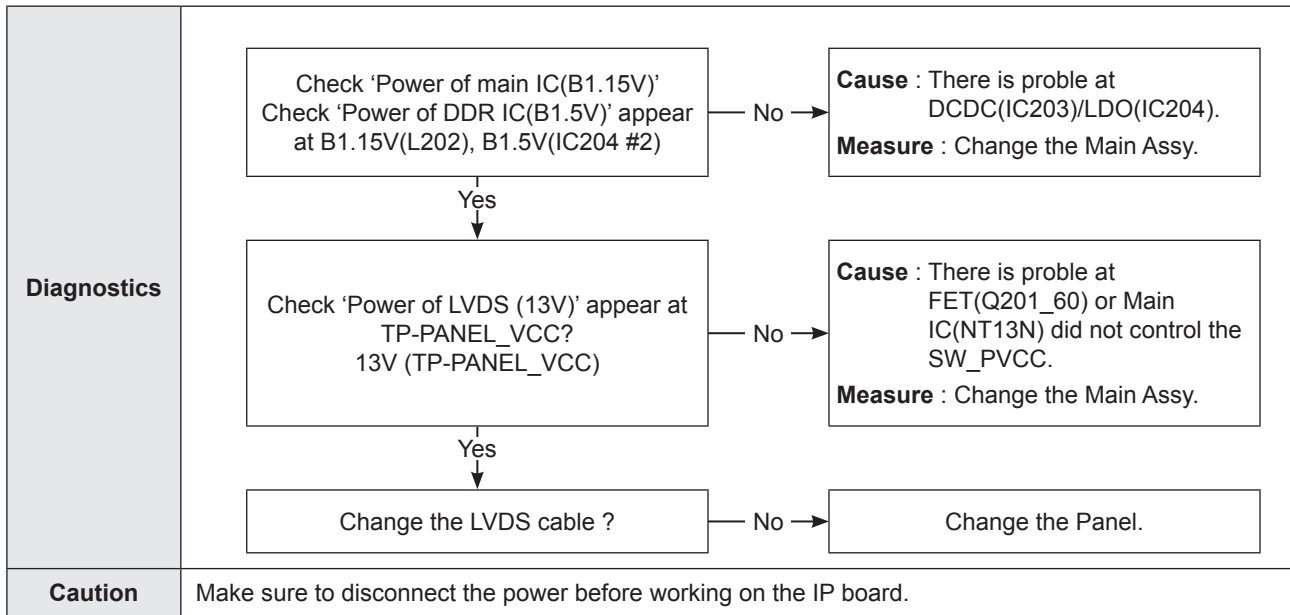
■ Power-Tree



4-2. How to Check Fault Symptom

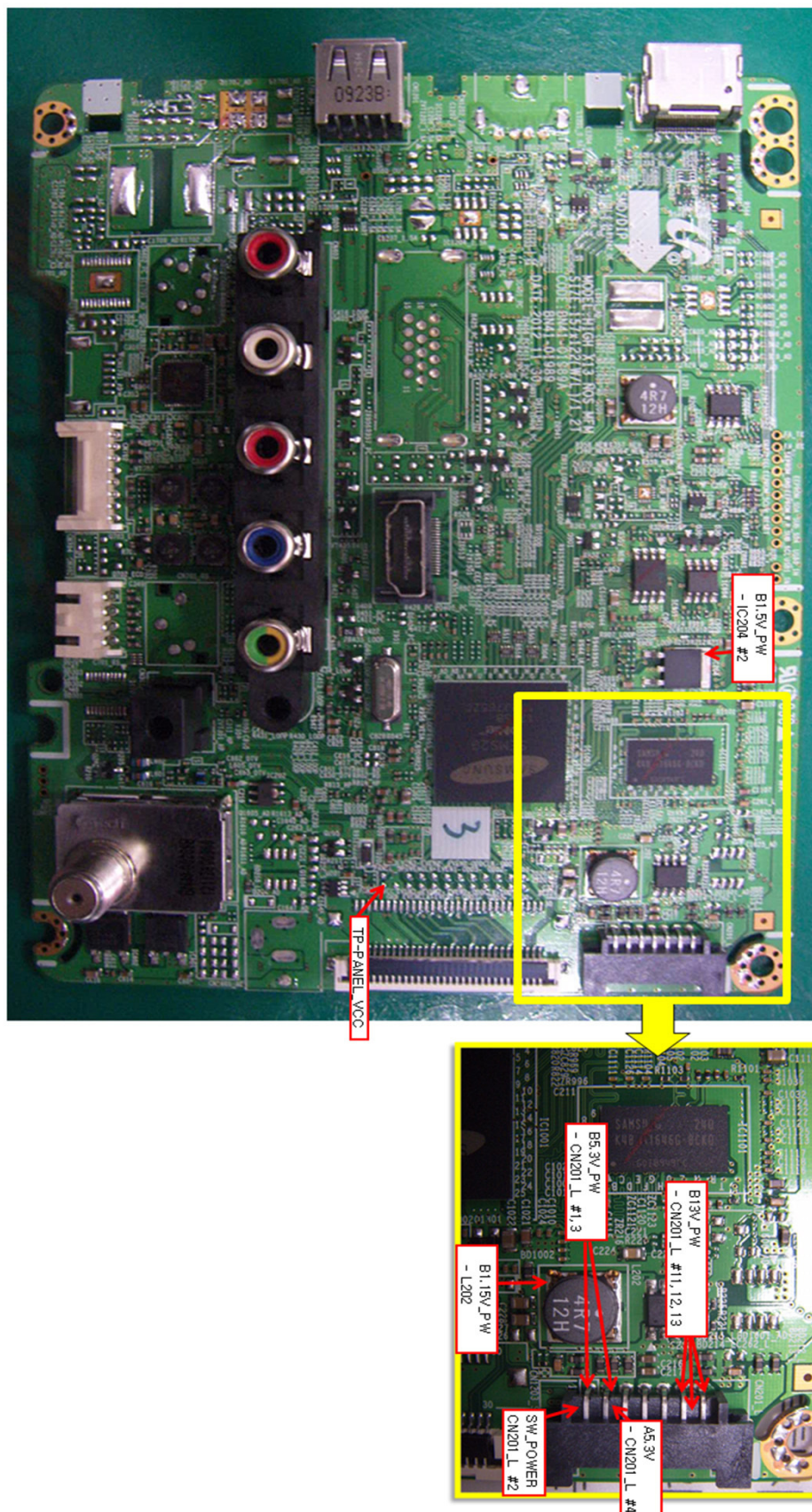
■ NO Power and No Video

Symptom	<ul style="list-style-type: none"> The LEDs on The front panel do not work when connecting The power cord. The SMPS relay does not work when connecting The power cord. The units appears to be dead.
Major checkpoints	<p>The IP relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following:</p> <ul style="list-style-type: none"> Check the internal cable connection status inside the unit. Check the fuses of each part. Check the output voltage of SMPS. Replace the Main Board.
Diagnostics	<pre> graph TD Start[Power cord on.] -- Yes --> Check1[Check 'Stand-By A5.3V' at - SMPS Model: CN201 #4 - Adaptor Model: C1621_AD] Check1 -- No --> Cause1[Cause : There did not supply the power from SMPS. Measure : Change 14p power cable and SMPS.] Check1 -- Yes --> SetOn[Set On.] SetOn -- Yes --> Check2[Check 'SW_POWER' more than 3.3V appear at CN201(#2) - SMPS Model: CN201 #2 - Adaptor Model: R1613_AD] Check2 -- No --> Cause2[Cause : Main IC(X13N) did not control the SW_Power. Measure : Change the Main Assy.] Check2 -- Yes --> Check3[Check Power input of Main Ass'y ? DC B13V, B5.3V appear at - SMPS Model: 13V (CN201 #11,12,13)/ 5.3V (CN201 #1,3) - Adaptor Model: 13V (Q1601_AD #5)/ 5.3V (Q1604_AD #5)] Check3 -- No --> Cause3[Cause : There did not supply the power from SMPS. Measure : Change 14p power cable and SMPS.] Check3 -- Yes --> End[] </pre> <p>The flowchart starts with 'Power cord on.'. If 'Yes', it leads to 'Check 'Stand-By A5.3V' at - SMPS Model: CN201 #4 - Adaptor Model: C1621_AD'. If 'No', the cause is 'There did not supply the power from SMPS.' and the measure is 'Change 14p power cable and SMPS.'. If 'Yes', it leads to 'Set On.'. If 'Set On.' is 'Yes', it leads to 'Check 'SW_POWER' more than 3.3V appear at CN201(#2) - SMPS Model: CN201 #2 - Adaptor Model: R1613_AD'. If 'No', the cause is 'Main IC(X13N) did not control the SW_Power.' and the measure is 'Change the Main Assy.'. If 'Yes', it leads to 'Check Power input of Main Ass'y ? DC B13V, B5.3V appear at - SMPS Model: 13V (CN201 #11,12,13)/ 5.3V (CN201 #1,3) - Adaptor Model: 13V (Q1601_AD #5)/ 5.3V (Q1604_AD #5)'. If 'No', the cause is 'There did not supply the power from SMPS.' and the measure is 'Change 14p power cable and SMPS.'. If 'Yes', the process ends.</p>



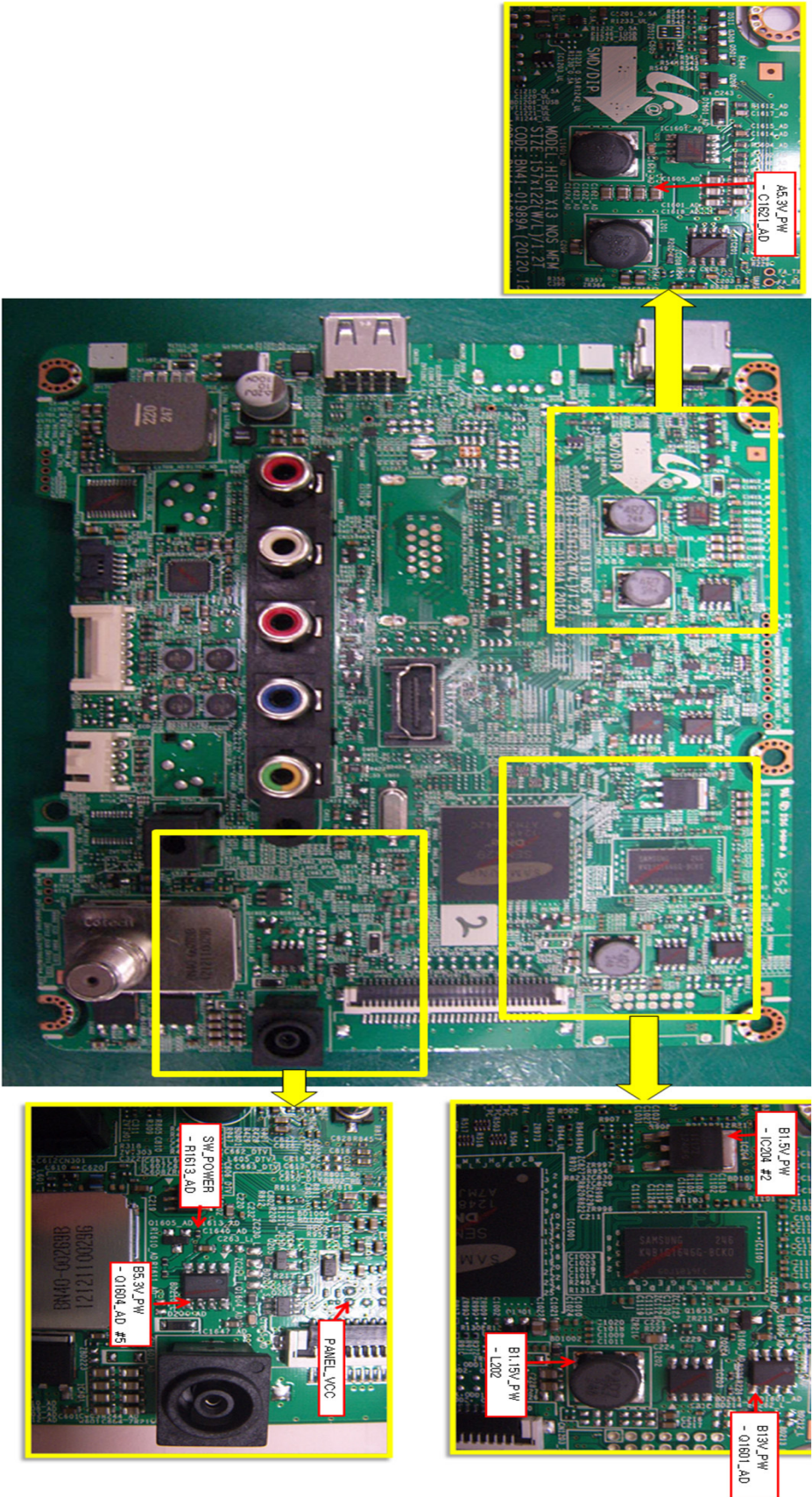
■ Location of Parts

Main Board_Front_ SMPS Model (UA28F4*00A)



■ Location of Parts

Main Board_Front_Adaptor Model (UA19F4000A/UA22F5*00A)



4-3. Factory Mode Adjustments

4-3-1. 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".

■ 5000_4000

Model Name		UE22F5*00AR	UA19F4000AR	UA28F4*00AR
Panel	Vendor	BOE	SDC	CSOT
	Code	BN07-01054A	BN07-01043A	BN07-01291A
	Spec.	HT215F01-100	LTM185AT05-V	HF280AGH-C1
SMPS	Vendor	HANSOL POWER	HANSOL POWER	SEM
	Code	BN44-00592A BN44-00592B	BN44-00592A BN44-00592B	BN44-00644A
	Spec.	A3514_DHS(AD) A3514_DPN	A3514_DHS(AD) A3514_DPN	L28S0_DSM
MAIN ASSY (depend on country)	Chassis Ass'y	BN91-10529F	BN91-10507Z	BN91-10316Z
	PBA Ass'y code	BN94-06292F	BN94-06272Z	BN94-06296T
Byte	Item			
0	Factory Reset	-	-	-
1	Type	22B6TF0E	19A6TH0E	28S6AH0S
2	Local Set	F5000	F4000	F4000
3	SW Model	5000	4000	4000
4	BOM Model	Other	Other	Other
5	Tuner	SI_ADI	SI_ADI	SI_ADI
6	Ch Table	NONE	NONE	NONE
7	Front Color	U-S-C-5K	NONE	NONE

4-3-2. Entering Factory Mode

To enter 'Service Mode' Press the remote -control keys in this sequence :

- If you do not have Factory remote control



- If you have Factory remote control



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

■ Initial SERVICE MODE DISPLAY State

Option	T-M13FMASC-xxxx.x
Control	DTP-LP3-0278
Debug	DTP-LP3-App-0278
SVC	HDCP : SUCCESS
ADC/WB	CALIB:HDMI/COMP/PC/AV/
Advanced	OPTION:22B6TF0E,EA_Thai,5000,NONE
	USB Serial:OFF
	Picture Data:**.**.**
	BuildDate : **_**_****
	Date Of Purchase : **/**/**

4-3-3. Factory Data



Note

- Version of the software is written in 0002.
- Black : I should not be possible to adjust or change that does not require a change item
- Blue : Adjustment Services for the corresponding
- Red : Items that are secured

■ Option

Factory Menu Name	Data	Range	Remark	Key
Factory Reset	-	-	-	
Type	19L6TH0E 22B6TF0E 28S6AH0S	19L6TH0E : UF4000 22B6TF0E : UF5000 28S6AH0S : UF4000	use to change panel	
Model	UF5000	UF4000/UF5000		
SVC Model	5000			
Local Set	Other			
Tuner	SI_ADI		do not change	
Ch Table	NONE			
Front Color	U-S-C-5K	NONE/U-S-C-5K		

■ Control

Factory Menu Name	Data	Range	Remark	Key
EDID				
EDID VERSION		HDMI 1.3/HDMI1.2		
Sub Option				
RS-232 Jack	UART	UART/FANET/LOGIC/DEBUG		
USB Serial	Off	On/Off		
Watchdog	Off	On/Off		
Checksum	0x0000			
EEPROM RESET				
ECOIC TYPE	CT802FN			
ready	Off			
TTXLIST	Flof			
TTXGroup	LangOSD			
OPTION_NUM				
Anynet+	Off	on/off		
HPIdent	High	High/Low		

4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
PCIdent	on	on/off		
OSDResolution	1920*1080			
IgnoreVCTVersion	on	on/off		
ChangeOSDLanguage				
VCRMode	off	on/off		
WallMount Calibration				
Energy Star	on	on/off		
Energy Star				
PDP Option				
Hotel Option				
Hotel Mode	off	on/off		
Power On Channel	3			
Power On Band	STD			
Power On Source	ATV			
Power On Volume	10			
Min Volume	0			
Max Volume	100			
Panel Button Lock	Off			
Pic Menu Lock	Off			
Video Mute Ch	1			
Video Mute Ch On/Off	Off			
Music Mode(AV)	Off			
Music Mode(PC)	Off			
Music Mode(Comp)	Off			
Music Mode Backlight	Off			
Menu Display	On			
Power On Opt	Last Option			
Ch Remap On/Off	Off			
Program Ch	3			
Original Ch/Src	3			
Auto PC	Off			
Energy Saving	Off			
Clone:TVtoUSB				
Clone:USBtoTV				
Shop Option				
Shop Mode	off	on/off		
Exhibition Mode	off	on/off		

Factory Menu Name	Data	Range	Remark	Key
Asia Option				
Sound				
Carrier Mute	on	On/Off		
High Devi	off	On/Off		
Speak Delay Normal	25ms	25~150ms		
SPDIF PCM Gain	-9dB			
FM M Prescale	48			
FM Prescale	68			
AM Prescale	50			
Nicam Prescale	72			
BTSC Mono Prescale	25			
BTSC Stereo Prescale	47			
BTSC SAP Prescale	43			
Pilot Level High Thld	0x20			
Pilot Level Low Thld	0x15			
Carrier2 Amp High Thld	0x04			
Carrier2 Amp Low Thld	0x03			
Carrier2 NSR High Thld	0x10			
Carrier2 NSR Low Thld	0x50			
A2Ident High Thld	0x24			
A2Ident Low Thld	0x09			
Sig Error On	0x23			
Sig Error Off	0x29			
BTSC Stereo High Thld	0x20			
BTSC Stereo Low Thld	0x26			
Amp Model	NTP7412s	NTP7411s/NTP7412s		
Woofer Type	Both			
Main Amp Volume	199			
Center Amp Volume	199			
Woofer Amp Volume	199			
Main Amp Scale	142			
Center Ammp Scale	165			
Woofer Amp Scale	138			
Main Speaker EQ	on	On/Off		
Center Speaker EQ	on			
Woofer Speakr EQ	on			
Main Amp Checksum	0x0143C040			

4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
Center Amp Checksum	0X00000000			
Woofer Amp Checksum	0X00000000			

■ DEBUG

Factory Menu Name	Data	Range	Remark	Key
Spread Spectrum				
Spread Spectrum				
Spread Spectrum	On	On/Off		
Period	40K	40K/50K/60K		
Amplitude	1.5	0/0.5/1/1.5/2		
DDR Spread	1%	Off/1%/2%		
FRC LVDS Spread	on			
FRC LVDS Period	30k			
FRC LVDS Amplitude	1%			
FRC DDR Spread	on			
FRC DDR Period	30k			
FRC DDR Amplitude	1%			
RF Mute Time				
RF Mute Time	4			
FRC				
IIC Bus Stop				
Tuner Status				

■ SVC

Factory Menu Name	Data	Range	Remark	Key
Test pattern	Middle	Low/Middle/High/Strong		
Mstar Test Pattern	off			
Mstar Test Pattern	off			
LOGIC Test Patten	off			
FRC Post Pattern	off			
FRC Pre Pattern	off			
Panel Display Time				
Panel Display Time	2Hr			
Delete S/N				
Delete S/N				
Upgrade				

Factory Menu Name	Data	Range	Remark	Key
T-CON Download			use to solve HDMI Noise	
ER COUNT				
Watch Dog Count	0			
LOG				
Log View				
OPTION_HDMI				
DVI Sound				
DVI Sound	0			
HDMI Hotplug				
HDMI Hotplug	on	on/off		
HDMI Hotplug CLK Ctrl				
HDMI Hotplug CLK Ctrl	on	on/off		
HDMI Hot Plug Delay				
HDMI Hot Plug Delay	12			
HDMI EQ1	Middle	Low/Middle/High/Strong		
HDMI EQ2	Middle	Low/Middle/High/Strong		
HDMI EQ3	Middle	Low/Middle/High/Strong		
HDMI EQ4	Middle	Low/Middle/High/Strong		
HDMI Sync	DE	DE/HV		

■ Expert

■ ADC/WB

Factory Menu Name	Data	Range	Remark	Key
ADC				
AV Calibration	Success	Success / Failure		
Comp Calibration				
PC Calibration				
HDMI Calibration				
ADC Target				
1st_AV_Low	16	0~255		
1st_AV_High	220	0~255		
1st_AV_Delta	1	0~255		
1st_COMP_Low	16	0~255		
1st_COMP_High	235	0~255		
1st_COMP_Delta	1	0~255		
1st_PC_Low	2	0~255		

4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
1st_PC_High	251	0~255		
1st_PC_Delta	1	0~255		
2nd_Low	1	0~255		
2nd_High	235	0~255		
2nd_Delta	1	0~255		
ADC Result				
1st_AV_Gain	126			
1st_AV_Offset	153			
1st_Comp_Gain	143			
1st_Comp_Gain_Cb	142			
1st_Comp_Gain_cr	142			
1st_Comp_Offset	128			
1st_Comp_Offset_Cb	128			
1st_Comp_Offset_Cr	128			
1st_PC_R_Gain	166			
1st_PC_G_Gain	166			
1st_PC_B_Gatin	166			
1st_PC_R_Offset	128			
1st_PC_G_Offset	128			
1st_PC_B_Offset	128			
2nd_R_Offset	132	0~255		
2nd_G_Offset	132	0~255		
2nd_B_Offset	132	0~255		
2nd_R_Gain	70	0~255		
2nd_G_Gain	70	0~255		
2nd_B_Gain	70	0~255		
WB				
Sub Brightness	128	0~255		
R_Offset	128	0~255		
G_Offset	128	0~255		
B_Offset	128	0~255		
Sub Contrast	128	0~255		
R_Gain	128	0~255		
G_Gain	128	0~255		
B_Gain	128	0~255		
W2_R_Offset	128	0~255		
W2_B_Offset	128	0~255		

Factory Menu Name	Data	Range	Remark	Key
W2_R_Gain	160	0~255		
W2_B_Gain	66	0~255		
N_R_Offset	128	0~255		
N_B_Offset	128	0~255		
N_R_Gain	147	0~255		
N_B_Gain	108	0~255		
MGA				
MGA On/Off	off	on/off		

■ Advanced

Factory Menu Name	Data	Range	Remark	Key
Sub setting				info+ factory
PWM(Video)				
Dynamic Dimming				
LED Peak OnOff				
Delete alt.ver				
OTA				
Power Key Protects				
1080p 48hz				
HDCP Download				
Media Play(USB)				
WB Movie				
W/B MOVIE	off			
Mode	Movie			
Color Tone	Cool			
MultiAcc	off			
Sub Brightness	128			
Sub Contrast	135			
M Sub Brightness	126			
M Sub Contrast	118			
W2_RGAIN	32			
W2_BGAIN	-62			
W2_ROFFS	0			
W2_BOFFS	0			
N_RGAIN	19			
N_BGAIN	-20			
N_ROFFS	0			

4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
N_BOFFS	0			
M_N_RGAIN	0			
M_N_BGAIN	0			
M_N_ROFFS	0			
M_N_BOFFS	0			
M_W2_RGAIN	0			
M_W2_BGAIN	0			
M_W2_ROFFS	0			
M_W2_BOFFS	0			
Movie Contr	100			
Movie Brigh	45			
Movie Color	55			
Movie Sharp	55			
Movie Tint	0			
Movie BkLight	20			
Movie Gamma	OFF			
M Sub Gamma	0			
HDMI Black Level	Normal			
Gamma	0.93			
EPA Standard				
Std Contr	100			
Std Bright	45			
Std Sharp	50			
Std Color	50			
Std Tint	50			
Std Backlight	12			
COLOR MAPPING				
A_Red_R	44			
A_Red_G	0			
A_Red_B	0			
A_Green_R	0			
A_Green_G	58			
A_Green_B	0			
A_Blue_R	0			
A_Blue_G	0			
A_Blue_B	50			
A_Yellow_R	55			

Factory Menu Name	Data	Range	Remark	Key
A_Yellow_G	50			
A_Yellow_B	0			
A_Cyan_R	0			
A_Cyan_G	47			
A_Cyan_B	40			
A_Magenta_R	52			
A_Magenta_G	0			
A_Magenta_B	62			
N_Red_R	50			
N_Red_G	0			
N_Red_B	0			
N_Green_R	0			
N_Green_G	50			
N_Green_B	5			
N_Blue_R	0			
N_Blue_G	0			
N_Blue_B	50			
N_Yellow_R	55			
N_Yellow_G	45			
N_Yellow_B	0			
N_Cyan_R	0			
N_Cyan_G	50			
N_Cyan_B	50			
N_Magenta_R	50			
N_Magenta_G	0			
N_Magenta_B	50			
S_Red_R	50			
S_Red_G	0			
S_Red_B	0			
S_Green_R	0			
S_Green_G	50			
S_Green_B	5			
S_Blue_R	0			
S_Blue_G	0			
S_Blue_B	50			
S_Yellow_R	55			
S_Yellow_G	45			

4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
S_Yellow_B	0			
S_Cyan_R	0			
S_Cyan_G	50			
S_Cyan_B	50			
S_Magenta_R	50			
S_Magenta_G	0			
S_Magenta_B	50			
WCE				
WRHue	64			
WRSat	17			
WYHue	74			
WYSat	16			
WGHue	57			
WGSat	16			
WCHue	62			
WCSat	17			
WBHue	64			
WBSat	17			
WMHue	64			
WMSat	17			
S_WRHue	64			
S_WRSat	16			
S_WYHue	69			
S_WYSat	16			
S_WGHue	61			
S_WGSat	16			
S_WCHue	63			
S_WCSat	16			
S_WBHue	64			
S_WBSat	16			
S_WMHue	64			
S_WMSat	16			
VDEC				
AGC_Manual_Gain	78			
Saturation	145			
SecamFilterSel	0			
RGB_Delay	6			

Factory Menu Name	Data	Range	Remark	Key
COM PHASE	128			
SHARPNESS				
Post_H1	26			
Post_H2	28			
Post_H3	20			
Post_H4	16			
Post_V1	26			
Post_V2	26			
D_Tot_Gain	44			
S_Tot_Gain	44			
ENHANCE				
BLE_Gain	15			
D_Sub_Color	75			
D_Skin_Hue	102			
D_Skin_Sat	17			
S_Sub_Color	65			
S_Skin_Hue	102			
S_Skin_Sat	17			
M_Sub_Color	59			
M_Skin_Hue	64			
M_Skin_Sat	16			
D Sub Tint	50			
S Sub Tint	50			
M Sub Tint	50			
CE_H_Left_Gain	30			
CE_H_Right_Gain	30			
CE_H_Normal_Gain	-10			
CE_M_Left_Gain	20			
CE_M_Right_Gain	20			
CE_L_Left_Gain	10			
CE_L_Right_Gain	10			
CE_Off_Left_Gain	0			
CE_Off_Right_Gain	0			
LNA_Plus				
SyncTip_Noise	214			
dB0	3			
dB1	4			

4. Troubleshooting

Factory Menu Name	Data	Range	Remark	Key
dB2	5			
dB3	7			
dB4	9			
dB5	12			
dB6	16			
dB7	28			
LNA+_Yfilter	10			
NR				
Dyn_Off_NR_EN	1			
MOV_Off_NR_EN	0			
PreFilter	0			
FCC				
FCC2_Cb_Target_F	0			
FCC2_Cr_Target_F	0			
FCC2_Gain	4			
FCC3_Cb_Target_F	0			
FCC3_Cr_Target_F	0			
FCC3_Gain	3			
FCC4_Cb_Target_F	0			
FCC4_Cr_Target_F	0			
FCC4_Gain	4			
FCC5_Cb_Target_F	0			
FCC5_Cr_Target_F	0			
FCC5_Gain	4			
FCC6_Cb_Target_F	0			
FCC6_Cr_Target_F	0			
FCC6_Gain	4			
Clear White	6			
PC_Contrast				
PC_Contrast_Cool	128			
PC_Contrast_Normal	128			
PC_Contrast_Warm1	128			
PC_Contrast_Warm2	128			
YC_Delay				
RF PAL BG	12			
RF PAL DK	12			
RF PAL I	12			

Factory Menu Name	Data	Range	Remark	Key
RF PAL M	8			
RF PAL N	10			
RF SECAM BG	6			
RF SECAM DK	6			
RF SECAML	6			
RF NTSC 358	13			
RF NTSC 443	6			
AV PAL	9			
AV PAL M	9			
AV PAL N	8			
AV SECAM	4			
AV NT358	9			
AV NT443	6			
AV PAL60	8			
PQ Others				
7.5 IRE NTSC	OFF	ON/OFF		
7.5 IRE OFFSET	60	0~60		

4-4. White Balance

4-4-1. Calibration

1. Into the Factory Mode.
2. Select **SVC** Menu.
3. Select **ADC/WB** menu.
4. Select **ADC** menu.



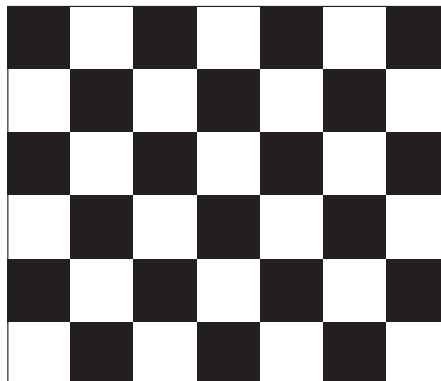
4-4-2. Service Adjustment

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

■ Color Calibration

- Adjust Specification

Source	Setting Mode	Pattern	Use Equipment
HDMI	1280 x 720@60 Hz	Pattern #24 (Chess Pattern)	CA210 & Master MSPG925 Generator



(Chess Pattern)

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

Input mode	Calibration	Pattern
CVBS IN (Model_#1)	Perform in NTSC B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
PC Analog IN (Model_#21)	Perform in VESA XGA (1024x768) B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

■ Method of Color Calibration (AV)

1. Apply the NTSC Lattice (N0. 3) pattern signal to the AV IN 1 port.
2. Press the Source key to switch to "AV1" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "AV Calibration" menu.
6. In "AV Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the "AV Calibration" status from Failure to Success.

■ Method of Color Calibration (Component)

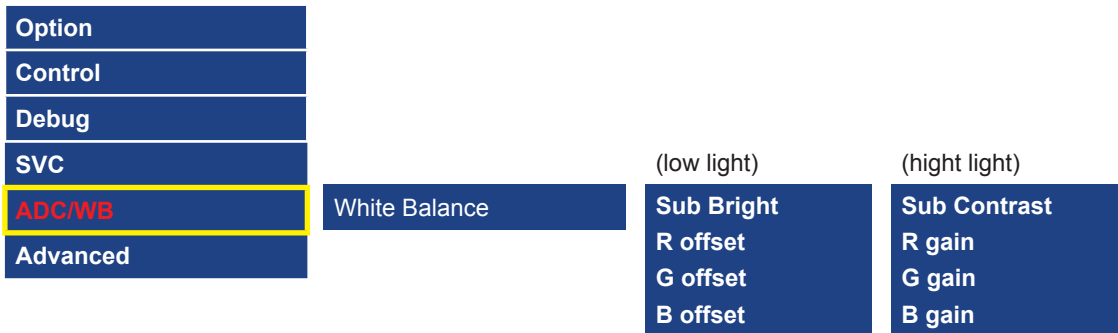
1. Apply the 720p Lattice (N0. 6) pattern signal to the Component IN 1 port.
2. Press the Source key to switch to "Component1" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "Comp Calibration" menu.
6. In "Comp Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the "Comp Calibration" status from Failure to Success.

■ Method of Color Calibration (HDMI)

1. Apply the 720p Lattice (N0. 6) pattern signal to the HDMI1/DVI IN port.
2. Press the Source key to switch to "HDMI1" mode.
3. Enter Service mode.
4. Select the "ADC" menu.
5. Select the "HDMI Calibration" menu.
6. In "HDMI Calibration Off" status, press the "▶" key to perform Calibration.
7. When Calibration is complete, it returns to the high-level menu.
8. You can see the change of the "HDMI Calibration" status from Failure to Success.

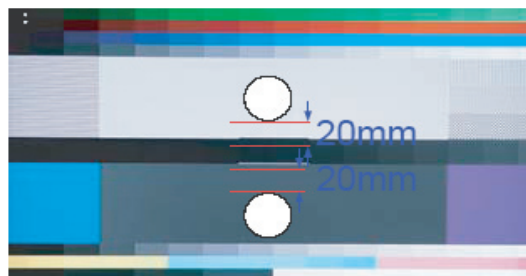
4-4-3. Adjustment

- 1. Into the Factory Mode.
- 2. Select **SVC** Menu.
- 3. Select **ADC/WB** menu.
- 4. Select **White Balance** menu.



4-5. White Ratio (Balance) Adjustment

1. You can adjust the white ratio in factory mode (1:Calibration, 3:White-Balance).
2. Since the adjustment value and the data value vary depending on the input source, you have to adjust these in CVBS, Component 1 and HDMI 1 modes.
3. The optimal values for each mode are configured by default. It varies with Panel's size and Specification.
 - Equipment : CS-210
 - Pattern: MIK K-7256 #92 "Flat W/B Pattern" as standard
 - Alternate Equipment : CA200& anyone Master supported pattern#92(refer to right photo)
 - Use other Equipment only after comparing the result with that of the Master equipment.
 - Set Aging time : 60 min



Calibration and Manual setting for WB adjustment

- HDMI : Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (720p)
- COMP: Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (720p)
- CVBS: Calibration at #24 Chessboard Pattern Manual adjustment at #92 pattern (NTSC)



Note

If finishing in HDMI mode, adjustment coordinate is almost same in AV/COMP mode.

White Balance Manual adjustment

- F4000 / 5000

Type
LED_LOW

RGB Measurement		
Levels	Code	Check
10 IRE	0x01	O
20 IRE	0x02	O
30 IRE	0x03	X
40 IRE	0x04	O
50 IRE	0x05	X
60 IRE	0x06	X
70 IRE	0x07	O
80 IRE	0x08	X
90 IRE	0x09	X
100 IRE	0x0A	O

Panel Inspection Spec.				
Levels	Check	x(±)	y(±)	Gamma(±)
10 IRE	O	0.020	0.020	0.35
20 IRE	O	0.020	0.020	0.35
30 IRE	O	0.020	0.020	0.35
40 IRE	O	0.020	0.020	0.35
50 IRE	O	0.020	0.020	0.35
60 IRE	O	0.020	0.020	NA
70 IRE	O	0.020	0.020	NA
80 IRE	O	0.020	0.020	NA
90 IRE	O	0.020	0.020	NA
100 IRE	O	NA	NA	NA

4. Troubleshooting

Gray Check			Adjust Spec(xyL)			2nd Adjust Spec(xyL)		
Levels	Code	Check	x(±)	y(±)	L(±)	x(±)	y(±)	L(±)
10 IRE	0x01	X	0.007	0.007	0.11	0.007	0.007	0.11
20 IRE	0x02	O	0.007	0.007	0.08	0.007	0.007	0.08
30 IRE	0x03	X	0.007	0.007	0.06	0.007	0.007	0.06
40 IRE	0x04	O	0.005	0.005	0.05	0.005	0.005	0.05
50 IRE	0x05	X	0.005	0.005	0.04	0.005	0.005	0.04
60 IRE	0x06	X	0.005	0.005	0.03	0.005	0.005	0.03
70 IRE	0x07	O	0.004	0.004	0.02	0.004	0.004	0.02
80 IRE	0x08	X	0.004	0.004	0.01	0.004	0.004	0.01
90 IRE	0x09	X	0.004	0.004	0.01	0.004	0.004	0.01
100 IRE	0x0A	X	NA	NA	NA	NA	NA	NA

Target Gamma		2.30	
Black	x	y	Contrast
	0.231	0.208	300000
Target xy	Option	x	y
	Auto	0.282	0.299

Panel Spec.		±	
Gamma	2.2	0.30	20~128
x	0.281	0.030	255
y	0.288	0.030	
ACC x	255 white	0.015	26~255
ACC y	x,y value	0.015	

Color Tone Target			Spec.	
High	x	y	x(±)	y(±)
COOL	0.274	0.286	0.004	0.004
NORMAL	0.293	0.307		
WARM2	0.328	0.353		
Low	x	y	x(±)	y(±)
COOL	NA	NA	NA	NA
NORMAL	NA	NA		
WARM2	NA	NA		

10IRE Gamma target	2.30
RetryCount	3

4-6. Detail Specifications

4-6-1. UA19F4000AR_ UA28F4000AR_1

• General Information

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Product	LED	LED	LED
Cabinet Basic Code	FB	FB	FB
Series	4	4	4
Series Name	LED F4000	LED F4100	LED F4000
Country	EAST ASIA	EAST ASIA	INDIA
Tools Support	Non-OS Platform Not support	Non-OS Platform Not support	Non-OS Platform Not support
Platform(TV)	Mstar X13 Non-OS	Mstar X13 Non-OS	Mstar X13 Non-OS

• Display

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Inch	19	28	28
Resolution	1,366 x 768	1,366 x 768	1,366 x 768
Ultra Clear Panel	No	No	No
Cell Light Series	N/A	N/A	N/A
Real Black Pro Panel	N/A	N/A	N/A
Clear Image Panel	N/A	N/A	N/A
Lvds Format	VESA	JEIDA	JEIDA
HV Flip	OFF	ON	ON

• Video

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Picture Engine	HyperReal Engine	HyperReal Engine	HyperReal Engine
OLED Motion Rate	N/A	N/A	N/A
Clear Motion Rate	100	100	100
600Hz Subfield Motion	N/A	N/A	N/A
Dynamic Contrast Ratio	Mega Contrast	Mega Contrast	Mega Contrast
New Picture Differentiation	N/A	N/A	N/A
Micro Dimming	No	No	No
Cinema Smooth	N/A	N/A	N/A
Precision Black (Local Dimming)	No	No	No
Wide Color Enhancer (Plus)	Yes	Yes	Yes
Auto Motion Plus 120/240Hz	No	No	No
Motion Judder Canceller	N/A	N/A	N/A
Film Mode	Yes	Yes	Yes
Brightness	TBD	TBD	TBD
Contrast Ratio	TBD	TBD	TBD

4. Troubleshooting

Picture	Film Mode,HDMI Black Level	Film Mode,HDMI Black Level	Film Mode,HDMI Black Level
Detail Resolution	50/60Hz	50/60Hz	50/60Hz
Response Time	TBD	TBD	TBD
Viewing Angle (H/V)	TBD	TBD	TBD
Natural Mode Support	No	No	No
Relax Mode Support	N/A	N/A	N/A

• Audio

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Dolby	Dolby Digital Plus / Dolby Pulse	Dolby Digital Plus / Dolby Pulse	Dolby Digital Plus / Dolby Pulse
SRS / DNSe+	DTS Studio Sound	DTS Studio Sound	DTS Studio Sound
dts 2.0+Digital Out / DTS Premium Audio	DTS Premium Audio	DTS Premium Audio	DTS Premium Audio
3D Sound	No	No	No
Sound Customizer	No	No	No
Speaker Type	Down Firing + Full Range	Down Firing + Full Range	Down Firing + Full Range
Sound Output (RMS)	3W x 2	5W x 2	5W x 2
Woofer	No	No	No
Sound	Mono,Stereo,Auto volume,SRS-Trusurround	Mono,Stereo,Auto volume,SRS-Trusurround	Mono,Stereo,Auto volume,SRS-Trusurround
Sound Amp IC	NeoFidelity NTP7412S	NeoFidelity NTP7412S	NeoFidelity NTP7412S
Speaker Volume	3W x 2	5WX2	5WX2
Woofer Speaker Volume	N/A	N/A	N/A
Analog	2Ch	2Ch	2Ch
Digital	N/A	N/A	N/A

• SMART TV Functionality

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Samsung SMART TV	N/A	N/A	N/A
Smart Guide	No	No	No
Family Story	No	No	No
Movie & TV Shows	No	No	No
Fitness	No	No	No
Apps	No	No	No
Kids	No	No	No
Social	No	No	No
Automated Content Recognition (ACR)	N/A	N/A	N/A
Music, Photos & Clip	No	No	No
Samsung SMART View	No	No	No
Smart Hub	No	No	No

Search All	N/A	N/A	N/A
Your Video	No	No	No
Social TV	N/A	N/A	N/A
Samsung Sports Experience (SSE)	No	No	No
Samsung Apps	N/A	N/A	N/A
Smart Scene	No	No	No
Skype™ on Samsung TV	N/A	N/A	N/A
Web Browser	No	No	No
AllShare Control	No	No	No
Recommendation Bar	No	No	No

- VESA Standard**

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Samsung SMART TV	M8	M8	M8

- Smart Interaction**

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Camera Built-in	No	No	No
Face Recognition	No	No	No
Hand Gesture Recognition	No	No	No
Voice Recognition (Embedded)	No	No	No
Voice Recognition (Server)	No	No	No
VM App	N/A	N/A	N/A
NLU (Natural Language Understanding)	No	No	No
Camera App	No	No	No
HM App	N/A	N/A	N/A
Samsung TV Apps supported	No	No	No

- Feature**

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Samsung 3D	No	No	No
3D Converter	No	No	No
Dual View	N/A	N/A	N/A
Samsung One Line	N/A	N/A	N/A
History	No	No	No
MultiTasking	No	No	No
Smart Phone Remote support	No	No	No
Smart Evolution Support	No	No	No
Extended PVR	No	No	No
Time Shift	No	No	No

4. Troubleshooting

AllShare Play	No	No	No
AllShare Cloud Storage	N/A	N/A	N/A
ConnectShare™ (USB2.0)	Movie	Movie	Movie
AllShare Cast	No	No	No
RUI	N/A	N/A	N/A
RVU	N/A	N/A	N/A
WiFi Direct	No	No	No
Wireless LAN Built-in	No	No	No
Wireless LAN Adaptor Support	No	No	No
ISP Bound Service	No	No	No
BT HID Built-in	No	No	No
USB HID Support	No	No	No
OSD Language	Local Languages	Local Languages	English
Samsung IR Blaster Support	N/A	N/A	N/A
User Interface	Single	Single	Single
Digital Noise Filter	Yes	Yes	Yes
Analog Signal Booster	N/A	N/A	N/A
Network Speaker Support	No	No	No
MHL	No	No	No
Sound Share	No	No	No
WiDi	No	No	No
Regional EQ	N/A	N/A	N/A
InstaPort S (HDMI quick switch)	No	No	No
HDMI 1.4 3D Auto Setting	No	No	No
HDMI 1.4 A/Return Ch. Support	No	No	No
EPG	No	No	No
Analog Clean View	Yes	Yes	Yes
HbbTV	N/A	N/A	N/A
Teletext (TTX)	Yes	Yes	Yes
Triple Protector	Yes(Vietnam Only)	Yes(Vietnam Only)	Yes
Miracast	No	No	No
Anynet+ (HDMI-CEC)	No	No	No
BD Wise Plus	No	No	No
Auto Channel Search	Yes	Yes	Yes
Auto Power Off	Yes	Yes	Yes
Auto Volume Leveler	Yes	Yes	Yes
Caption (Subtitle)	No	No	No
2 Tuner	No	No	No
Clock&On/Off Timer	Yes	Yes	Yes

Game Mode	Yes	Yes	Yes
Battery Ready	N/A	N/A	N/A
Picture-In-Picture	No	No	No
Sleep Timer	Yes	Yes	Yes
Screen Burn Protection	N/A	N/A	N/A
Channel List USB-Clone	N/A	N/A	N/A
V-Chip	N/A	N/A	N/A
Embedded POP	Yes	Yes	Yes
Calibration Mode	N/A	N/A	N/A
Channel	Auto Store,Fine Tune	Auto Store,Fine Tune	Auto Store,Fine Tune
Plug&Play	Yes	Yes	Yes
Child Lock	Yes	Yes	Yes
Sports Mode	Basic	Basic	Basic
Paratal Lock	No	No	No
Kids Lock	N/A	N/A	N/A
Media Play(USB & DLNA)	Yes	Yes	Yes
Bluetooth	No	No	No
Home Network Centre	No	No	No
Zero Stand-By Power	N/A	N/A	N/A
USB Copy	No	No	No
ACS	N/A	N/A	N/A
IP Video Closed Caption	N/A	N/A	N/A

- Additional Feature**

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Self Diagnosis	Yes	Yes	Yes
Software Upgrade	Yes	Yes	Yes
HD Connection Guide	Yes	Yes	Yes
Contact Samsung	Yes	Yes	Yes

- S/W**

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
MCU	X13 (SEMS29)	X13 (SEMS29)	X13 (SEMS29)
OS	N/A	N/A	N/A

- System**

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
DTV Tuner	Ready	Ready	Ready
Analog Tuner	Yes	Yes	Yes
CI/CI+	N/A	N/A	N/A

4. Troubleshooting

MHP / MHEG (version) / ACAP	N/A	N/A	N/A
NTSC 3.58	Yes	Yes	Yes
NTSC 4.43, VIT	Yes	Yes	Yes
PAL-B/G, D/K, I, I/I'	Yes	Yes	Yes
Scan Type	TBD	TBD	TBD
SECAM-B/G, D/K	Yes	Yes	Yes
SECAM-B/G, D/K, L/L'	N/A	N/A	N/A
Trinorma (PAL M,N)	N/A	N/A	N/A
Broadcast System	N/A	N/A	N/A
ATV Sound System	BG,I,DK	BG,I,DK	BG,I,DK
DTV Video System	N/A	N/A	N/A
DTV Sound System	Dolby	Dolby	Dolby
Tuner Vendor & Model	TBD TBD	TBD TBD	TBD TBD

• Core Component

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
DDR SDRAM	Samsung	Samsung	Samsung
Nand Flash Memory	N/A	N/A	N/A
OneNand Flash Memory	N/A	N/A	N/A
FlexOneNand Flash Memory	N/A	N/A	N/A
Serial Flash Memory	WINBOND	WINBOND	WINBOND
HDMI Switch	N/A	N/A	N/A
Display Device Vender	TBD	TBD	TBD

• Input & Output

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
HDMI	2	2	2
Resolution	640 x 480p,1280 x 720p 60,1366 x 768p	640 x 480p,1280 x 720p 60	640 x 480p,1280 x 720p 60
DVI Port	Port1 Type	Port1 Type	Port1 Type
PC Resolution	1360 x 768 60 Hz	1360 x 768 60 Hz	1360 x 768 60 Hz
MHL Port	N/A	N/A	N/A
HDMI/DVI SEL	N/A	N/A	N/A
USB	1	1	1
Port 1 Type	Host	Host	Host
Port 2 Type	N/A	N/A	N/A
Port 3 Type	N/A	N/A	N/A
Port 4 Type	N/A	N/A	N/A
Port 5 Type	N/A	N/A	N/A
OS	N/A	N/A	N/A
Component In (Y/Pb/Pr)	1	1	1

Composite In (AV)	1 (Common Use for Component Y)	1 (Common Use for Component Y)	1 (Common Use for Component Y)
Ethernet (LAN)	No	No	No
Headphone	1	1	1
Digital Audio Out (Optical)	No	No	No
Audio Out (Mini Jack / LR)	No	No	No
PC In (D-sub)	No	No	No
PC Audio In (Mini Jack)	No	No	No
DVI Audio In (Mini Jack)	No	No	No
RF In (Terrestrial/Cable Input)	1	1	1
RF In (Satellite Input)	No	No	No
RS232C (AV CONTROL)	No	No	No
CI Slot	N/A	N/A	N/A
Scart	N/A	N/A	N/A
Port 1 Type	N/A	N/A	N/A
Port 2 Type	N/A	N/A	N/A
Port 3 Type	N/A	N/A	N/A
Port 4 Type	N/A	N/A	N/A
Port 5 Type	N/A	N/A	N/A
Coaxial	N/A	N/A	N/A
EX-Link	N/A	N/A	N/A
Monitor Output	No	No	No
DVI			
Resolution	N/A	N/A	N/A
DVI Port	N/A	N/A	N/A
PC Resolution	N/A N/A	N/A N/A	N/A N/A
D-Sub Resolution	N/A N/A	N/A N/A	N/A N/A

- **Design**

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Design	RHCM	RHCM	RHCM
Bezel Type	NNB	NNB	NNB
Slim Type	Slim 1	Slim 1	Slim 1
Front Color	Black	Black	Black
Light Effect (Deco)	No	No	No
Stand Type	Round	Round	Round
Swivel (Left/Right)	No	No	No
Push & Pull Camera	N/A	N/A	N/A
Design Name	N/A	N/A	N/A
Design	Steam Mold	Steam Mold	Steam Mold

4. Troubleshooting

Front Resin	PC+ABS-GF15%	PC+ABS-GF15%	PC+ABS-GF15%
Stand Packing Type	Bundle	Bundle	Bundle

• Eco

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Energy Efficiency Class	TBD	TBD	TBD
Eco Mark	Planet First	Planet First	Planet First
Eco Label	N/A	N/A	N/A
Eco Sensor	No	No	No

• Power

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Power Supply (V)	AC100-240V 50/60Hz	AC100-240V 50/60Hz	AC100-240V 50/60Hz
Power Consumption (Max)	TBD	TBD	TBD
Power Consumption (Energy Saving Mode)	TBD	TBD	TBD
Power Consumption (Stand-by)	TBD	TBD	TBD
Power Consumption (IEC 62087 Edition 2)	N/A	N/A	N/A
Peak Luminance Ratio	N/A	N/A	N/A
Yearly Power Consumption (EU standard)	N/A	N/A	N/A
AC Power Voltage & Frequency	50/60Hz	50/60Hz	50/60Hz
SMPS/IP Board	TBD	TBD	TBD

• Security

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Kensington Lock	Yes	Yes	Yes

• Dimension (WxHxD)

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Set Size without Stand (mm)	453.7 x 281.3 x 49.5 mm	645.0 x 384.9 x 49.5 mm	645.0 x 384.9 x 49.5 mm
Set Size with Stand (mm)	453.7 x 314.2 x 151.4 mm	645.0 x 435.6 x 252.6 mm	645.0 x 435.6 x 252.6 mm
Package Size (mm)	547 x 341 x 140 mm	931 x 462 x 143 mm	931 x 462 x 143 mm

• Weight

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Set Weight without Stand (kg)	2.5 Kg	4.2 Kg	4.2 Kg
Set Weight with Stand (kg)	2.6 Kg	4.6 Kg	4.6 Kg
Package Weight (kg)	3.7 Kg	6.6 Kg	6.6 Kg

• Loading Quantity

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
20/40Ft	900/1980	384/768	384/768

• Accessory

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
3D Active Glasses (Included)	No	No	No
IR Blaster (Included)	No	No	No
Wireless LAN Adaptor (Included)	No	No	No
Network Speaker (Included)	No	No	No
MOIP Camera (Included)	No	No	No
Wireless Keyboard (Included)	No	No	No
Battery Pack (for Battery Ready TV)	N/A	N/A	N/A
Remote Controller Model	TM1240	TM1240	TM1240
Battery (for Remote Control)	Yes	Yes	Yes
Mini Wall Mount Support	No	No	Yes
Ultra Slim Wall Mount Support	No	No	No
VESA Wall Mount Support	Yes	Yes	Yes
Electric Wall Mount Support	N/A	N/A	N/A
Electric Stand Support	N/A	N/A	N/A
Slim Gender Cable	No	No	No
ANT-Cable	No	No	No
Power Cable	Yes	Yes	Yes
User Manual	Yes	Yes	Yes
E-Manual	No	No	No
Floor Stand Support	No	No	No

• License

Item	UA19F4000ARXX*	UA28F4000ARXXT	UA28F4000ARLXL
Oracle JAVA	NO	NO	NO
Universal Remote Control	NO	NO	NO
MS DRM	TBD	TBD	TBD
Movie Codec	TBD	TBD	TBD

4-6-2. UA28F4000AR_ UA28F4100AR_2

• General Information

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Product	LED	LED	LED
Cabinet Basic Code	FB	FB	FB
Series	4	4	4
Series Name	LED F4100	LED F4000	LED F4000
Country	INDIA	AFRICA	MIDDLE EAST
Tools Support	Non-OS Platform Not support	Non-OS Platform Not support	Non-OS Platform Not support
Platform(TV)	Mstar X13 Non-OS	Mstar X13 Non-OS	Mstar X13 Non-OS

• Display

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Inch	28	28	28
Resolution	1,366 x 768	1,366 x 768	1,366 x 768
Ultra Clear Panel	No	No	No
Cell Light Series	N/A	N/A	N/A
Real Black Pro Panel	N/A	N/A	N/A
Clear Image Panel	N/A	N/A	N/A
Lvds Format	JEIDA	JEIDA	JEIDA
HV Flip	ON	ON	ON

• Video

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Picture Engine	HyperReal Engine	HyperReal Engine	HyperReal Engine
OLED Motion Rate	N/A	N/A	N/A
Clear Motion Rate	100	100	100
600Hz Subfield Motion	N/A	N/A	N/A
Dynamic Contrast Ratio	Mega Contrast	Mega Contrast	Mega Contrast
New Picture Differentiation	N/A	N/A	N/A
Micro Dimming	No	No	No
Cinema Smooth	N/A	N/A	N/A
Precision Black (Local Dimming)	No	No	No
Wide Color Enhancer (Plus)	Yes	Yes	Yes
Auto Motion Plus 120/240Hz	No	No	No
Motion Judder Canceller	N/A	N/A	N/A
Film Mode	Yes	Yes	Yes
Brightness	TBD	TBD	TBD
Contrast Ratio	TBD	TBD	TBD
Picture	Film Mode,HDMI Black Level	Film Mode,HDMI Black Level	Film Mode,HDMI Black Level
Detail Resolution	50/60Hz	50/60Hz	50/60Hz

Response Time	TBD	TBD	TBD
Viewing Angle (H/V)	TBD	TBD	TBD
Natural Mode Support	No	No	No
Relax Mode Support	N/A	N/A	N/A

• Audio

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Dolby	Dolby Digital Plus / Dolby Pulse	Dolby Digital Plus / Dolby Pulse	Dolby Digital Plus / Dolby Pulse
SRS / DNSe+	DTS Studio Sound	DTS Studio Sound	DTS Studio Sound
dts 2.0+Digital Out / DTS Premium Audio	DTS Premium Audio	DTS Premium Audio	DTS Premium Audio
3D Sound	No	No	No
Sound Customizer	No	No	No
Speaker Type	Down Firing + Full Range	Down Firing + Full Range	Down Firing + Full Range
Sound Output (RMS)	5W x 2	5W x 2	5W x 2
Woofer	No	No	No
Sound	Mono, Stereo, Auto volume, SRS-Trusurround	Mono, Stereo, Auto volume, SRS-Trusurround	Mono, Stereo, Auto volume, SRS-Trusurround
Sound Amp IC	NeoFidelity NTP7412S	NeoFidelity NTP7412S	NeoFidelity NTP7412S
Speaker Volume	5WX2	5WX2	5WX2
Woofer Speaker Volume	N/A	N/A	N/A
Analog	2Ch	2Ch	2Ch
Digital	N/A	N/A	N/A

• SMART TV Functionality

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Samsung SMART TV	N/A	N/A	N/A
Smart Guide	No	No	No
Family Story	No	No	No
Movie & TV Shows	No	No	No
Fitness	No	No	No
Apps	No	No	No
Kids	No	No	No
Social	No	No	No
Automated Content Recognition (ACR)	N/A	N/A	N/A
Music, Photos & Clip	No	No	No
Samsung SMART View	No	No	No
Smart Hub	No	No	No
Search All	N/A	N/A	N/A
Your Video	No	No	No

4. Troubleshooting

Social TV	N/A	N/A	N/A
Samsung Sports Experience (SSE)	No	No	No
Samsung Apps	N/A	N/A	N/A
Smart Scene	No	No	No
Skype™ on Samsung TV	N/A	N/A	N/A
Web Browser	No	No	No
AllShare Control	No	No	No
Recommendation Bar	No	No	No

• VESA Standard

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Samsung SMART TV	M8	M8	M8

• Smart Interaction

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Camera Built-in	No	No	No
Face Recognition	No	No	No
Hand Gesture Recognition	No	No	No
Voice Recognition (Embedded)	No	No	No
Voice Recognition (Server)	No	No	No
VM App	N/A	N/A	N/A
NLU (Natural Language Understanding)	No	No	No
Camera App	No	No	No
HM App	N/A	N/A	N/A
Samsung TV Apps supported	No	No	No

• Feature

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Samsung 3D	No	No	No
3D Converter	No	No	No
Dual View	N/A	N/A	N/A
Samsung One Line	N/A	N/A	N/A
History	No	No	No
MultiTasking	No	No	No
Smart Phone Remote support	No	No	No
Smart Evolution Support	No	No	No
Extended PVR	No	No	No
Time Shift	No	No	No
Allshare Play	No	No	No

AllShare Cloud Storage	N/A	N/A	N/A
ConnectShare™ (USB2.0)	Movie	Movie	Movie
AllShare Cast	No	No	No
RUI	N/A	N/A	N/A
RVU	N/A	N/A	N/A
WiFi Direct	No	No	No
Wireless LAN Built-in	No	No	No
Wireless LAN Adaptor Support	No	No	No
ISP Bound Service	No	No	No
BT HID Built-in	No	No	No
USB HID Support	No	No	No
OSD Language	English	Local Languages	Local Languages
Samsung IR Blaster Support	N/A	N/A	N/A
User Interface	Single	Single	Single
Digital Noise Filter	Yes	Yes	Yes
Analog Signal Booster	N/A	N/A	N/A
Network Speaker Support	No	No	No
MHL	No	No	No
Sound Share	No	No	No
WiDi	No	No	No
Regional EQ	N/A	N/A	N/A
InstaPort S (HDMI quick switch)	No	No	No
HDMI 1.4 3D Auto Setting	No	No	No
HDMI 1.4 A/Return Ch. Support	No	No	No
EPG	No	No	No
Analog Clean View	Yes	Yes	Yes
HbbTV	N/A	N/A	N/A
Teletext (TTX)	Yes	Yes	Yes
Triple Protector	Yes	Yes	Yes (Pakistan Only)
Miracast	No	No	No
Anynet+ (HDMI-CEC)	No	No	No
BD Wise Plus	No	No	No
Auto Channel Search	Yes	Yes	Yes
Auto Power Off	Yes	Yes	Yes
Auto Volume Leveler	Yes	Yes	Yes
Caption (Subtitle)	No	No	No
2 Tuner	No	No	No
Clock&On/Off Timer	Yes	Yes	Yes
Game Mode	Yes	Yes	Yes
Battery Ready	N/A	N/A	N/A

4. Troubleshooting

Picture-In-Picture	No	No	No
Sleep Timer	Yes	Yes	Yes
Screen Burn Protection	N/A	N/A	N/A
Channel List USB-Clone	N/A	N/A	N/A
V-Chip	N/A	N/A	N/A
Embedded POP	Yes	Yes	Yes
Calibration Mode	N/A	N/A	N/A
Channel	Auto Store,Fine Tune	Auto Store,Fine Tune	Auto Store,Fine Tune
Plug&Play	Yes	Yes	Yes
Child Lock	Yes	Yes	Yes
Sports Mode	Basic	Basic	Basic
Paratal Lock	No	No	No
Kids Lock	N/A	N/A	N/A
Media Play(USB & DLNA)	Yes	Yes	Yes
Bluetooth	No	No	No
Home Network Centre	No	No	No
Zero Stand-By Power	N/A	N/A	N/A
USB Copy	Yes	N/A	N/A
ACS	N/A	N/A	N/A
IP Video Closed Caption	N/A	N/A	N/A

• Additional Feature

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Self Diagnosis	Yes	Yes	Yes
Software Upgrade	Yes	Yes	Yes
HD Connection Guide	Yes	Yes	Yes
Contact Samsung	Yes	Yes	Yes

• S/W

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
MCU	X13 (SEMS29)	X13 (SEMS29)	X13 (SEMS29)
OS	N/A	N/A	N/A

• System

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
DTV Tuner	Ready	Ready	Ready
Analog Tuner	Yes	Yes	Yes
CI/CI+	N/A	N/A	N/A
MHP / MHEG (version) / ACAP	N/A	N/A	N/A
NTSC 3.58	Yes	Yes	Yes
NTSC 4.43, VIT	Yes	Yes	Yes

PAL-B/G, D/K, I, I/I'	Yes	Yes	Yes
Scan Type	TBD	TBD	TBD
SECAM-B/G, D/K	Yes	Yes	Yes
SECAM-B/G, D/K, L/L'	N/A	N/A	N/A
Trinorma (PAL M,N)	N/A	N/A	N/A
Broadcast System	N/A	N/A	N/A
ATV Sound System	BG,I,DK	BG,I,DK	BG,I,DK
DTV Video System	N/A	N/A	N/A
DTV Sound System	Dolby	Dolby	Dolby
Tuner Vendor & Model	TBD TBD	TBD TBD	TBD TBD

• Core Component

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
DDR SDRAM	Samsung	Samsung	Samsung
Nand Flash Memory	N/A	N/A	N/A
OneNand Flash Memory	N/A	N/A	N/A
FlexOneNand Flash Memory	N/A	N/A	N/A
Serial Flash Memory	WINBOND	WINBOND	WINBOND
HDMI Switch	N/A	N/A	N/A
Display Device Vender	TBD	TBD	TBD

• Input & Output

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
HDMI	2	2	2
Resolution	640 x 480p, 1280 x 720p 60	640 x 480p, 1280 x 720p 60	640 x 480p, 1280 x 720p 60
DVI Port	Port1 Type	Port1 Type	Port1 Type
PC Resolution	1360 x 768 60 Hz	1360 x 768 60 Hz	1360 x 768 60 Hz
MHL Port	N/A	N/A	N/A
HDMI/DVI SEL	N/A	N/A	N/A
USB	2	1	1
Port 1 Type	Host	Host	Host
Port 2 Type	N/A	N/A	N/A
Port 3 Type	N/A	N/A	N/A
Port 4 Type	N/A	N/A	N/A
Port 5 Type	N/A	N/A	N/A
OS	N/A	N/A	N/A
Component In (Y/Pb/Pr)	1	1	1
Composite In (AV)	1 (Common Use for Component Y)	1 (Common Use for Component Y)	1 (Common Use for Component Y)
Ethernet (LAN)	No	No	No

4. Troubleshooting

Headphone	1	1	1
Digital Audio Out (Optical)	No	No	No
Audio Out (Mini Jack / LR)	No	No	1
PC In (D-sub)	No	No	No
PC Audio In (Mini Jack)	No	No	No
DVI Audio In (Mini Jack)	No	No	No
RF In (Terrestrial/Cable Input)	1	1	1
RF In (Satellite Input)	No	No	No
RS232C (AV CONTROL)	No	No	No
CI Slot	N/A	N/A	N/A
Scart	N/A	N/A	N/A
Port 1 Type	N/A	N/A	N/A
Port 2 Type	N/A	N/A	N/A
Port 3 Type	N/A	N/A	N/A
Port 4 Type	N/A	N/A	N/A
Port 5 Type	N/A	N/A	N/A
Coaxial	N/A	N/A	N/A
EX-Link	N/A	N/A	N/A
Monitor Output	No	No	No
DVI			
Resolution	N/A	N/A	N/A
DVI Port	N/A	N/A	N/A
PC Resolution	N/A N/A	N/A N/A	N/A N/A
D-Sub Resolution	N/A N/A	N/A N/A	N/A N/A

• Design

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Design	RHCM	RHCM	RHCM
Bezel Type	NNB	NNB	NNB
Slim Type	Slim 1	Slim 1	Slim 1
Front Color	Black	Black	Black
Light Effect (Deco)	No	No	No
Stand Type	Square	Round	Round
Swivel (Left/Right)	No	No	No
Push & Pull Camera	N/A	N/A	N/A
Design Name	N/A	N/A	N/A
Design	Steam Mold	Steam Mold	Steam Mold
Front Resin	PC+ABS-GF15%	PC+ABS-GF15%	PC+ABS-GF15%
Stand Packing Type	Bundle	Bundle	Bundle

Eco

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Energy Efficiency Class	TBD	TBD	TBD
Eco Mark	Planet First	Planet First	Planet First
Eco Label	N/A	N/A	N/A
Eco Sensor	No	No	No

Power

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Power Supply (V)	AC100-240V 50/60Hz	AC100-240V 50/60Hz	AC100-240V 50/60Hz
Power Consumption (Max)	TBD	TBD	TBD
Power Consumption (Energy Saving Mode)	TBD	TBD	TBD
Power Consumption (Stand-by)	TBD	TBD	TBD
Power Consumption (IEC 62087 Edition 2)	N/A	N/A	N/A
Peak Luminance Ratio	N/A	N/A	N/A
Yearly Power Consumption (EU standard)	N/A	N/A	N/A
AC Power Voltage & Frequency	50/60Hz	50/60Hz	50/60Hz
SMPS/IP Board	TBD	TBD	TBD

Security

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Kensington Lock	Yes	Yes	Yes

Dimension (WxHxD)

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Set Size without Stand (mm)	645.0 x 384.9 x 49.5 mm	645.0 x 384.9 x 49.5 mm	645.0 x 384.9 x 49.5 mm
Set Size with Stand (mm)	645.0 x 435.6 x 252.6 mm	645.0 x 435.6 x 252.6 mm	645.0 x 435.6 x 252.6 mm
Package Size (mm)	931 x 462 x 143 mm	931 x 462 x 143 mm	931 x 462 x 143 mm

Weight

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Set Weight without Stand (kg)	4.2 Kg	4.2 Kg	4.2 Kg
Set Weight with Stand (kg)	4.6 Kg	4.6 Kg	4.6 Kg
Package Weight (kg)	6.6 Kg	6.6 Kg	6.6 Kg

Loading Quantity

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
20/40Ft	384/768	384/768	384/768

4. Troubleshooting

• Accessory

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
3D Active Glasses (Included)	No	No	No
IR Blaster (Included)	No	No	No
Wireless LAN Adaptor (Included)	No	No	No
Network Speaker (Included)	No	No	No
MOIP Camera (Included)	No	No	No
Wireless Keyboard (Included)	No	No	No
Battery Pack (for Battery Ready TV)	N/A	N/A	N/A
Remote Controller Model	TM1240	TM1240	TM1240
Battery (for Remote Control)	Yes	Yes	Yes
Mini Wall Mount Support	Yes	No	No
Ultra Slim Wall Mount Support	No	No	No
VESA Wall Mount Support	Yes	Yes	Yes
Electric Wall Mount Support	N/A	N/A	N/A
Electric Stand Support	N/A	N/A	N/A
Slim Gender Cable	No	No	No
ANT-Cable	No	No	No
Power Cable	Yes	Yes	Yes
User Manual	Yes	Yes	Yes
E-Manual	No	No	No
Floor Stand Support	No	No	No

• License

Item	UA28F4100ARLXL	UA28F4000ARXSJ	UA28F4000ARXZN
Oracle JAVA	NO	NO	NO
Universal Remote Control	NO	NO	NO
MS DRM	TBD	TBD	TBD
Movie Codec	TBD	TBD	TBD

4-6-3. UA22F5000AR_ UA28F4100AR_3

• General Information

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Product	LED	LED	LED
Cabinet Basic Code	FB	FB	FF
Series	4	4	5
Series Name	LED F4100	LED F4100	LED F5000
Country	MIDDLE EAST	EAST ASIA	EAST ASIA
Tools Support	Non-OS Platform Not support	Non-OS Platform Not support	Non-OS Platform Not support
Platform(TV)	Mstar X13 Non-OS	Mstar X13 Non-OS	Mstar X13 Non-OS

• Display

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Inch	28	28	22
Resolution	1,366 x 768	1,366 x 768	1,920 x 1,080
Ultra Clear Panel	No	No	No
Cell Light Series	N/A	N/A	N/A
Real Black Pro Panel	N/A	N/A	N/A
Clear Image Panel	N/A	N/A	N/A
Lvds Format	JEIDA	JEIDA	VESA
HV Flip	ON	ON	OFF

• Video

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Picture Engine	HyperReal Engine	HyperReal Engine	HyperReal Engine
OLED Motion Rate	N/A	N/A	N/A
Clear Motion Rate	100	100	100
600Hz Subfield Motion	N/A	N/A	N/A
Dynamic Contrast Ratio	Mega DCR	Mega Contrast	Mega Contrast
New Picture Differentiation	N/A	N/A	N/A
Micro Dimming	No	No	No
Cinema Smooth	N/A	N/A	N/A
Precision Black (Local Dimming)	No	No	No
Wide Color Enhancer (Plus)	Yes	Yes	Yes
Auto Motion Plus 120/240Hz	No	No	No
Motion Judder Canceller	N/A	N/A	N/A
Film Mode	Yes	Yes	Yes
Brightness	TBD	TBD	.
Contrast Ratio	TBD	TBD	.
Picture	Film Mode,HDMI Black Level	Film Mode,HDMI Black Level	Film Mode,HDMI Black Level
Detail Resolution	50/60Hz	50/60Hz	50/60Hz
Response Time	TBD	TBD	.
Viewing Angle (H/V)	TBD	TBD	.
Natural Mode Support	ON,OFF,TBD,N/A	No	No
Relax Mode Support	ON,OFF,TBD,N/A	N/A	N/A

• Audio

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Dolby	Dolby Digital,Dolby Digital Plus,MS10,Dolby Pulse,TBD,NO	Dolby Digital Plus / Dolby Pulse	Dolby Digital Plus / Dolby Pulse
SRS / DNSe+	DTS Studio Sound	DTS Studio Sound	DTS Studio Sound

4. Troubleshooting

dtS 2.0+Digital Out / DTS Premium Audio	DTS Premium Audio	DTS Premium Audio	DTS Premium Audio
3D Sound	No	No	No
Sound Customizer	No	No	No
Speaker Type	Down Firing + Full Range	Down Firing + Full Range	Down Firing + Full Range
Sound Output (RMS)	5W x 2	5W x 2	3Wx2
Woofer	No	No	No
Sound	Mono,Stereo,Auto volume,SRS-Trusurround	Mono,Stereo,Auto volume,SRS-Trusurround	Mono,Stereo,Auto volume,SRS-Trusurround
Sound Amp IC	NeoFidelity NTP7412S	NeoFidelity NTP7412S	NeoFidelity NTP7412S
Speaker Volume	5WX2	5WX2	3W x 2
Woofer Speaker Volume	N/A	N/A	N/A
Analog	2Ch	2Ch	2Ch
Digital	N/A	N/A	N/A

• SMART TV Functionality

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Samsung SMART TV	N/A	N/A	N/A
Smart Guide	No	No	No
Family Story	No	No	No
Movie & TV Shows	No	No	No
Fitness	No	No	No
Apps	No	No	No
Kids	No	No	No
Social	No	No	No
Automated Content Recognition (ACR)	N/A	N/A	N/A
Music, Photos & Clip	No	No	No
Samsung SMART View	No	No	No
Smart Hub	No	No	No
Search All	N/A	N/A	N/A
Your Video	No	No	No
Social TV	N/A	N/A	N/A
Samsung Sports Experience (SSE)	No	No	No
Samsung Apps	N/A	N/A	N/A
Smart Scene	No	No	No
Skype™ on Samsung TV	N/A	N/A	N/A
Web Browser	No	No	No
AllShare Control	No	No	No
Recommendation Bar	No	No	No

• VESA Standard

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Samsung SMART TV	M8	M8	M8

• Smart Interaction

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Camera Built-in	No	No	No
Face Recognition	No	No	No
Hand Gesture Recognition	No	No	No
Voice Recognition (Embedded)	No	No	No
Voice Recognition (Server)	No	No	No
VM App	N/A	N/A	N/A
NLU (Natural Language Understanding)	No	No	No
Camera App	No	No	No
HM App	N/A	N/A	N/A
Samsung TV Apps supported	No	No	No

• Feature

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Samsung 3D	No	No	No
3D Converter	No	No	No
Dual View	N/A	N/A	N/A
Samsung One Line	N/A	N/A	N/A
History	No	No	No
MultiTasking	No	No	No
Smart Phone Remote support	No	No	No
Smart Evolution Support	No	No	No
Extended PVR	No	No	No
Time Shift	No	No	No
Allshare Play	No	No	No
AllShare Cloud Storage	N/A	N/A	N/A
ConnectShare™ (USB2.0)	Movie	Movie	Movie
AllShare Cast	No	No	No
RUI	N/A	N/A	N/A
RVU	N/A	N/A	N/A
WiFi Direct	No	No	No
Wireless LAN Built-in	No	No	No
Wireless LAN Adaptor Support	No	No	No
ISP Bound Service	No	No	No
BT HID Built-in	No	No	No

4. Troubleshooting

USB HID Support	No	No	No
OSD Language	Local Language	Local Languages	Local Languages
Samsung IR Blaster Support	N/A	N/A	N/A
User Interface	Single	Single	Single
Digital Noise Filter	Yes	Yes	Yes
Analog Signal Booster	N/A	N/A	N/A
Network Speaker Support	No	No	No
MHL	No	No	No
Sound Share	No	No	No
WiDi	No	No	No
Regional EQ	N/A	N/A	N/A
InstaPort S (HDMI quick switch)	No	No	No
HDMI 1.4 3D Auto Setting	No	No	No
HDMI 1.4 A/Return Ch. Support	No	No	No
EPG	No	No	No
Analog Clean View	Yes	Yes	Yes
HbbTV	N/A	N/A	N/A
Teletext (TTX)	Yes	Yes	Yes
Triple Protector	Yes(Pakistan Only)	Yes(Vietnam Only)	Yes (Vietnam Only)
Miracast	No	No	No
Anynet+ (HDMI-CEC)	No	No	No
BD Wise Plus	No	No	No
Auto Channel Search	Yes	Yes	Yes
Auto Power Off	Yes	Yes	Yes
Auto Volume Leveler	Yes	Yes	Yes
Caption (Subtitle)	No	No	No
2 Tuner	No	No	No
Clock&On/Off Timer	Yes	Yes	Yes
Game Mode	Yes	Yes	Yes
Battery Ready	N/A	N/A	N/A
Picture-In-Picture	No	No	No
Sleep Timer	Yes	Yes	Yes
Screen Burn Protection	N/A	N/A	N/A
Channel List USB-Clone	N/A	N/A	N/A
V-Chip	N/A	N/A	N/A
Embedded POP	Yes	Yes	Yes
Calibration Mode	N/A	N/A	N/A
Channel	Auto Store,Fine Tune	Auto Store,Fine Tune	Auto Store,Fine Tune
Plug&Play	Yes	Yes	Yes
Child Lock	Yes	Yes	Yes

Sports Mode	Basic	Basic	Basic
Paratal Lock	No	No	No
Kids Lock	N/A	N/A	N/A
Media Play(USB & DLNA)	Yes	Yes	Yes
Bluetooth	No	No	No
Home Network Centre	No	No	No
Zero Stand-By Power	N/A	N/A	N/A
USB Copy	Yes	Yes	No
ACS	N/A	N/A	N/A
IP Video Closed Caption	N/A	N/A	N/A

• Additional Feature

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Self Diagnosis	Yes	Yes	Yes
Software Upgrade	Yes	Yes	Yes
HD Connection Guide	Yes	Yes	Yes
Contact Samsung	Yes	Yes	Yes

• S/W

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
MCU	X13 (SEMS29)	X13 (SEMS29)	X13 (SEMS29)
OS	N/A	N/A	N/A

• System

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
DTV Tuner	Ready	Ready	Ready
Analog Tuner	Yes	Yes	Yes
CI/CI+	N/A	N/A	N/A
MHP / MHEG (version) / ACAP	N/A	N/A	N/A
NTSC 3.58	Yes	Yes	Yes
NTSC 4.43, VIT	Yes	Yes	Yes
PAL-B/G, D/K, I, I/I'	Yes	Yes	Yes
Scan Type	TBD	TBD	N/A
SECAM-B/G, D/K	Yes	Yes	Yes
SECAM-B/G, D/K, L/L`	N/A	N/A	N/A
Trinorma (PAL M,N)	N/A	N/A	N/A
Broadcast System	N/A	N/A	N/A
ATV Sound System	BG,I,DK	BG,I,DK	BG,I,DK
DTV Video System	N/A	N/A	N/A
DTV Sound System	Dolby	Dolby	Dolby
Tuner Vendor & Model	TBD TBD	TBD TBD	TBD GTTH-N6B/K3S

4. Troubleshooting

• Core Component

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
DDR SDRAM	Samsung	Samsung	Samsung
Nand Flash Memory	N/A	N/A	N/A
OneNand Flash Memory	N/A	N/A	N/A
FlexOneNand Flash Memory	N/A	N/A	N/A
Serial Flash Memory	WINBOND	WINBOND	WINBOND
HDMI Switch	N/A	N/A	N/A
Display Device Vender	TBD	TBD	BOE

• Input & Output

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
HDMI	2	2	2
Resolution	640 x 480p, 1280 x 720p 60	640 x 480p, 1280 x 720p 60	640 x 480p, 1920 x 1080i 60, 1280 x 720p 60
DVI Port	Port1 Type	Port1 Type	Port1 Type
PC Resolution	1360 x 768 60 Hz	1360 x 768 60 Hz	1920 x 1080 60 Hz
MHL Port	N/A	N/A	N/A
HDMI/DVI SEL	N/A	N/A	N/A
USB	2	2	1
Port 1 Type	Host	Host	Host
Port 2 Type	N/A	N/A	N/A
Port 3 Type	N/A	N/A	N/A
Port 4 Type	N/A	N/A	N/A
Port 5 Type	N/A	N/A	N/A
OS	N/A	N/A	N/A
Component In (Y/Pb/Pr)	1	2	1
Composite In (AV)	1 (Common Use for Component Y)	1 (Common Use for Component Y)	1 (Common Use for Component Y)
Ethernet (LAN)	No	No	No
Headphone	1	1	1
Digital Audio Out (Optical)	No	No	No
Audio Out (Mini Jack / LR)	No	No	No
PC In (D-sub)	No	No	No
PC Audio In (Mini Jack)	No	No	No
DVI Audio In (Mini Jack)	No	No	No
RF In (Terrestrial/Cable Input)	1	1	1
RF In (Satellite Input)	No	No	No
RS232C (AV CONTROL)	No	No	No
CI Slot	N/A	N/A	N/A
Scart	N/A	N/A	N/A
Port 1 Type	N/A	N/A	N/A

Port 2 Type	N/A	N/A	N/A
Port 3 Type	N/A	N/A	N/A
Port 4 Type	N/A	N/A	N/A
Port 5 Type	N/A	N/A	N/A
Coaxial	N/A	N/A	N/A
EX-Link	N/A	N/A	N/A
Monitor Output	No	No	N/A
DVI			
Resolution	N/A	N/A	N/A
DVI Port	N/A	N/A	N/A
PC Resolution	N/A N/A	N/A N/A	N/A N/A
D-Sub Resolution	N/A N/A	N/A N/A	N/A N/A

• Design

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Design	RHCM	RHCM	RHCM
Bezel Type	NNB	NNB	NNB
Slim Type	Slim 1	Slim 1	Slim 1
Front Color	Black	Black	Black
Light Effect (Deco)	No	No	No
Stand Type	Round	Round	Square
Swivel (Left/Right)	No	No	No
Push & Pull Camera	N/A	N/A	N/A
Design Name	N/A	N/A	N/A
Design	Steam Mold	Steam Mold	Steam Mold
Front Resin	PC+ABS-GF15%	PC+ABS-GF15%	PC+ABS+GF15%
Stand Packing Type	Bundle	Bundle	Bundle

• Eco

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Energy Efficiency Class	TBD	TBD	N/A
Eco Mark	Planet First	Planet First	Planet First
Eco Label	N/A	N/A	N/A
Eco Sensor	No	No	No

• Power

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Power Supply (V)	AC100-240V 50/60Hz	AC100-240V 50/60Hz	AC100-240V 50/60Hz
Power Consumption (Max)	TBD	TBD	
Power Consumption (Energy Saving Mode)	TBD	TBD	N/A
Power Consumption (Stand-by)	TBD	TBD	0.3W

4. Troubleshooting

Power Consumption (IEC 62087 Edition 2)	N/A	N/A	N/A
Peak Luminance Ratio	N/A	N/A	N/A
Yearly Power Consumption (EU standard)	N/A	N/A	N/A
AC Power Voltage & Frequency	50/60Hz	50/60Hz	50/60Hz
SMPS/IP Board	TBD	TBD	Adaptor (POWERNET)

• Security

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Kensington Lock	Yes	Yes	Yes

• Dimension (WxHxD)

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Set Size without Stand (mm)	645.0 x 384.9 x 49.5 mm	645.0 x 384.9 x 49.5 mm	513.1 x 321.5 x 43.8 mm
Set Size with Stand (mm)	645.0 x 435.6 x 252.6 mm	645.0 x 435.6 x 252.6 mm	513.1 x 366.5 x 169.6 mm
Package Size (mm)	931 x 462 x 143 mm	931 x 462 x 143 mm	668 x 381 x 132 mm

• Weight

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Set Weight without Stand (kg)	4.2 Kg	4.2 Kg	2.6 Kg
Set Weight with Stand (kg)	4.6 Kg	4.6 Kg	2.9 Kg
Package Weight (kg)	6.6 Kg	6.6 Kg	4.3 Kg

• Loading Quantity

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
20/40Ft	384/768	384/768	640/1344

• Accessory

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
3D Active Glasses (Included)	No	No	No
IR Blaster (Included)	No	No	No
Wireless LAN Adaptor (Included)	No	No	No
Network Speaker (Included)	No	No	No
MOIP Camera (Included)	No	No	No
Wireless Keyboard (Included)	No	No	No
Battery Pack (for Battery Ready TV)	N/A	N/A	N/A
Remote Controller Model	TM1240	TM1240	TM1240
Battery (for Remote Control)	Yes	Yes	Yes
Mini Wall Mount Support	No	No	No
Ultra Slim Wall Mount Support	No	No	No
VESA Wall Mount Support	Yes	Yes	Yes

Electric Wall Mount Support	N/A	N/A	N/A
Electric Stand Support	N/A	N/A	N/A
Slim Gender Cable	No	No	No
ANT-Cable	No	No	No
Power Cable	Yes	Yes	Yes
User Manual	Yes	Yes	Yes
E-Manual	No	No	No
Floor Stand Support	No	No	No

- License**

Item	UA28F4100ARXZN	UA28F4100ARXXV	UA22F5000ARXXT
Oracle JAVA	NO	NO	NO
Universal Remote Control	NO	NO	NO
MS DRM	TBD	TBD	NO
Movie Codec	TBD	TBD	DivX

4-6-4. UA22F5000AR_ UA22F5100AR_4

- General Information**

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Product	LED	LED	LED
Cabinet Basic Code	FF	FF	FF
Series	5	5	5
Series Name	LED F5000	LED F5100	LED F5000
Country	INDIA	INDIA	AFRICA
Tools Support	Non-OS Platform Not support	Non-OS Platform Not support	Non-OS Platform Not support
Platform(TV)	Mstar X13 Non-OS	Mstar X13 Non-OS	Mstar X13 Non-OS

- Display**

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Inch	22	22	22
Resolution	1,920 x 1,080	1,920 x 1,080	1,920 x 1,080
Ultra Clear Panel	No	No	No
Cell Light Series	N/A	N/A	N/A
Real Black Pro Panel	N/A	N/A	N/A
Clear Image Panel	N/A	N/A	N/A
Lvds Format	VESA	VESA	VESA
HV Flip	OFF	OFF	OFF

- Video**

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Picture Engine	HyperReal Engine	HyperReal Engine	HyperReal Engine

4. Troubleshooting

OLED Motion Rate	N/A	N/A	N/A
Clear Motion Rate	100	100	100
600Hz Subfield Motion	N/A	N/A	N/A
Dynamic Contrast Ratio	Mega Contrast	Mega Contrast	Mega Contrast
New Picture Differentiation	N/A	N/A	N/A
Micro Dimming	No	No	No
Cinema Smooth	N/A	N/A	N/A
Precision Black (Local Dimming)	No	No	No
Wide Color Enhancer (Plus)	Yes	Yes	Yes
Auto Motion Plus 120/240Hz	No	No	No
Motion Judder Canceller	N/A	N/A	N/A
Film Mode	Yes	Yes	Yes
Brightness	.	.	.
Contrast Ratio	.	.	.
Picture	Film Mode,HDMI Black Level	Film Mode,HDMI Black Level	Film Mode,HDMI Black Level
Detail Resolution	50/60Hz	50/60Hz	50/60Hz
Response Time	.	.	.
Viewing Angle (H/V)	.	.	.
Natural Mode Support	No	No	No
Relax Mode Support	N/A	N/A	N/A

• Audio

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Dolby	Dolby Digital Plus / Dolby Pulse	Dolby Digital Plus / Dolby Pulse	Dolby Digital Plus / Dolby Pulse
SRS / DNSe+	DTS Studio Sound	DTS Studio Sound	DTS Studio Sound
dts 2.0+Digital Out / DTS Premium Audio	DTS Premium Audio	DTS Premium Audio	DTS Premium Audio
3D Sound	No	No	No
Sound Customizer	No	No	No
Speaker Type	Down Firing + Full Range	Down Firing + Full Range	Down Firing + Full Range
Sound Output (RMS)	3Wx2	3Wx2	3Wx2
Woofer	No	No	No
Sound	Mono,Stereo,Auto volume,SRS-Trusurround	Mono,Stereo,Auto volume,SRS-Trusurround	Mono,Stereo,Auto volume,SRS-Trusurround
Sound Amp IC	NeoFidelity NTP7412S	NeoFidelity NTP7412S	NeoFidelity NTP7412S
Speaker Volume	3W x 2	3W x 2	3W x 2
Woofer Speaker Volume	N/A	N/A	N/A
Analog	2Ch	2Ch	2Ch
Digital	N/A	N/A	N/A

• SMART TV Functionality

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Samsung SMART TV	N/A	N/A	N/A
Smart Guide	No	No	No
Family Story	No	No	No
Movie & TV Shows	No	No	No
Fitness	No	No	No
Apps	No	No	No
Kids	No	No	No
Social	No	No	No
Automated Content Recognition (ACR)	N/A	N/A	N/A
Music, Photos & Clip	No	No	No
Samsung SMART View	No	No	No
Smart Hub	No	No	No
Search All	N/A	N/A	N/A
Your Video	No	No	No
Social TV	N/A	N/A	N/A
Samsung Sports Experience (SSE)	No	No	No
Samsung Apps	N/A	N/A	N/A
Smart Scene	No	No	No
Skype™ on Samsung TV	N/A	N/A	N/A
Web Browser	No	No	No
AllShare Control	No	No	No
Recommendation Bar	No	No	No

• VESA Standard

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Samsung SMART TV	M8	M8	M8

• Smart Interaction

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Camera Built-in	No	No	No
Face Recognition	No	No	No
Hand Gesture Recognition	No	No	No
Voice Recognition (Embedded)	No	No	No
Voice Recognition (Server)	No	No	No
VM App	N/A	N/A	N/A
NLU (Natural Language Understanding)	No	No	No
Camera App	No	No	No

4. Troubleshooting

HM App	N/A	N/A	N/A
Samsung TV Apps supported	No	No	No

• Feature

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Samsung 3D	No	No	No
3D Converter	No	No	No
Dual View	N/A	N/A	N/A
Samsung One Line	N/A	N/A	N/A
History	No	No	No
MultiTasking	No	No	No
Smart Phone Remote support	No	No	No
Smart Evolution Support	No	No	No
Extended PVR	No	No	No
Time Shift	No	No	No
AllShare Play	No	No	No
AllShare Cloud Storage	N/A	N/A	N/A
ConnectShare™ (USB2.0)	Movie	Movie	Movie
AllShare Cast	No	No	No
RUI	N/A	N/A	N/A
RVU	N/A	N/A	N/A
WiFi Direct	No	No	No
Wireless LAN Built-in	No	No	No
Wireless LAN Adaptor Support	No	No	No
ISP Bound Service	No	No	No
BT HID Built-in	No	No	No
USB HID Support	No	No	No
OSD Language	English	English	Local Languages
Samsung IR Blaster Support	N/A	N/A	N/A
User Interface	Single	Single	Single
Digital Noise Filter	Yes	Yes	Yes
Analog Signal Booster	N/A	N/A	N/A
Network Speaker Support	No	No	No
MHL	No	No	No
Sound Share	No	No	No
WiDi	No	No	No
Regional EQ	N/A	N/A	N/A
InstaPort S (HDMI quick switch)	No	No	No
HDMI 1.4 3D Auto Setting	No	No	No
HDMI 1.4 A/Return Ch. Support	No	No	No

EPG	No	No	No
Analog Clean View	Yes	Yes	Yes
HbbTV	N/A	N/A	N/A
Teletext (TTX)	Yes	Yes	Yes
Triple Protector	Yes	Yes	Yes
Miracast	No	No	No
Anynet+ (HDMI-CEC)	No	No	No
BD Wise Plus	No	No	No
Auto Channel Search	Yes	Yes	Yes
Auto Power Off	Yes	Yes	Yes
Auto Volume Leveler	Yes	Yes	Yes
Caption (Subtitle)	No	No	No
2 Tuner	No	No	No
Clock&On/Off Timer	Yes	Yes	Yes
Game Mode	Yes	Yes	Yes
Battery Ready	N/A	N/A	N/A
Picture-In-Picture	No	No	No
Sleep Timer	Yes	Yes	Yes
Screen Burn Protection	N/A	N/A	N/A
Channel List USB-Clone	N/A	N/A	N/A
V-Chip	N/A	N/A	N/A
Embedded POP	Yes	Yes	Yes
Calibration Mode	N/A	N/A	N/A
Channel	Auto Store,Fine Tune	Auto Store,Fine Tune	Auto Store,Fine Tune
Plug&Play	Yes	Yes	Yes
Child Lock	Yes	Yes	Yes
Sports Mode	Basic	Basic	Basic
Paratal Lock	No	No	No
Kids Lock	N/A	N/A	N/A
Media Play(USB & DLNA)	Yes	Yes	Yes
Bluetooth	No	No	No
Home Network Centre	No	No	No
Zero Stand-By Power	N/A	N/A	N/A
USB Copy	No	Yes	N/A
ACS	N/A	N/A	N/A
IP Video Closed Caption	N/A	N/A	N/A

• **Additional Feature**

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Self Diagnosis	Yes	Yes	Yes

4. Troubleshooting

Software Upgrade	Yes	Yes	Yes
HD Connection Guide	Yes	Yes	Yes
Contact Samsung	Yes	Yes	Yes

• S/W

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
MCU	X13 (SEMS29)	X13 (SEMS29)	X13 (SEMS29)
OS	N/A	N/A	N/A

• System

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
DTV Tuner	Ready	Ready	Ready
Analog Tuner	Yes	Yes	Yes
CI/CI+	N/A	N/A	N/A
MHP / MHEG (version) / ACAP	N/A	N/A	N/A
NTSC 3.58	Yes	Yes	Yes
NTSC 4.43, VIT	Yes	Yes	Yes
PAL-B/G, D/K, I, I/I'	Yes	Yes	Yes
Scan Type	N/A	N/A	N/A
SECAM-B/G, D/K	Yes	Yes	Yes
SECAM-B/G, D/K, L/L`	N/A	N/A	N/A
Trinorma (PAL M,N)	N/A	N/A	N/A
Broadcast System	N/A	N/A	N/A
ATV Sound System	BG,I,DK	BG,I,DK	BG,I,DK
DTV Video System	N/A	N/A	N/A
DTV Sound System	Dolby	Dolby	Dolby
Tuner Vendor & Model	GTTH-N6B/K3S	GTTH-N6B/K3S	GTTH-N6B/K3S

• Core Component

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
DDR SDRAM	Samsung	Samsung	Samsung
Nand Flash Memory	N/A	N/A	N/A
OneNand Flash Memory	N/A	N/A	N/A
FlexOneNand Flash Memory	N/A	N/A	N/A
Serial Flash Memory	WINBOND	WINBOND	WINBOND
HDMI Switch	N/A	N/A	N/A
Display Device Vender	BOE	BOE	BOE

• Input & Output

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
HDMI	2	2	2

Resolution	640 x 480p,1920 x 1080i 60,1280 x 720p 60	640 x 480p,1920 x 1080i 60,1280 x 720p 60	640 x 480p,1920 x 1080i 60,1280 x 720p 60
DVI Port	Port1 Type	Port1 Type	Port1 Type
PC Resolution	1920 x 1080 60 Hz	1920 x 1080 60 Hz	1920 x 1080 60 Hz
MHL Port	N/A	N/A	N/A
HDMI/DVI SEL	N/A	N/A	N/A
USB	1	2	1
Port 1 Type	Host	Host	Host
Port 2 Type	N/A	N/A	N/A
Port 3 Type	N/A	N/A	N/A
Port 4 Type	N/A	N/A	N/A
Port 5 Type	N/A	N/A	N/A
OS	N/A	N/A	N/A
Component In (Y/Pb/Pr)	1	1	1
Composite In (AV)	1 (Common Use for Component Y)	1 (Common Use for Component Y)	1 (Common Use for Component Y)
Ethernet (LAN)	No	No	No
Headphone	1	1	1
Digital Audio Out (Optical)	No	No	No
Audio Out (Mini Jack / LR)	No	No	No
PC In (D-sub)	No	No	No
PC Audio In (Mini Jack)	No	No	No
DVI Audio In (Mini Jack)	No	No	No
RF In (Terrestrial/Cable Input)	1	1	1
RF In (Satelite Input)	No	No	No
RS232C (AV CONTROL)	No	No	No
CI Slot	N/A	N/A	N/A
Scart	N/A	N/A	N/A
Port 1 Type	N/A	N/A	N/A
Port 2 Type	N/A	N/A	N/A
Port 3 Type	N/A	N/A	N/A
Port 4 Type	N/A	N/A	N/A
Port 5 Type	N/A	N/A	N/A
Coaxial	N/A	N/A	N/A
EX-Link	N/A	N/A	N/A
Monitor Output	N/A	N/A	N/A
DVI			
Resolution	N/A	N/A	N/A
DVI Port	N/A	N/A	N/A
PC Resolution	N/A N/A	N/A N/A	N/A N/A
D-Sub Resolution	N/A N/A	N/A N/A	N/A N/A

4. Troubleshooting

• Design

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Design	RHCM	RHCM	RHCM
Bezel Type	NNB	NNB	NNB
Slim Type	Slim 1	Slim 1	Slim 1
Front Color	Black	Red Deco	Black
Light Effect (Deco)	No	No	No
Stand Type	Square	Square	Square
Swivel (Left/Right)	No	No	No
Push & Pull Camera	N/A	N/A	N/A
Design Name	N/A	N/A	N/A
Design	Steam Mold	Steam Mold	Steam Mold
Front Resin	PC+ABS+GF15%	PC+ABS+GF15%	PC+ABS+GF15%
Stand Packing Type	Bundle	Bundle	Bundle

• Eco

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Energy Efficiency Class	N/A	N/A	N/A
Eco Mark	Planet First	Planet First	Planet First
Eco Label	N/A	N/A	N/A
Eco Sensor	No	No	No

• Power

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Power Supply (V)	AC100-240V 50/60Hz	AC100-240V 50/60Hz	AC100-240V 50/60Hz
Power Consumption (Max)			
Power Consumption (Energy Saving Mode)	N/A	N/A	N/A
Power Consumption (Stand-by)	0.3W	0.3W	0.3W
Power Consumption (IEC 62087 Edition 2)	N/A	N/A	N/A
Peak Luminance Ratio	N/A	N/A	N/A
Yearly Power Consumption (EU standard)	N/A	N/A	N/A
AC Power Voltage & Frequency	50/60Hz	50/60Hz	50/60Hz
SMPS/IP Board	Adaptor (POWERNET)	Adaptor (POWERNET)	Adaptor (POWERNET)

• Security

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Kensington Lock	Yes	Yes	Yes

• Dimension (WxHxD)

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Set Size without Stand (mm)	513.1 x 321.5 x 43.8 mm	513.1 x 321.5 x 43.8 mm	513.1 x 321.5 x 43.8 mm
Set Size with Stand (mm)	513.1 x 366.5 x 169.6 mm	513.1 x 366.5 x 169.6 mm	513.1 x 366.5 x 169.6 mm
Package Size (mm)	668 x 381 x 132 mm	668 x 381 x 132 mm	668 x 381 x 132 mm

• Weight

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Set Weight without Stand (kg)	2.6 Kg	2.6 Kg	2.6 Kg
Set Weight with Stand (kg)	2.9 Kg	2.9 Kg	2.9 Kg
Package Weight (kg)	4.3 Kg	4.3 Kg	4.3 Kg

• Loading Quantity

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
20/40Ft	640/1344	640/1344	640/1344

• Accessory

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
3D Active Glasses (Included)	No	No	No
IR Blaster (Included)	No	No	No
Wireless LAN Adaptor (Included)	No	No	No
Network Speaker (Included)	No	No	No
MOIP Camera (Included)	No	No	No
Wireless Keyboard (Included)	No	No	No
Battery Pack (for Battery Ready TV)	N/A	N/A	N/A
Remote Controller Model	TM1240	TM1240	TM1240
Battery (for Remote Control)	Yes	Yes	Yes
Mini Wall Mount Support	No	No	No
Ultra Slim Wall Mount Support	No	No	No
VESA Wall Mount Support	Yes	Yes	Yes
Electric Wall Mount Support	N/A	N/A	N/A
Electric Stand Support	N/A	N/A	N/A
Slim Gender Cable	No	No	No
ANT-Cable	No	No	No
Power Cable	Yes	Yes	Yes
User Manual	Yes	Yes	Yes
E-Manual	No	No	No
Floor Stand Support	No	No	No

4. Troubleshooting

• License

Item	UA22F5000ARLXL	UA22F5100ARLXL	UA22F5000ARXSJ
Oracle JAVA	NO	NO	NO
Universal Remote Control	NO	NO	NO
MS DRM	NO	NO	NO
Movie Codec	DivX	DivX	DivX

4-6-5. UA22F5000AR_5

• General Information

Item	UA22F5000ARXZN
Product	LED
Cabinet Basic Code	FF
Series	5
Series Name	LED F5000
Country	AFRICA
Tools Support	Non-OS Platform Not support
Platform(TV)	Mstar X13 Non-OS

• Display

Item	UA22F5000ARXZN
Inch	22
Resolution	1,920 x 1,080
Ultra Clear Panel	No
Cell Light Series	N/A
Real Black Pro Panel	N/A
Clear Image Panel	N/A
Lvds Format	VESA
HV Flip	OFF

• Video

Item	UA22F5000ARXZN
Picture Engine	HyperReal Engine
OLED Motion Rate	N/A
Clear Motion Rate	100
600Hz Subfield Motion	N/A
Dynamic Contrast Ratio	Mega Contrast
New Picture Differentiation	N/A
Micro Dimming	No
Cinema Smooth	N/A
Precision Black (Local Dimming)	No
Wide Color Enhancer (Plus)	Yes

Auto Motion Plus 120/240Hz	No
Motion Judder Canceller	N/A
Film Mode	Yes
Brightness	.
Contrast Ratio	.
Picture	Film Mode,HDMI Black Level
Detail Resolution	50/60Hz
Response Time	.
Viewing Angle (H/V)	.
Natural Mode Support	No
Relax Mode Support	N/A

- Audio**

Item	UA22F5000ARXZN
Dolby	Dolby Digital Plus / Dolby Pulse
SRS / DNSe+	DTS Studio Sound
dts 2.0+Digital Out / DTS Premium Audio	DTS Premium Audio
3D Sound	No
Sound Customizer	No
Speaker Type	Down Firing + Full Range
Sound Output (RMS)	3Wx2
Woofer	No
Sound	Mono,Stereo,Auto volume,SRS-Trusurround
Sound Amp IC	NeoFidelity NTP7412S
Speaker Volume	3W x 2
Woofer Speaker Volume	N/A
Analog	2Ch
Digital	N/A

- SMART TV Functionality**

Item	UA22F5000ARXZN
Samsung SMART TV	N/A
Smart Guide	No
Family Story	No
Movie & TV Shows	No
Fitness	No
Apps	No
Kids	No
Social	No
Automated Content Recognition (ACR)	N/A

4. Troubleshooting

Music, Photos & Clip	No
Samsung SMART View	No
Smart Hub	No
Search All	N/A
Your Video	No
Social TV	N/A
Samsung Sports Experience (SSE)	No
Samsung Apps	N/A
Smart Scene	No
Skype™ on Samsung TV	N/A
Web Browser	No
AllShare Control	No
Recommendation Bar	No

- **VESA Standard**

Item	UA22F5000ARXZN
Samsung SMART TV	M8

- **Smart Interaction**

Item	UA22F5000ARXZN
Camera Built-in	No
Face Recognition	No
Hand Gesture Recognition	No
Voice Recognition (Embedded)	No
Voice Recognition (Server)	No
VM App	N/A
NLU (Natural Language Understanding)	No
Camera App	No
HM App	N/A
Samsung TV Apps supported	No

- **Feature**

Item	UA22F5000ARXZN
Samsung 3D	No
3D Converter	No
Dual View	N/A
Samsung One Line	N/A
History	No
MultiTasking	No
Smart Phone Remote support	No

Smart Evolution Support	No
Extended PVR	No
Time Shift	No
Allshare Play	No
AllShare Cloud Storage	N/A
ConnectShare™ (USB2.0)	Movie
AllShare Cast	No
RUI	N/A
RVU	N/A
WiFi Direct	No
Wireless LAN Built-in	No
Wireless LAN Adaptor Support	No
ISP Bound Service	No
BT HID Built-in	No
USB HID Support	No
OSD Language	Local Languages
Samsung IR Blaster Support	N/A
User Interface	Single
Digital Noise Filter	Yes
Analog Signal Booster	N/A
Network Speaker Support	No
MHL	No
Sound Share	No
WiDi	No
Regional EQ	N/A
InstaPort S (HDMI quick switch)	No
HDMI 1.4 3D Auto Setting	No
HDMI 1.4 A/Return Ch. Support	No
EPG	No
Analog Clean View	Yes
HbbTV	N/A
Teletext (TTX)	Yes
Triple Protector	Yes (Pakistan Only)
Miracast	No
Anynet+ (HDMI-CEC)	No
BD Wise Plus	No
Auto Channel Search	Yes
Auto Power Off	Yes
Auto Volume Leveler	Yes
Caption (Subtitle)	No

4. Troubleshooting

2 Tuner	No
Clock&On/Off Timer	Yes
Game Mode	Yes
Battery Ready	N/A
Picture-In-Picture	No
Sleep Timer	Yes
Screen Burn Protection	N/A
Channel List USB-Clone	N/A
V-Chip	N/A
Embedded POP	Yes
Calibration Mode	N/A
Channel	Auto Store,Fine Tune
Plug&Play	Yes
Child Lock	Yes
Sports Mode	Basic
Paratal Lock	No
Kids Lock	N/A
Media Play(USB & DLNA)	Yes
Bluetooth	No
Home Network Centre	No
Zero Stand-By Power	N/A
USB Copy	No
ACS	N/A
IP Video Closed Caption	N/A

• Additional Feature

Item	UA22F5000ARXZN
Self Diagnosis	Yes
Software Upgrade	Yes
HD Connection Guide	Yes
Contact Samsung	Yes

• S/W

Item	UA22F5000ARXZN
MCU	X13 (SEMS29)
OS	N/A

• System

Item	UA22F5000ARXZN
DTV Tuner	Ready
Analog Tuner	Yes

CI/CI+	N/A
MHP / MHEG (version) / ACAP	N/A
NTSC 3.58	Yes
NTSC 4.43, VIT	Yes
PAL-B/G, D/K, I, I/I'	Yes
Scan Type	N/A
SECAM-B/G, D/K	Yes
SECAM-B/G, D/K, L/L'	N/A
Trinorma (PAL M,N)	N/A
Broadcast System	N/A
ATV Sound System	BG,I,DK
DTV Video System	N/A
DTV Sound System	Dolby
Tuner Vendor & Model	GTTH-N6B/K3S

- **Core Component**

Item	UA22F5000ARXZN
DDR SDRAM	Samsung
Nand Flash Memory	N/A
OneNand Flash Memory	N/A
FlexOneNand Flash Memory	N/A
Serial Flash Memory	WINBOND
HDMI Switch	N/A
Display Device Vender	BOE

- **Input & Output**

Item	UA22F5000ARXZN
HDMI	2
Resolution	640 x 480p,1920 x 1080i 60,1280 x 720p 60
DVI Port	Port1 Type
PC Resolution	1920 x 1080 60 Hz
MHL Port	N/A
HDMI/DVI SEL	N/A
USB	1
Port 1 Type	Host
Port 2 Type	N/A
Port 3 Type	N/A
Port 4 Type	N/A
Port 5 Type	N/A
OS	N/A

4. Troubleshooting

Component In (Y/Pb/Pr)	1
Composite In (AV)	1 (Common Use for Component Y)
Ethernet (LAN)	No
Headphone	1
Digital Audio Out (Optical)	No
Audio Out (Mini Jack / LR)	No
PC In (D-sub)	No
PC Audio In (Mini Jack)	No
DVI Audio In (Mini Jack)	No
RF In (Terrestrial/Cable Input)	1
RF In (Satellite Input)	No
RS232C (AV CONTROL)	No
CI Slot	N/A
Scart	N/A
Port 1 Type	N/A
Port 2 Type	N/A
Port 3 Type	N/A
Port 4 Type	N/A
Port 5 Type	N/A
Coaxial	N/A
EX-Link	N/A
Monitor Output	N/A
DVI	
Resolution	N/A
DVI Port	N/A
PC Resolution	N/A N/A
D-Sub Resolution	N/A N/A

• Design

Item	UA22F5000ARXZN
Design	RHCM
Bezel Type	NNB
Slim Type	Slim 1
Front Color	Black
Light Effect (Deco)	No
Stand Type	Square
Swivel (Left/Right)	No
Push & Pull Camera	N/A
Design Name	N/A
Design	Steam Mold

Front Resin	PC+ABS+GF15%
Stand Packing Type	Bundle

- Eco**

Item	UA22F5000ARXZN
Energy Efficiency Class	N/A
Eco Mark	Planet First
Eco Label	N/A
Eco Sensor	No

- Power**

Item	UA22F5000ARXZN
Power Supply (V)	AC100-240V 50/60Hz
Power Consumption (Max)	
Power Consumption (Energy Saving Mode)	N/A
Power Consumption (Stand-by)	0.3W
Power Consumption (IEC 62087 Edition 2)	N/A
Peak Luminance Ratio	N/A
Yearly Power Consumption (EU standard)	N/A
AC Power Voltage & Frequency	50/60Hz
SMPS/IP Board	Adaptor (POWERNET)

- Security**

Item	UA22F5000ARXZN
Kensington Lock	Yes

- Dimension (WxHxD)**

Item	UA22F5000ARXZN
Set Size without Stand (mm)	513.1 x 321.5 x 43.8 mm
Set Size with Stand (mm)	513.1 x 366.5 x 169.6 mm
Package Size (mm)	668 x 381 x 132 mm

- Weight**

Item	UA22F5000ARXZN
Set Weight without Stand (kg)	2.6 Kg
Set Weight with Stand (kg)	2.9 Kg
Package Weight (kg)	4.3 Kg

- Loading Quantity**

Item	UA22F5000ARXZN
20/40Ft	640/1344

4. Troubleshooting

• Accessory

Item	UA22F5000ARXZN
3D Active Glasses (Included)	No
IR Blaster (Included)	No
Wireless LAN Adaptor (Included)	No
Network Speaker (Included)	No
MOIP Camera (Included)	No
Wireless Keyboard (Included)	No
Battery Pack (for Battery Ready TV)	N/A
Remote Controller Model	TM1240
Battery (for Remote Control)	Yes
Mini Wall Mount Support	No
Ultra Slim Wall Mount Support	No
VESA Wall Mount Support	Yes
Electric Wall Mount Support	N/A
Electric Stand Support	N/A
Slim Gender Cable	No
ANT-Cable	No
Power Cable	Yes
User Manual	Yes
E-Manual	No
Floor Stand Support	No

• License

Item	UA22F5000ARXZN
Oracle JAVA	NO
Universal Remote Control	NO
MS DRM	NO
Movie Codec	DivX

4-7. Software Upgrade

Software Upgrade can be performed by downloading the latest firmware from samsung.com to a USB memory device.

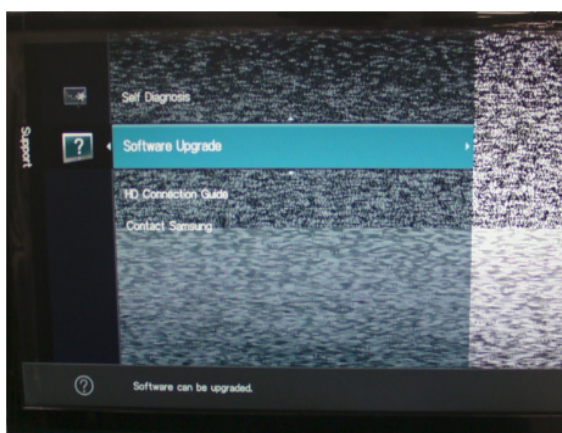
- Current Version - The software already installed in the TV.

Software is represented as 'Year/Month/Day_Version'.

4-7-1. How to Check the Software Version

■ Use the Main Menu

1. Click the "MENU" key in remote controller.
2. Select "Support" menu.
3. Locate the menu cursor "Software Upgrade" menu.
4. Click the "INFO" key.
 - Check the Main SW and Micom version.



■ Use the Factory Mode

Option	T-M13FMASC-xxxx.x
Control	DTP-LP3-0278
Debug	DTP-LP3-App-0278
SVC	HDCP : SUCCESS
ADC/WB	CALIB:HDMI/COMP/PC/AV/
Advanced	OPTION:22B6TF0E,EA_Thai,5000,NONE
	USB Serial:OFF
	Picture Data:**.**.**
	BuildDate : **.**.****
	Date Of Purchase : **/**/**

4-7-2. How to Upgrade Software and Micom

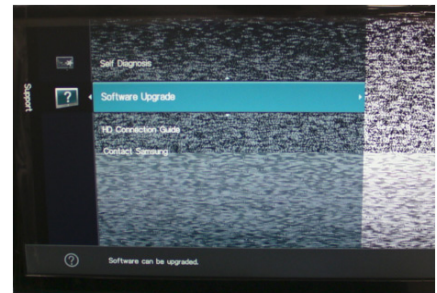
Insert a USB drive containing the firmware upgrade downloaded from samsung.com into the TV. Please be careful not to disconnect the power or remove the USB drive while upgrades are being applied. The TV will turn off and turn on automatically after completing the firmware upgrade. Please check the firmware version after the upgrades are complete (the new version will have a higher number than the older version). When software is upgraded, video and audio settings you have made will return to their default (factory) settings. We recommend you write down your settings before beginning firmware update. After update is completed, restore your previous settings.

■ Main Software Upgrade

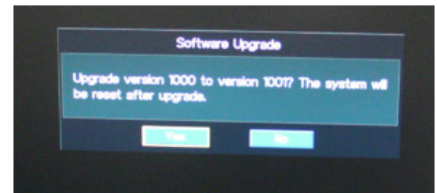
1. Save the firmware([FHD]"T-M13FMASC" or [HD]"T-M13HMACS") folder to the root directory of a USB drive.
 - Connect the USB.



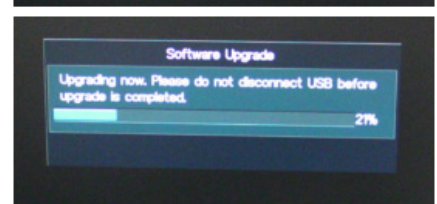
2. Click the "MENU" key in Remote Controller.
3. Select "Support" menu.
Select "Software Upgrade".



4. Click the "ENTER" key.

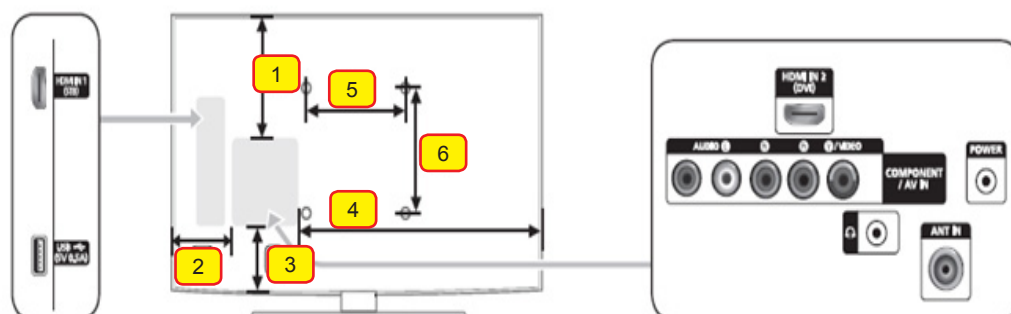


5. Click the "ENTER" key.
 - Wait for upgrade complete.
 - Check the Software Version.



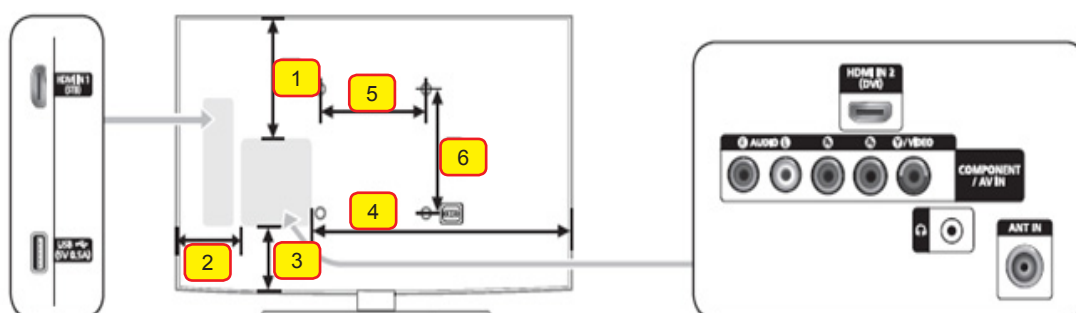
4-8. Rear Cover Dimension

■ UA19F4000AR/UA22F5000AR/ UA22F5100AR



Item	1	2	3	4	5	6
19"	3.0	3.1	3.1	6.9	2.9	2.9
22"	4.4	4.4	2.6	8.2	2.9	2.9

■ UA28F4000AR/ UA28F4100AR

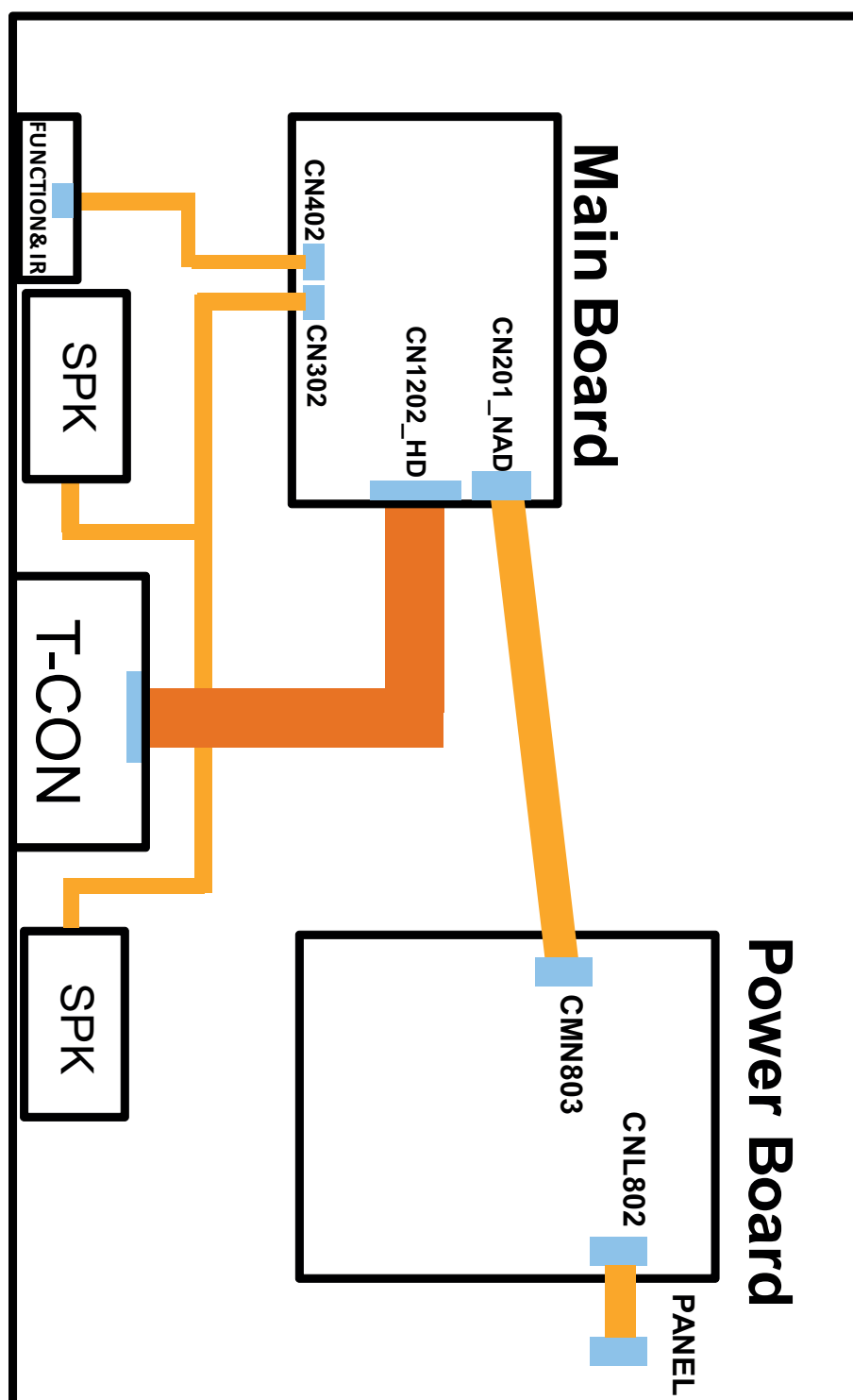


Item	1	2	3	4	5	6
28"	4.4	4.4	2.6	8.2	2.9	2.9

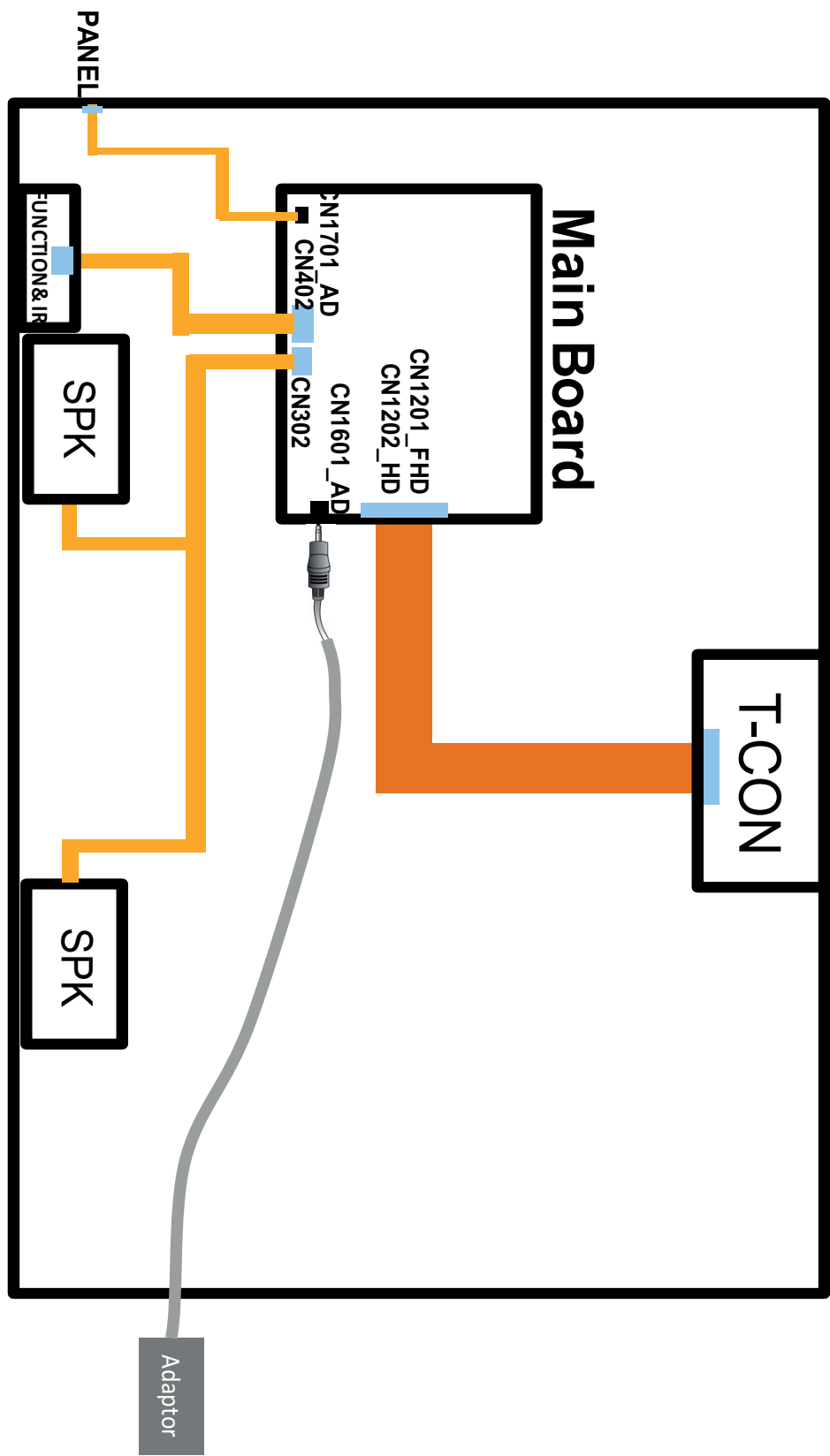
5. Wiring Diagram

5-1. Wiring Diagram

■ UA28F4000AR / UA28F4100AR

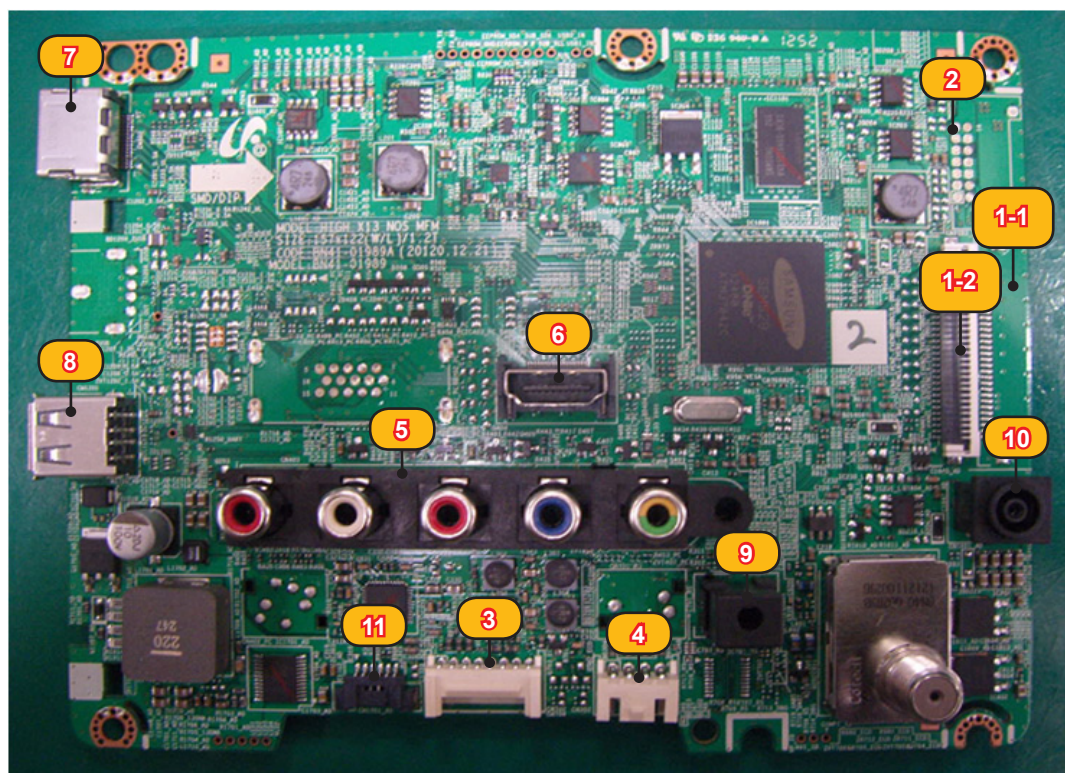


■ UA19F4000AR / UA22F5000AR / UA22F5100AR



5-2. Connector

■ Main Board



1-1 CN1302_HD / 1-2 CN1303_S_FHD (to Panel)

1	Panel_VCC	16	EVENCLK+/EVEN[1]-
2	Panel_VCC	17	EVENCLK-/GND
3	Panel_VCC	18	GND/EVEN[0]+
4	Panel_VCC/NC	19	EVEN[2]+/EVEN[0]-
5	Panel_VCC/NC	20	EVEN[2]/ODD[3]+
6	GND/NC	21	GND/ODD[3]-
7	GND	22	EVEN[1]+/ODDCLK+
8	GND/EVEN[3]+	23	EVEN[1]/ODDCLK-
9	TCON_WP/ EVEN[3]-	24	GND
10	"LVDS_FORMAT /EVENCLK+"	25	EVEN[0]+/ODD[2]+
11	NC/EVENCLK-	26	EVEN[0]/ODD[2]-
12	GND/EVEN[2]+	27	GND/ODD[1]+
13	EVEN[3]+/ EVEN[2]-	28	SDA_Panel/ODD[1]-
14	EVEN[3]-/NC	29	SCL_Panel/ODD[0]+
15	GND/EVEN[1]+	30	NC/ODD[0]-

2 CN201 (to Power board, UA28F4000 only)

1	B5.3V	8	GND
2	SW_POWER	9	B13VS
3	B5.3V	10	SW_INVERTER
4	A5.3V	11	B13V
5	GND	12	B13V
6	GND	13	B13V
7	B13VS	14	PWM_DIMM

3 CN702 (FUNCTION)

1	IR	5	MSDA
2	GND	6	KEY1
3	A3.3V	7	KEY2
4	MSCL	8	GND

4 CN302 (SPEAKER)

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

5. Wiring Diagram

⑤ CN403 (COMPONETN)			
1	GND	9	TEST_COMP_PR
2	COMP1_Y_CVBS	10	GND
3	IDENT_VIDEO1	11	COMP1_SL_IN
4	GND	12	TEST_SL
5	COMP1_PB	13	GND
6	IDENT_COMP1	14	COMP1_SR_IN
7	GND	15	TEST_SR
8	COMP1_PR		

⑥ CN501 (HDMI2)			
1	HDMI1_RX2+	11	GND
2	GND	12	HDMI1_RXCLK-
3	HDMI1_RX2-	13	HDMI_CEC
4	HDMI1_RX1+	14	GND
5	GND	15	SCL
6	HDMI1_RX1-	16	SDA
7	HDMI1_RX0+	17	GND
8	GND	18	5V
9	HDMI1_RX0-	19	HPD
10	HDMI1_RXCLK+		

⑦ CN502 (HDMI1)			
1	HDMI2_RX2+	11	GND
2	GND	12	HDMI2_RXCLK-
3	HDMI2_RX2-	13	HDMI_CEC
4	HDMI2_RX1+	14	GND
5	GND	15	SCL
6	HDMI2_RX1-	16	SDA
7	HDMI2_RX0+	17	GND
8	GND	18	5V
9	HDMI2_RX0-	19	HPD
10	HDMI2_RXCLK+		

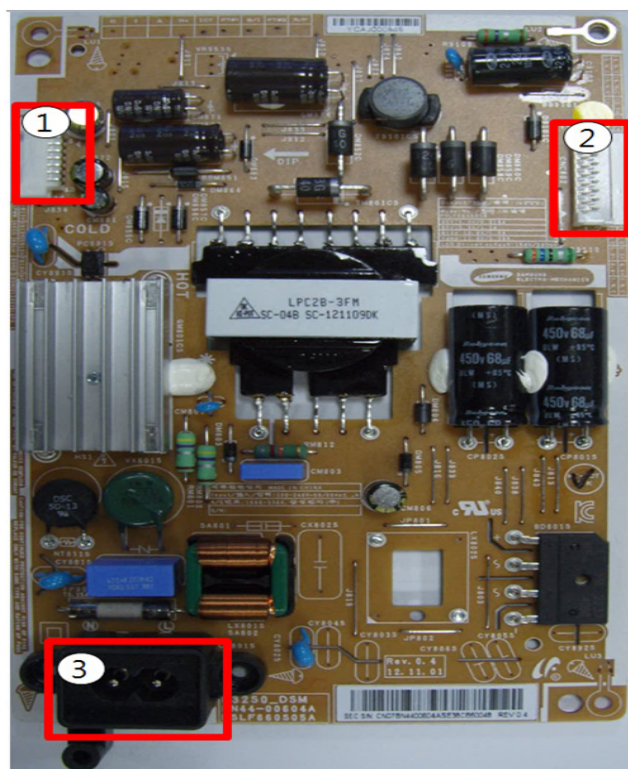
⑧ CN1201 (USB)			
1	USB_VCC	3	USB_DP
2	USB_DM	4	GND

⑨ CN301(Headphone)			
1	GND	5	NC
2	SL_OUT	6	IDENT
3	SR_OUT	7	GND
4	NC		

⑩ CN1601_AD (Adapter)			
1	B14V_PW	3	GND
2	GND	4	GND

⑪ CN1701_AD (BackLight Connector)			
1	LED1	4	VLED
2	LED2	5	LED3
3	VLED	6	LED4

■ SMPS



① CNM803 (to MAIN board)

1	B13V	8	GND
2	PWM_DIM	9	GND
3	B13V	10	GND
4	ECO_ON/OFF	11	B5V
5	Vamp	12	A5V
6	BLU_ON/OFF	13	B5V
7	Vamp	14	PS ON/OFF

② CNL802

1	NC	9	2-
2	NC	10	2+
3	4-	11	1-
4	4+	12	1+
5	3-	13	NC
6	3+	14	NC
7	NC	15	IF2
8	NC	16	IF1

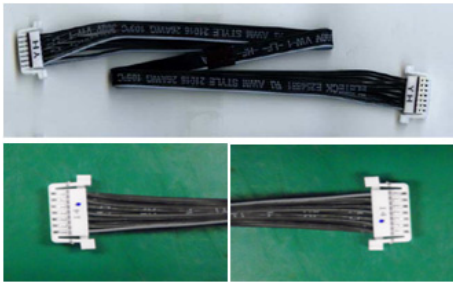

③ CN801S

1	N	2	L
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5-3. Connector Functions

Connector	Function
CN201_NAD ↔ IP CN (SMPS Model)	Supply main power and dimming signal from IP board to Main Board.
CN1701_AD ↔ Panel (Adaptor Model)	Transfer the signal of LED backlight control from Main Board.
CN1302_HD(CN 1201_FHD) ↔ T-CON CNF1	The LVDS signal transfered from Main Board to Panel .

5-4. Cables

Use	LEAD (Main - IP 14P, SMPS Model)	LEAD (Main - BackLight 6P, Adaptor Model)
Code No.	UA28F4000A : BN39-01455K	UA19F4000A : BN39-01465F UA22F5000A : BN39-01476U
Image		
Use	LVDS CABLE (Main - panel 30P, HD)	LVDS CABLE (Main - panel 30P, FHD)
Code No.	UA19F4000A : BN96-26659B UA28F4000A : BN96-26659E	UA22F5000A : BN96-18610Z
Image	