Technical Guide

2014 - LCD TV

Panasonic®

1.Lineup and Function Comparison

2.Board Layout

3.Video Signal Processing

4.Stand by / Start up Operation

5.SOS Protection Circuit and Troubleshooting

6.Difference of LED Drive Circuit

7.WiFi Connection Troubleshooting and Other information

1. Lineup and Function Comparison

New Model Number (Comparison from 2013 model)

T	X	-	4	2	A	S	6	0	0	E	*
T=TV (fixed)	H = Asia C = Americas X = Europe		Inch		Year	Series	Design/ Grade	Function/ Derived model		Country/ Region	(Extra)

<Year> : 1 digit alphabet (2014=A, 2015=B …)

<Series> : 1 digit alphabet (S=Smart, Non=no smart , X=4k)

<Design/Grade> : 3 digit number (hundred's digit =Design/Grade,
ten's digit and one's digit = function difference or derived model)

< Examples >

4k model

T	C	-	6	5	A	X	8	0	0	U	*

Core model

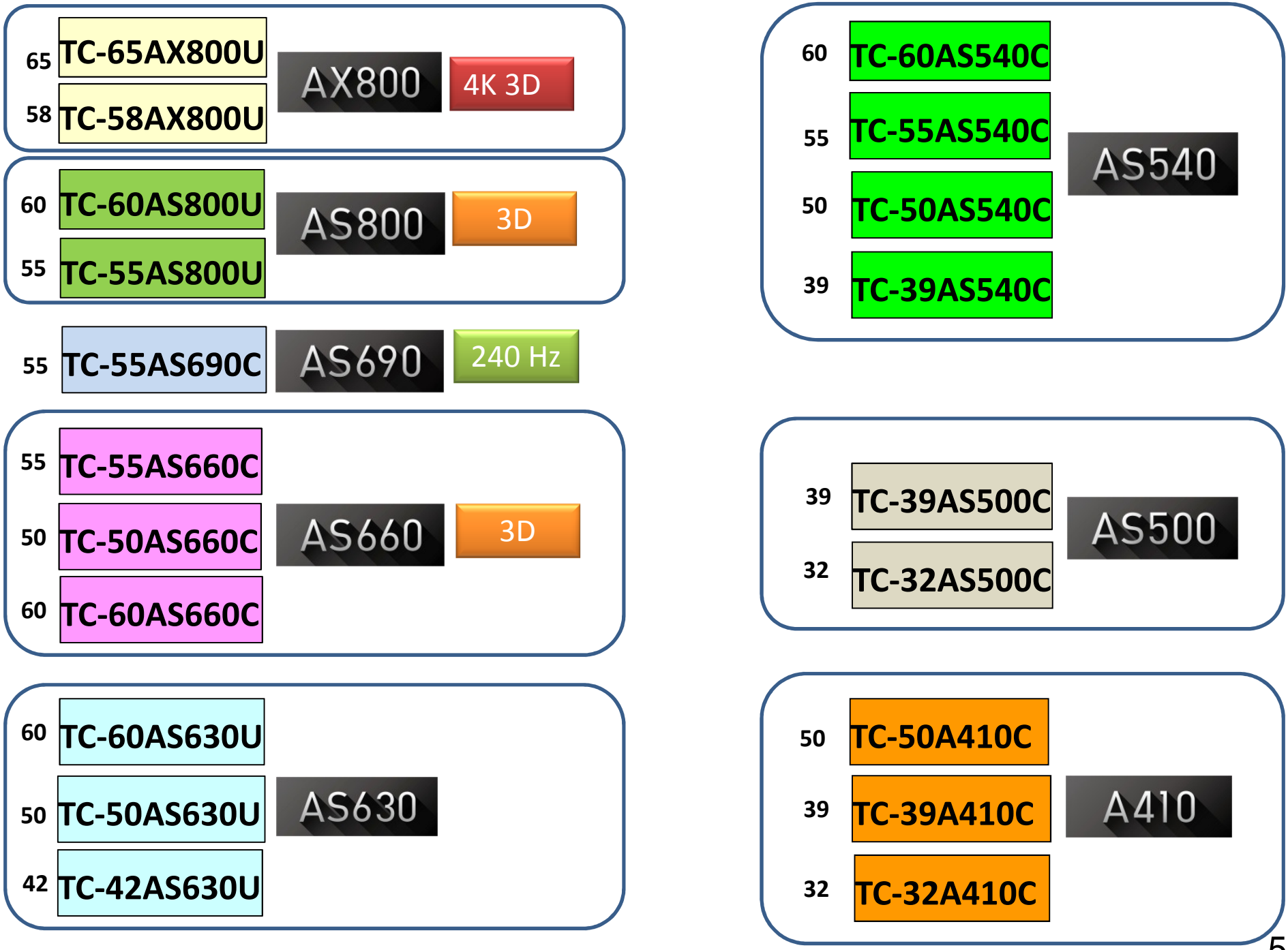
T	X	-	4	2	A	S	6	0	0	E	*

Leader model

T	H	-	3	2	A	4	0	0	K	*	*

< Comparison (Reference) >

2013	2014
WT600	AX900
	AX800
WT60	
DT60	AS800
ET60	AS690 AS660
E60	AS630
BL60 BL6	AS540 AS500
EM60 EM6 XM6 B6	A410


65 TC-65AX800U
58 TC-58AX800U
AX800
4K 3D
60 TC-60AS800U
55 TC-55AS800U
AS800
3D
55 TC-55AS690C
AS690
240 Hz
55 TC-55AS660C
50 TC-50AS660C
60 TC-60AS660C
AS660
3D
60 TC-60AS630U
50 TC-50AS630U
42 TC-42AS630U
AS630
60 TC-60AS540C
55 TC-55AS540C
50 TC-50AS540C
39 TC-39AS540C
AS540
39 TC-39AS500C
32 TC-32AS500C
AS500
50 TC-50A410C
39 TC-39A410C
32 TC-32A410C
A410

New Functions

< my Home Screen >

The home screen can be personalized with user's favorite apps and content. You can download a variety of templates that match user needs.

< my Stream >

This intuitive interface automatically and seamlessly recommends user-targeted content, such as TV Program, YouTube, Web bookmark and HDD contents.

< my Home Cloud >

This cloud technology lets you download a wide variety of content and apps, as well as store data.
You can also use the cloud server to share photos, movies and text with other VIERA TVs and smartphones.

< Voice Assistant/Interaction >

Desired content can be quickly searched by using Voice Assistant. Also thanks to additional operation commands and improvements to the Voice Guidance function, getting to the content you want is smooth, easy, and almost conversational.

< Remote Sharing (TV Remote 2 app) >

A smartphone can be used to share video, pictures and text messages with my Home Screen from outside the house. This lets everyone in the family stay in contact.

< Display Mirroring > *Compatible with Android devices ver4.2 and Miracast certified. (iOS does not support.)

Transfer smartphone and tablet device images onto VIERA's large screen. Wireless LAN capability allows devices to be directly connected.

< Network File Sharing > Copy contents directly from PC to TV : Support Windows 8,7, OSX 10.9

Users can use their computer to exchange files, such as photos, videos and music, between the computer and USB devices or an SD card connected directly to the TV. Then, they can play them with Media Player.

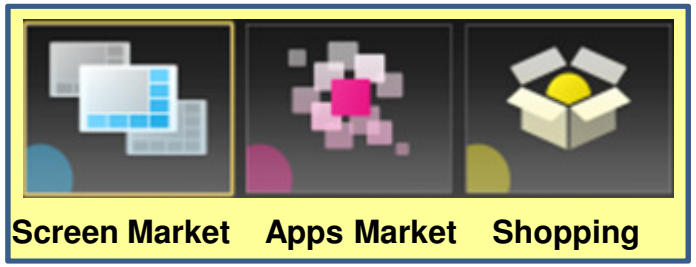
< Double USB Sharing >

Photos, movies, music and other data in a USB memory stick can be transferred through VIERA to another USB memory stick.

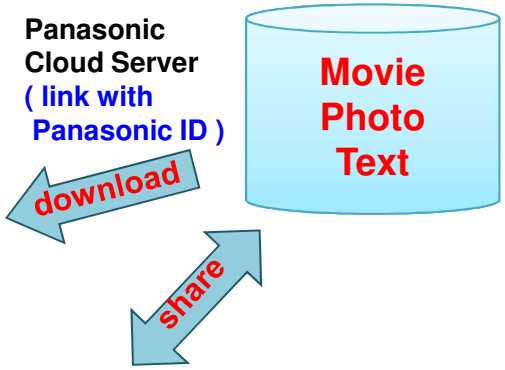
New Functions : < my Home Cloud > and < Remote Sharing >

ADD

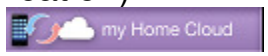
You can download a wide variety of content and apps, as well as store data. You can also use the cloud server to save videos, photos and memos. Then, in addition to TV, you can view the data on a smartphone or tablet at home or while you're away. You can also share data with family and friends who are my Home Cloud members.



Panasonic Cloud Server (link with Panasonic ID)



Smartphone/Tablet (**TV Remote2** application)



The data is uploaded by 3 Applications.

Video Message

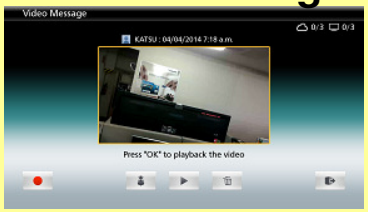
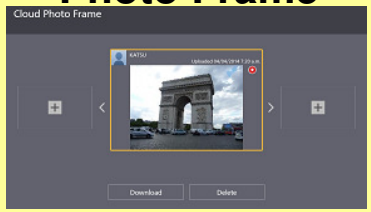
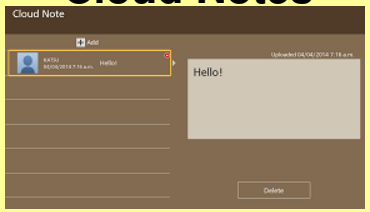


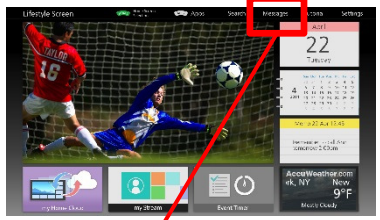
Photo Frame



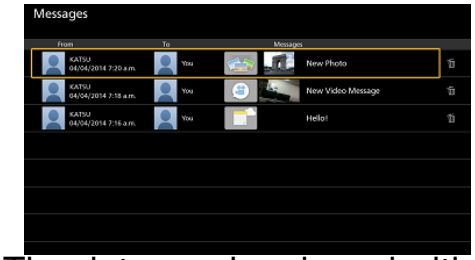
Cloud Notes



Other TV (Friend's TV)



Message (from friend)



The data can be shared with the friend who registered as a friend.

Server Capacity Estimation

App	File Number and Capacity
Video Message (Movie)	3
Photo Frame (Photo*)	3
Cloud Notes (Text)	20

 # The data is automatically deleted after 30 days.

*** Photos are compressed to HD size when uploaded to the server.**

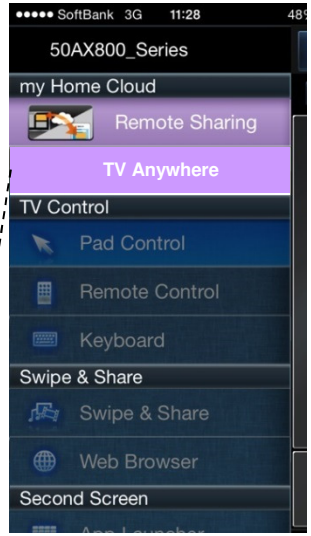
New Functions : < Remote Sharing (TV Remote 2) >

ADD

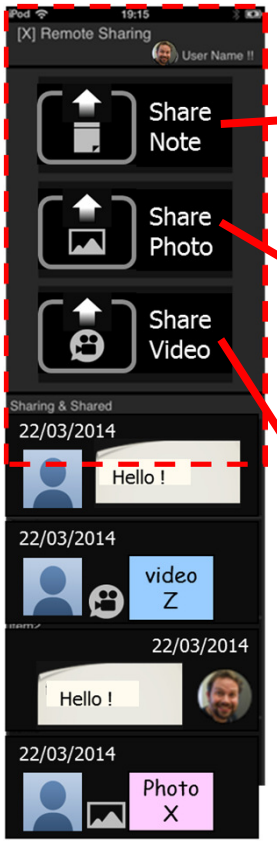
- "Remote Sharing" is used at TOP menu of TV Remote 2
- Share functions are displayed at "Remote Sharing" top menu

Smart Phone

TV Remote2

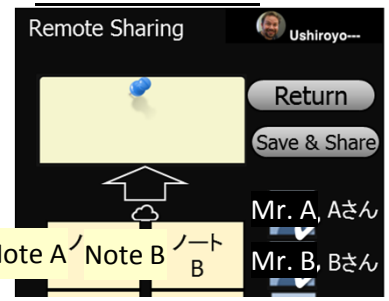


Log-in with Panasonic ID

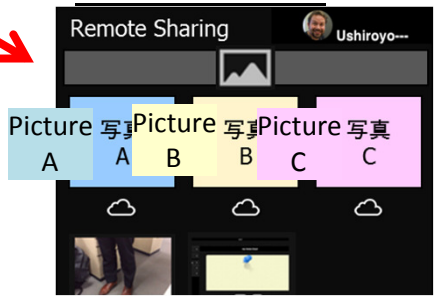


Latest History of Sharing and Shared Contents.

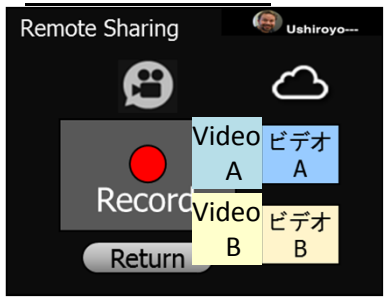
Share Note



Share Photo



Share Video



TV Anywhere(TV Anytime) is displayed only in EU/CIS/AU/NZ.

New Functions : < Info Bar >

ADD

A proximity sensor work to automatically display handy information, such as the weather forecast, messages, notification and clock. If the face data is registered, the information is customized by the face recognition via the built in camera.

#1 Internet service is required.
#2 Setting: Menu-Setup-Info Bar Settings- Info Bar = "ON"
#3 Info Bar doesn't work 1 minutes after setting becomes "ON" or AC plugged-in.
#4 If the Info Bar setting is "ON" , the Built-in camera and microphone are always working (pop up) except the functional stand-by mode.

Orange LED (North America: off)

No detection of human moving (1min)

(During either of proximity sensor or built-in camera is detecting , keep the monitor mode.)

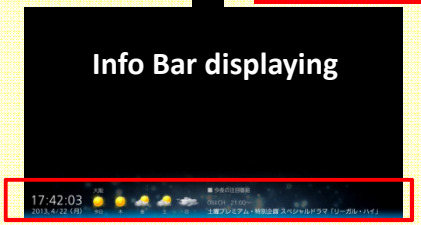
Proximity sensor detected human (temperature change)

Orange LED (North America: RED)

New information is coming, or info bar voice command or "OK" key of remote

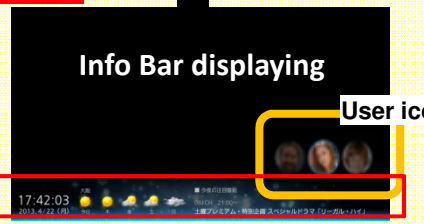
No operation (45sec), Or power off by voice command

Info Bar (built-in camera pop up)



Orange LED (North America: RED)

Face recognition



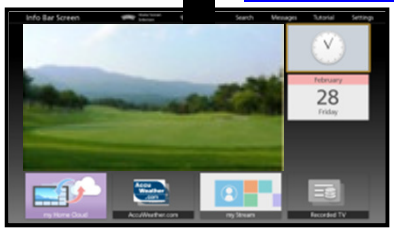
Orange LED (North America: RED)

Power on by remote, or voice command

Power on

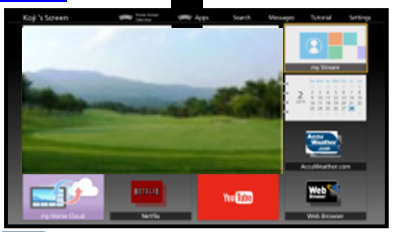
Power on by remote, or voice command

Power off by remote



Green LED (North America: Red LED)

The screen is Home screen of Info bar or setting of "always open this Home Screen"



Green LED (North America: Red LED)

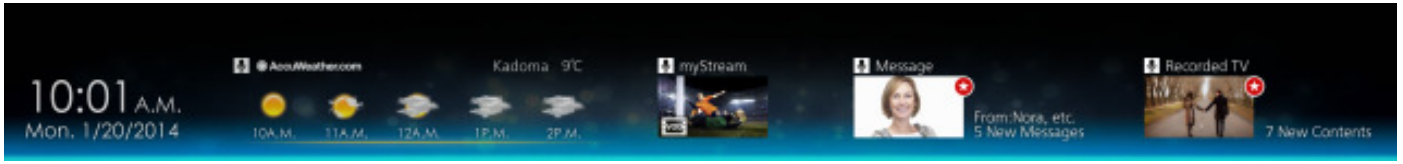
The screen is registered home screen (in user setting)

New Functions : < Info Bar >

ADD

The display item of Info Bar is fixed.

<No user registered case >



Date/time

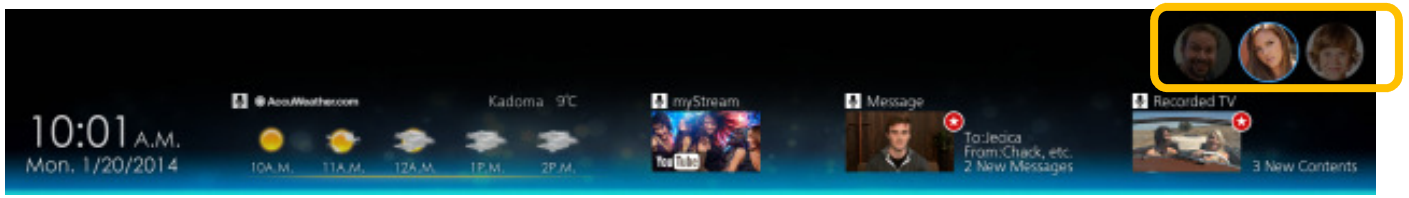
Weather

my Stream

message

Recorded TV
(#:Recording function supported models only)

<User registered case (log in)>

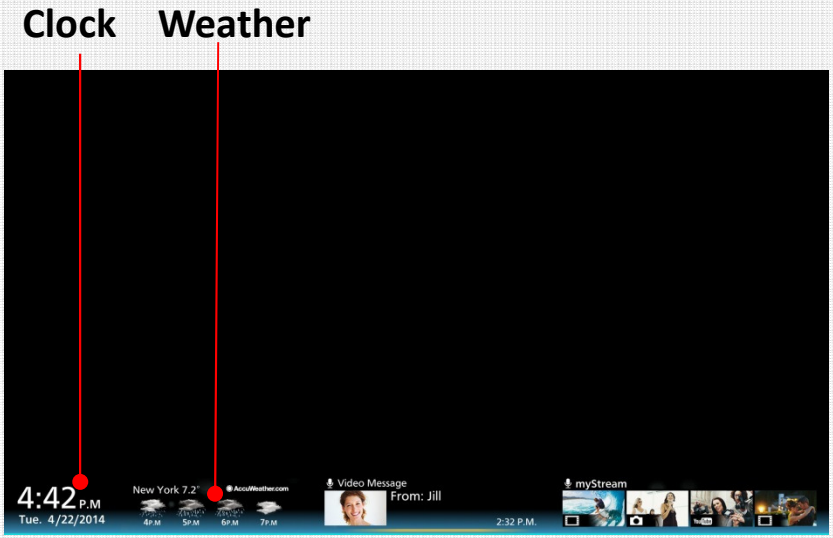


User icon

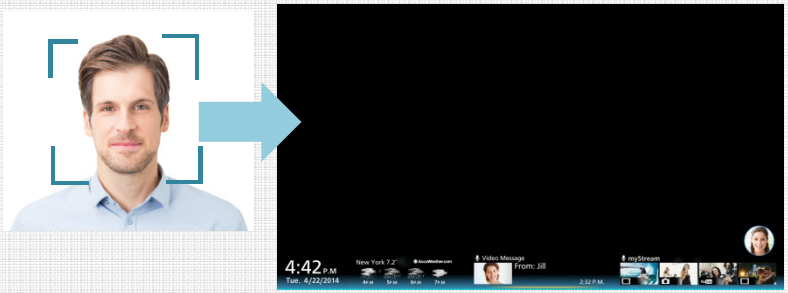
INFO BAR

Automatically Displays Useful Information to the User Quickly and Conveniently

A proximity sensor coupled with Face Recognition via the built-in camera work together to instantly and automatically display the weather forecast, messages, clock, etc.

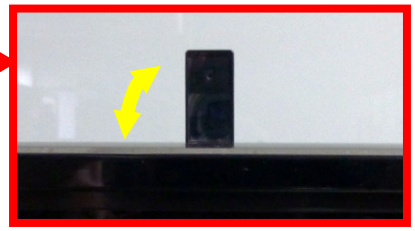


Face recognition is used to display only the information that the user needs.

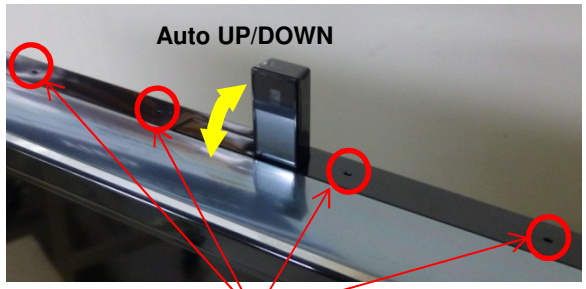


Built-in camera / motion sensors

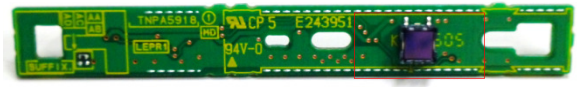
Onboard camera



Motion sensors



Motion sensors board



Sensor

Built-in camera info

You can switch to the home screen by using the face recognition function of the built-in camera, registered in the user settings.
Voice operation function can also be used. App, such as Skype, voice and video calls via the Internet.

- When you start up the app, the ability to use the built-in camera will start up automatically. When you exit the app, it will be closed automatically.

*Do not close the built-in camera by hand.

- Facial recognition is based on previously registered face information. However you may not be correctly recognized as the person who is registered due to surrounding objects and expression in the face recognition function.

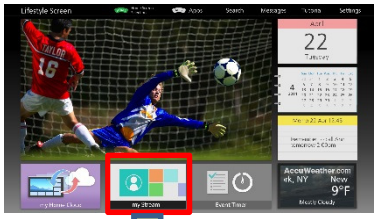
Sensing range for motion sensors

Sensing range when it is set to "high" and "human sensor sensitivity" are as follows.
•In the case of an environment of 25 ℃ room temperature
Sensing distance: about 5 m (TV front distance)
Sensing range: left and right about 35 degrees or less
About 15 degrees above
Under 7.5 degrees or less In order to sense the temperature difference between human body and the ambient temperature. In addition, animals such as dogs and cats, direct sunlight and heat source such as a pot or air conditioning may cause the sensor to react.
•Sensing vertical and horizontal movements are easy. Small directional change such as forward and backward are not easily detected.
• Do not put objects in front of the sensor, it may not work properly.

New Functions : < my Stream >

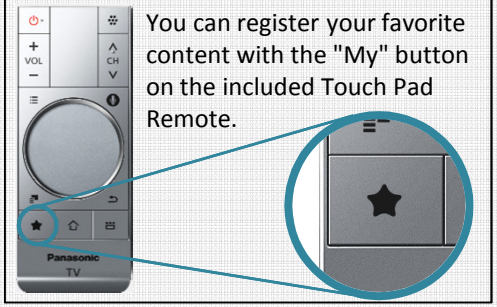
ADD

A wide variety of content, such as TV programs, YouTube ,Web bookmark, etc. are seamlessly, automatically recommended to the user.



[Recommended Content]
- **TV show**
- **VOD content**
- **Internet content etc.**

Register Your Favorites

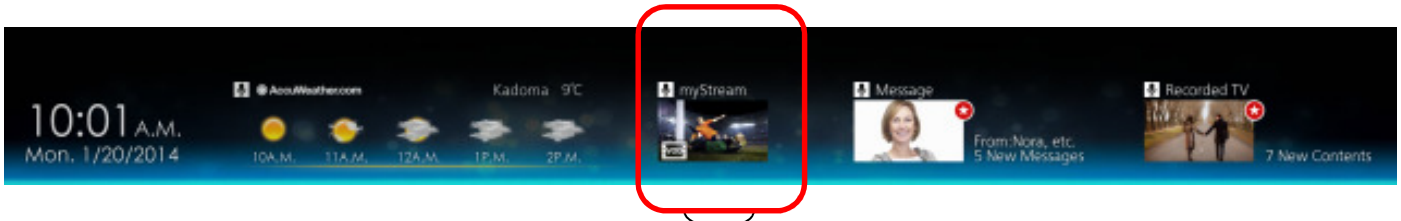


You can register your favorite content with the "My" button on the included Touch Pad Remote.

Voice Search

Simply say key words to display the content you want.

"my Stream" is also in Info Bar of AS800/AX800. It is the thumbnail of Recommend tab.



my Stream


TV Screen
Calendar
Date
Event Timer
Timer
Rayn's Screen
HOME
Home Screen Selection
APPS
Apps
Search
Messages
Tutorial
Settings
April
22
Tuesday
Event Timer
Timer
Sun Mon Tue Wed Thu Fri Sat
4
2014
my Stream
AccuWeather.com
9°F
Mostly Cloudy
Memo 22.Apr 12:45
Remember to call Ann tomorrow 2:00pm
my Home Cloud
03:00
AM
New York
London
Voice Message
Web Browser
my Home Cloud
World Clock
Weather
Memo
my Stream
Clock
Voice Memo


Dads Home Screen
HOME
Home Screen Selection
APPS
Apps
Search
Messages
Setting
Help
TAYLOR
16
YouTube
YouTube
skype
Skype
Web Browser
Web Browser
social networking TV
Social Networking TV
BBC iPlayer
BBC iPlayer
Sun Mon Tue Wed Thu Fri Sat
25 26 27 28 29 30 1
2 3 4 5 6 7 8
9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31 1 2 3 4 5
12
2012
VIERA Connect
YouTube
Web Browser
skype
December / DEC
11
Wednesday
Media Player
Take William to football.

2014 Concept

Life screen

Beyond Smart Features

Easily Find Whatever You Want to Watch

- Info Bar
- my Home Screen / my Stream
- Voice Assistant

Enjoy Anytime, Anywhere Through Cloud Technology

- Remote Sharing
- my Home Cloud
- Home Screen Collection

4K Ultra HD

Experience Supremely Real Images Like Never Before

- DCI 98% Color Space
- Ultimate Contrast
- Super Brightness

+

Premium Furniture Design

Simplicity, Horizontal Design, Authentic Material

New Touch Pad Remote Controller

The new Touch Pad Remote enables intuitive operation using voice and touch control.
A new “my” button has also been added for easy registration of viewing preferences.

TC-**AX900 / AX800 / AS800

TC-**AS690/660

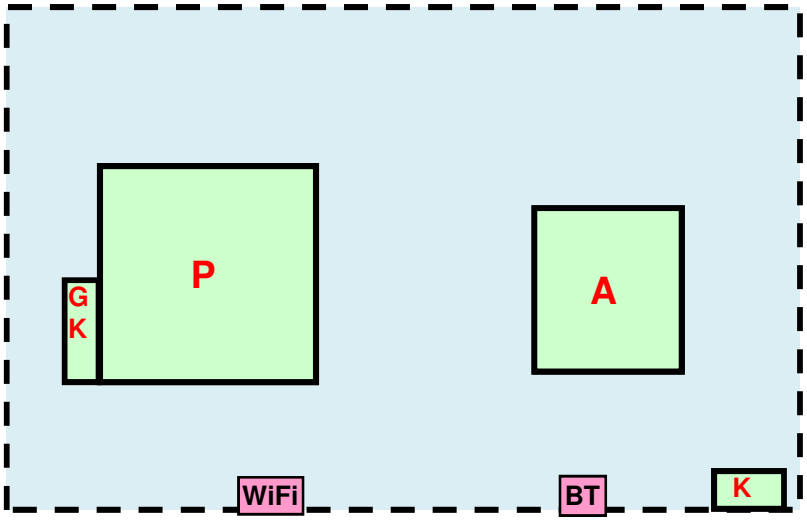
2. Board Layout

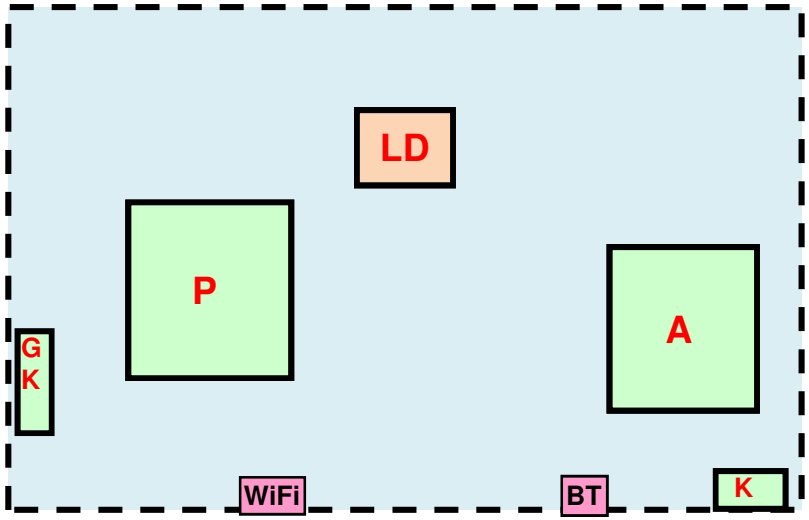
Board Layout -2

WiFi :WiFi adapter
BT :Bluetooth adapter

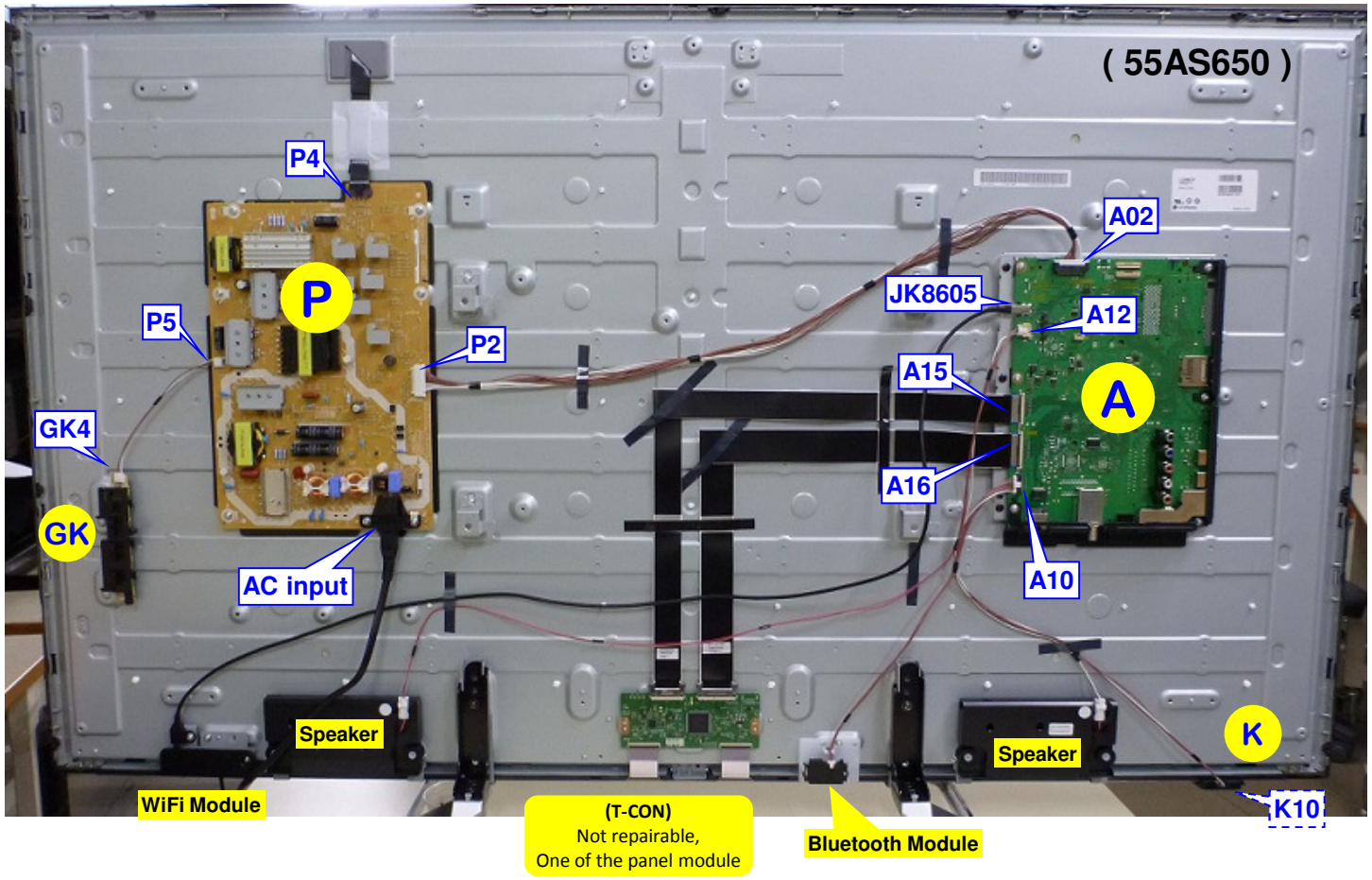
There is no WiFi adaptor on A400 series models.

There is no Bluetooth adaptor below AS630 models.





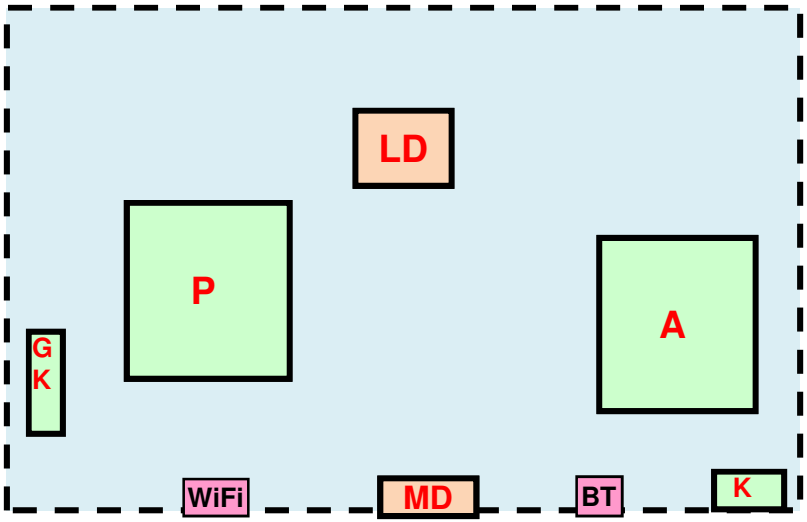
Board Layout -1



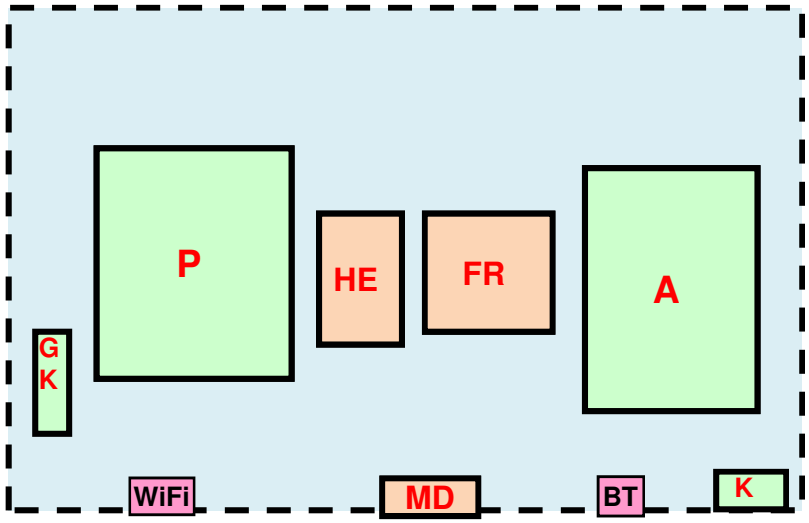
Board Name	Function
A-Board	Main Board
P-Board	Power supply
K-Board	Remote Receiver, LED, Light sensor
GK-Board	Power switch, Key

WiFi :WiFi adapter
BT :Bluetooth adapter

T*- **AS800

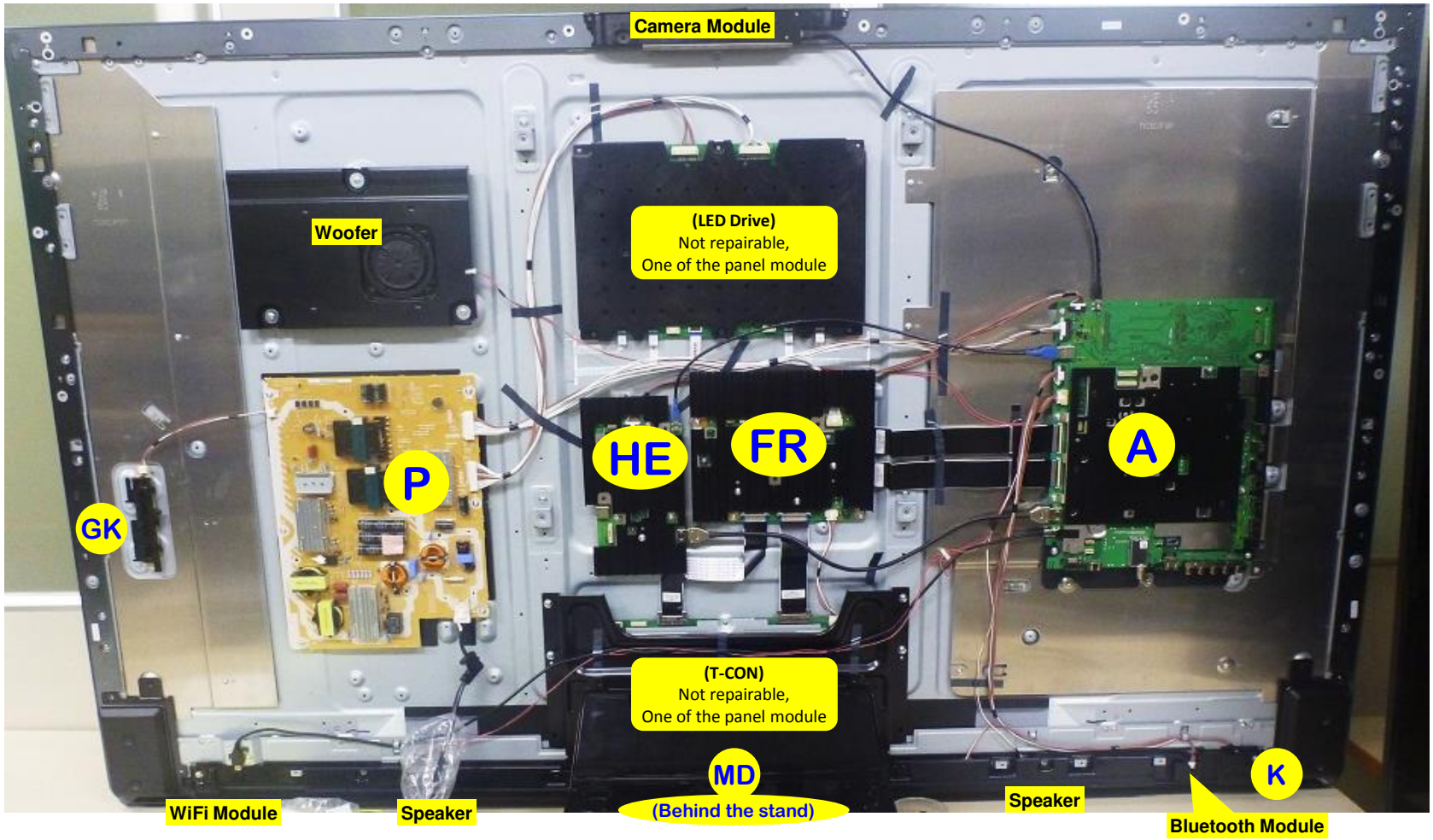


T*- **AX800



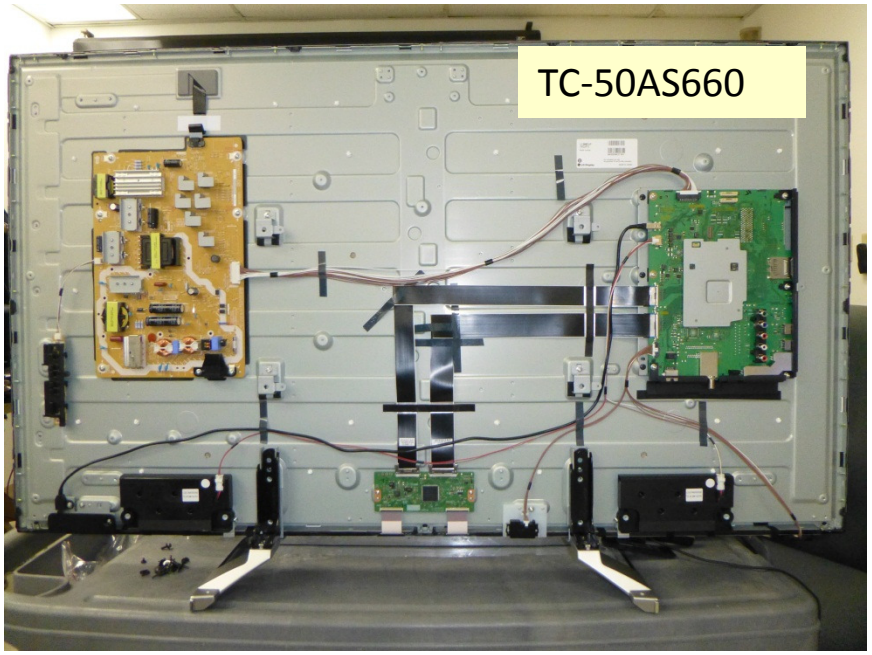
Board Layout -4

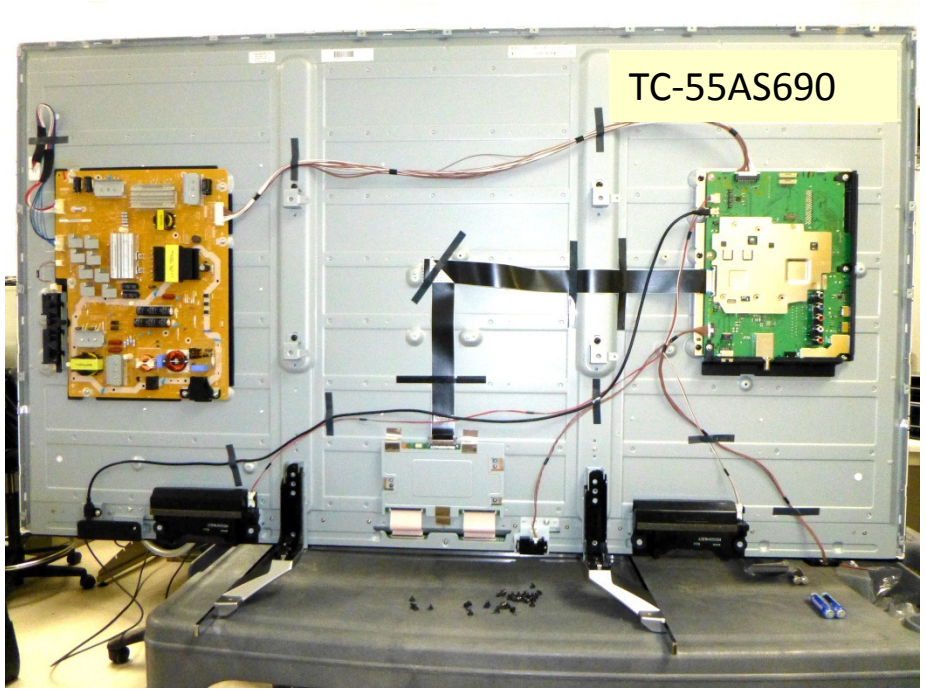
AX800

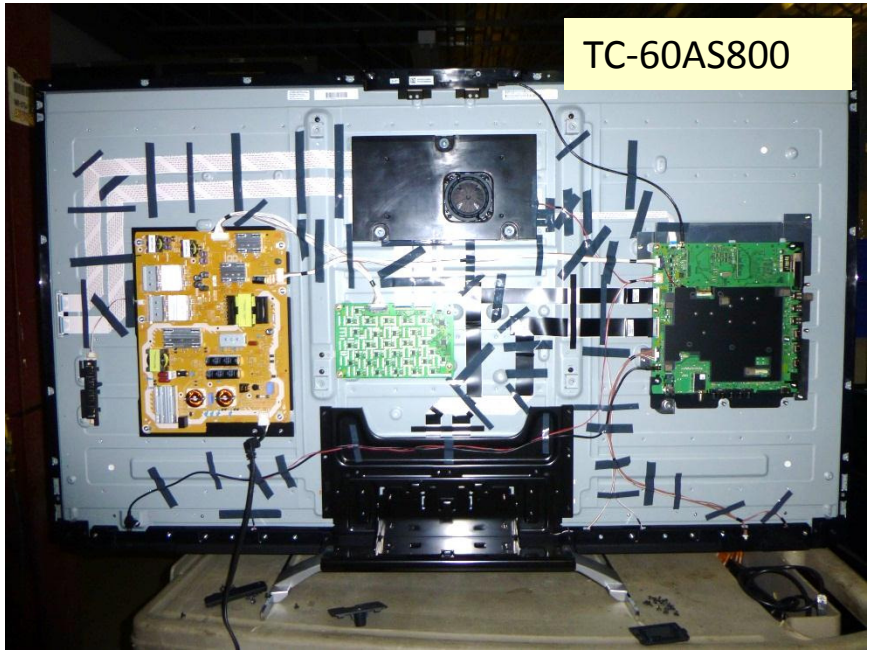


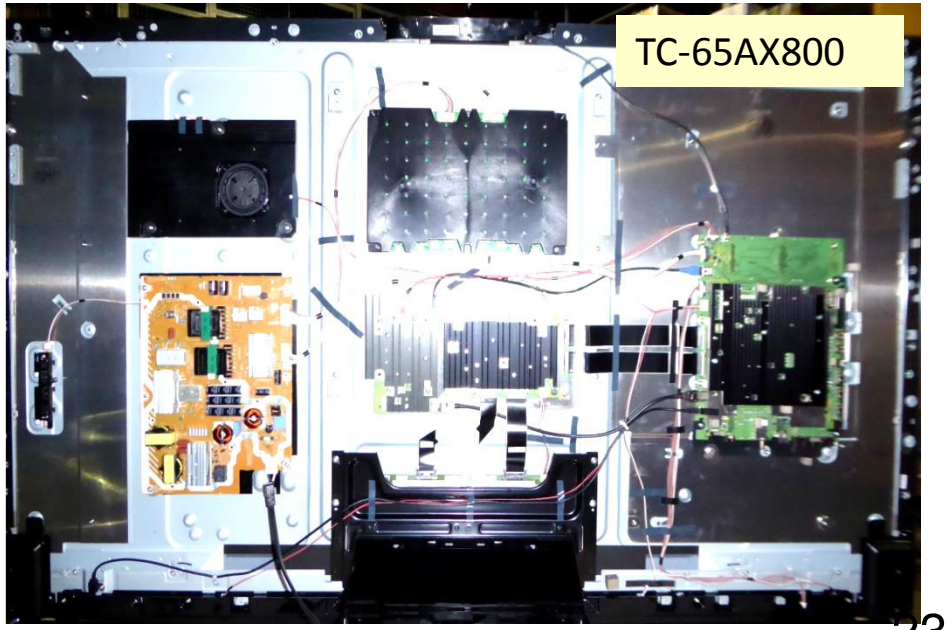
Board Name	Function
A-Board	Main Board
P-Board	Power supply
K-Board	Remote Receiver, LED, Light sensor
GK-Board	Power switch, Key

Board Name	Function
FR-Board	Flame Rate Convert (Up convert) Board
HE-Board	Decode H.265/HEVC format Board
MD-Board	Motion Detect Board (for information bar)


TC-50AS660


TC-55AS690

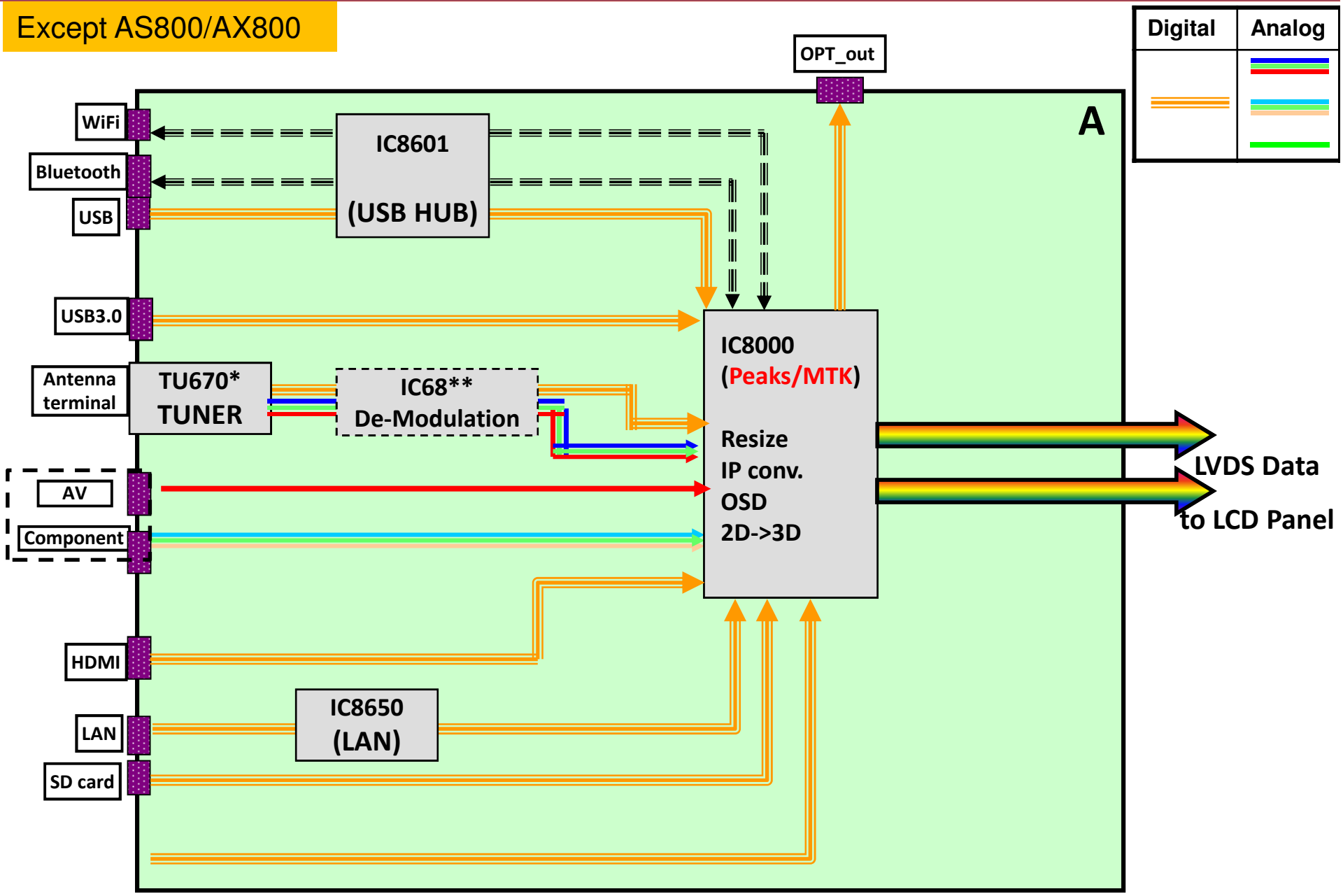

TC-60AS800


TC-65AX800

3. Video Signal Processing

Video/Audio Signal Process-1

Except AS800/AX800



Video/Audio Signal Process-2

The main function of the A board is to select and process one of the incoming video signals. IC8601 is just switches of USB signals. The built in WiFi module is connected by USB type terminal.

Video input, Component Video Input, HDMI input and the composite video output of the tuner are all connected to IC8000 for selection. The video input signal can be two formats: Video, or Y, Pb, Pr. A comb filter inside IC8000 converts the composite video signal of the main picture to Y and C (luminance and chrominance) signals. The signal is then converted to RGB. At the completion of this process, the format of the composite signal is now the same as a digital 1080i component signal. If the incoming video is in the 480p, 720p, 1080i, and 1080p format, the Y, Pb, and Pr signals undergo A/D (analog to digital) conversion. Finally all picture signals are converted to 1080p.

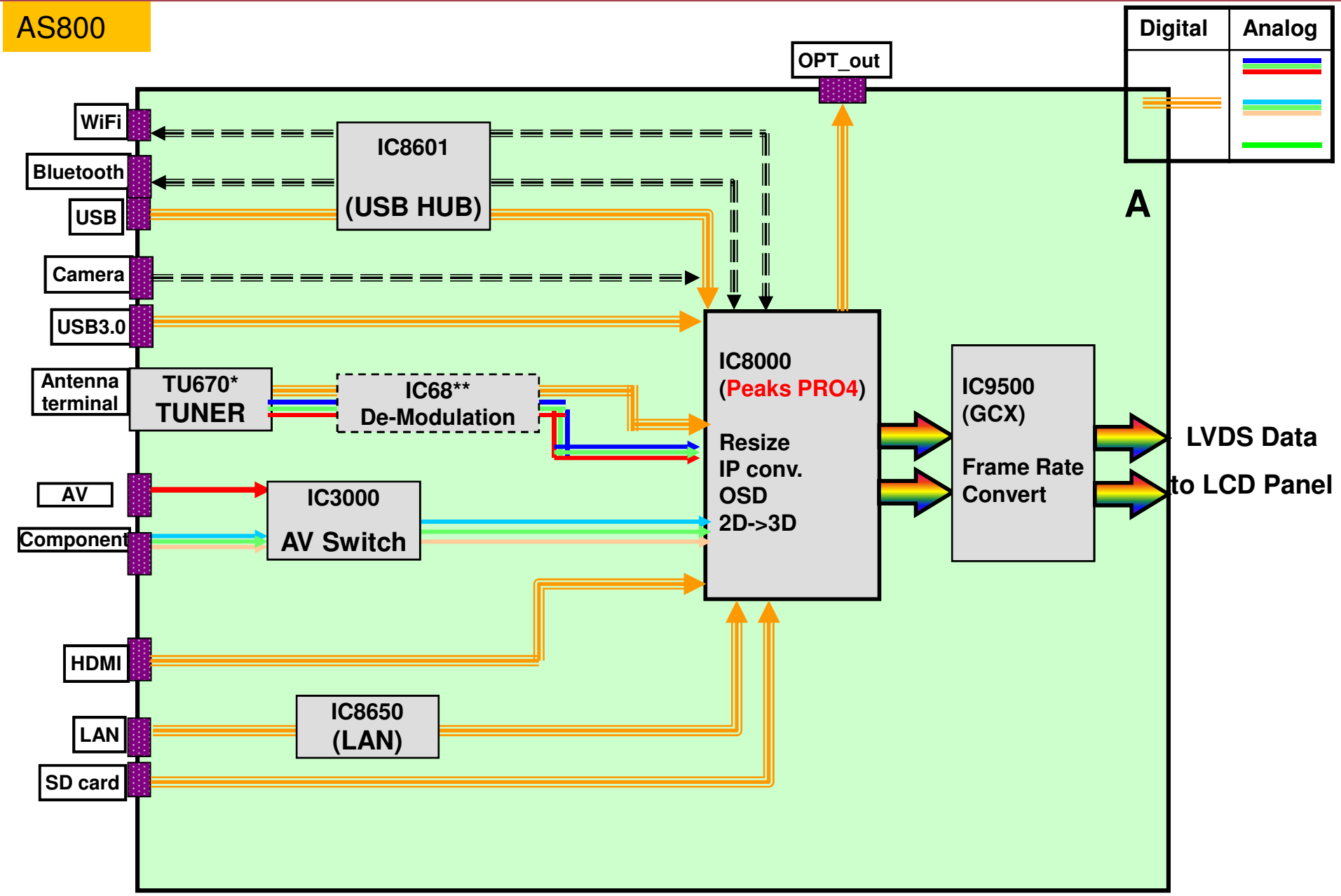
Digital television reception of the tuner is output in the form of an IF (Intermediate Frequency) signal. The transport stream from the tuner enters the VSB I/F (Interface) section of IC8000 where the video signal is extracted and converted to YUV data. The output is provided to the Video Input I/F for selection. The JPEG data of the SD card enters the JPEG I/F section of IC8000 for conversion into YUV data and output to the Video Input I/F circuit. The video input interface outputs the selected picture data to the video process circuit.

This Video Process section of the IC performs all picture control operations such as brightness, contrast, color, tint, etc. On Screen Display data such as channel numbers, Digital TV closed caption, and picture adjustments are mixed with the video data. If in 3D mode, it converts to the right and left pictures. After the process, LVDS (Low Voltage Differential Signaling) is output to LCD Panel module.

Video/Audio Signal Process

AS800

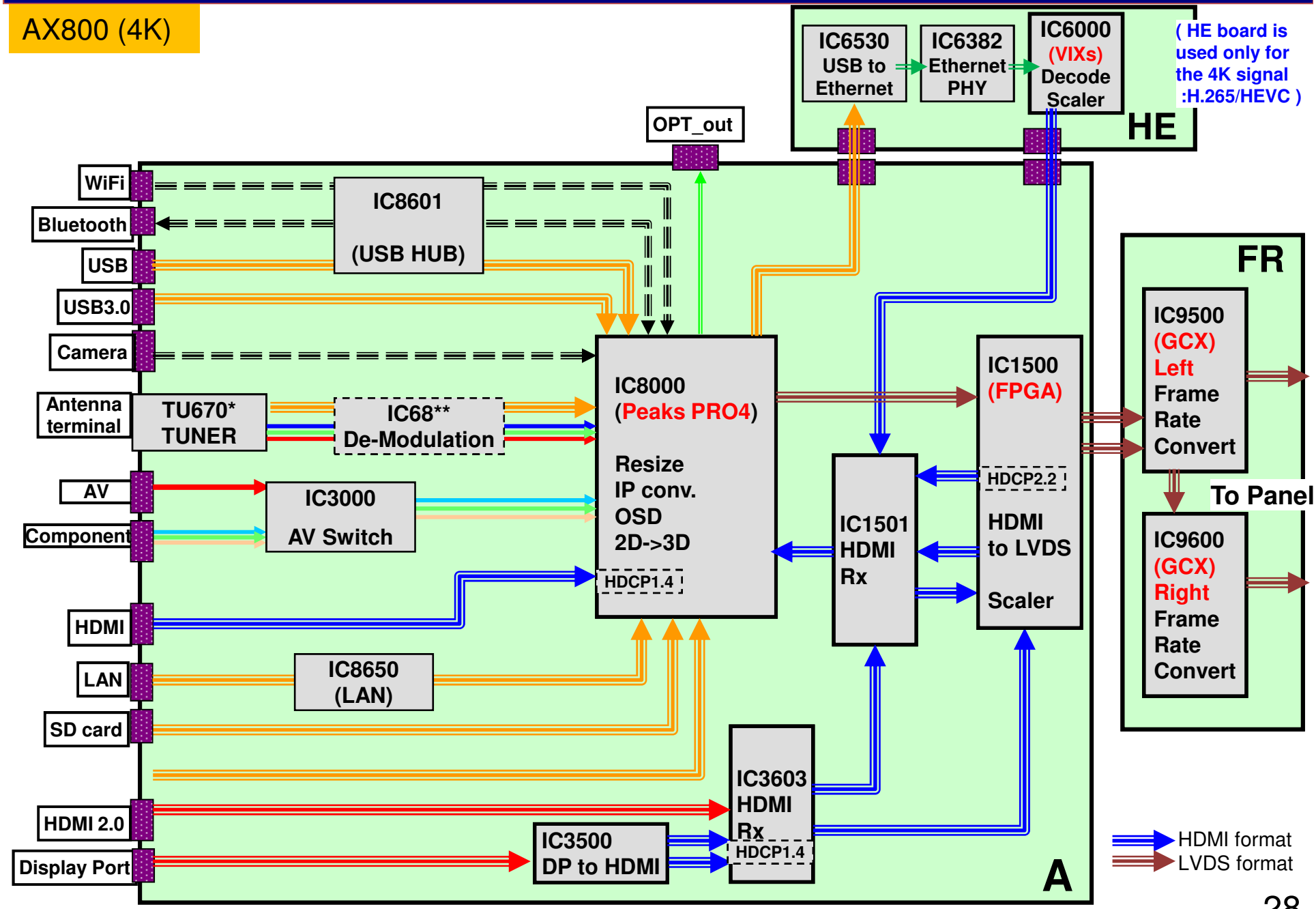
AS800



Video/Audio Signal Process (AX800)-1

AX800

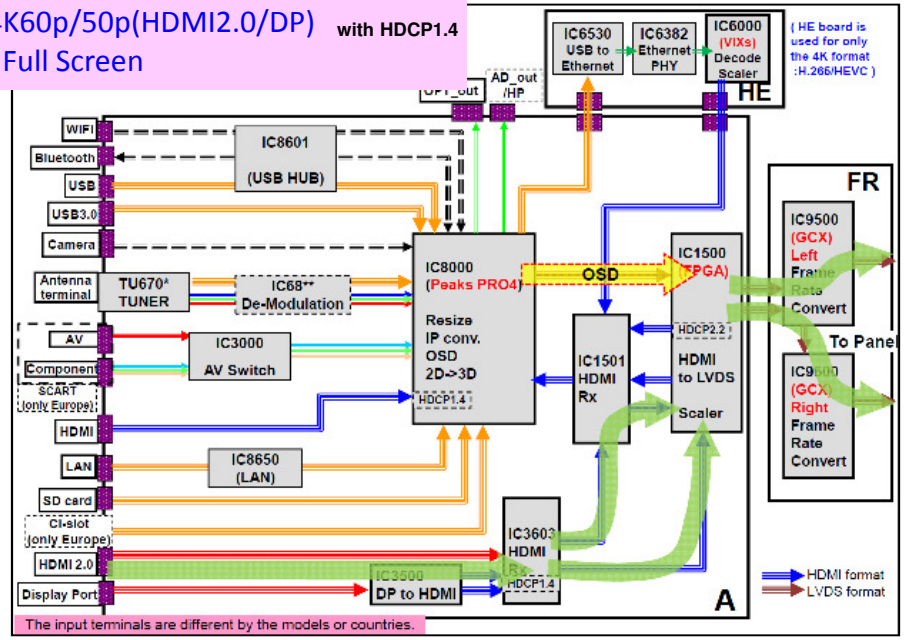
AX800 (4K)



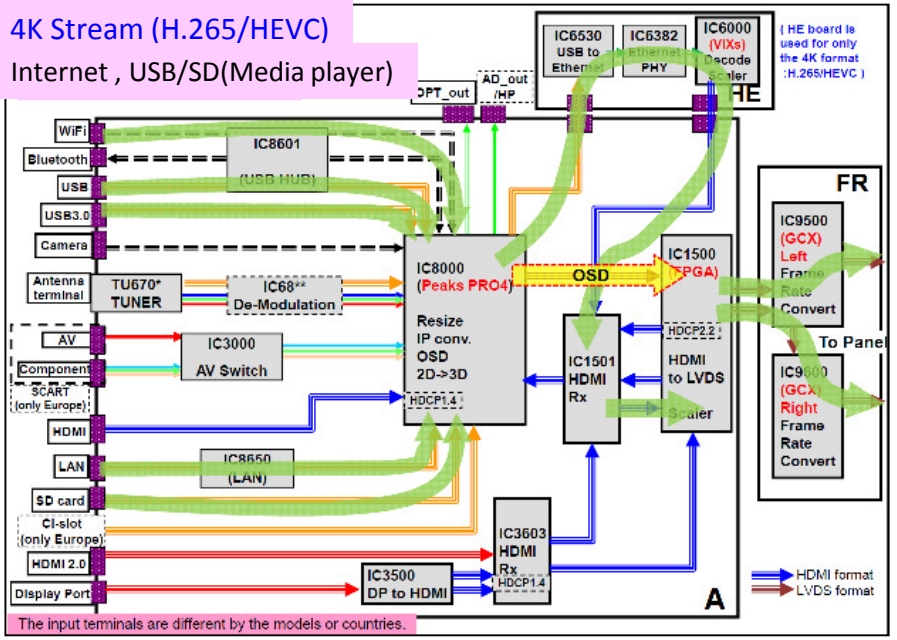
Video/Audio Signal Process (AX800)-2

AX800

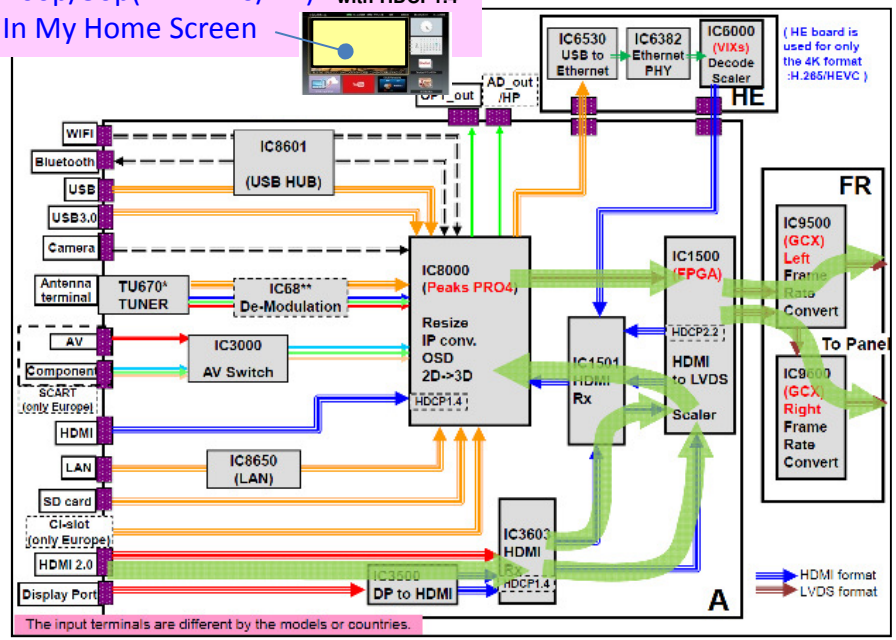
4K60p/50p(HDMI2.0/DP) with HDCP1.4
*Full Screen



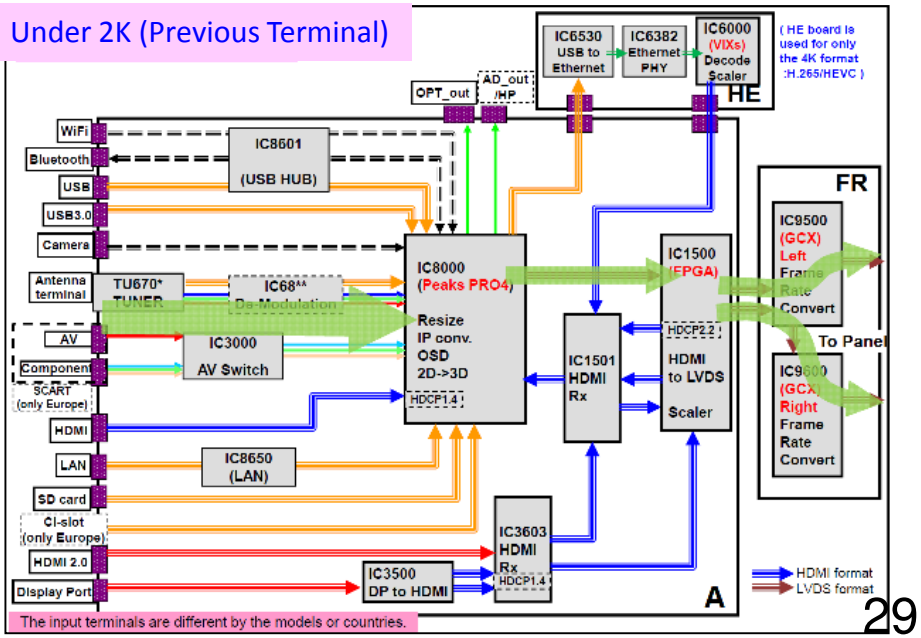
4K Stream (H.265/HEVC)
Internet , USB/SD(Media player)



4K60p/50p(HDMI2.0/DP) with HDCP1.4
*In My Home Screen



Under 2K (Previous Terminal)



Video/Audio Signal Process (AX800)-3

AX800

4K model have 3 boards for signal process. HE board is only for decoding the H.265/HEVC format. FR board is for frame rate converting (from 50/60Hz to 100/120Hz).

In A board, IC3500 converts the signal format from Display Port to HDMI. IC3603 and IC1501 receive and transmit the HDMI format signal. IC3603 has a decryption of HDCP1.4. IC1500 converts the signal format from HDMI to LVDS and scales the picture size.

The signal flow in A board is different from the input signal format.

When 4K signal input from the Display port/HDMI2.0 displays in full screen, the Peaks IC just out the OSD data to IC1500. The OSD data is integrate into 4K signal in IC1500. Then the signal output to FR board.

When 4K signal input from the Display port /HDMI2.0 displays in the home screen window, that signal is reduced in IC1500 then output to Peaks IC through IC1501. The Peaks IC integrate the 4K picture into home screen and back to IC1500. Then the signal output to FR board.

When 4K Steam signal (H.265/HEVC) input from the network or USB/SD memory displays by media player, the Peaks IC output the signal to HE board. HE board decodes the signal and back to IC1501. Then the signal output to IC1500. Then the signal output to FR board.

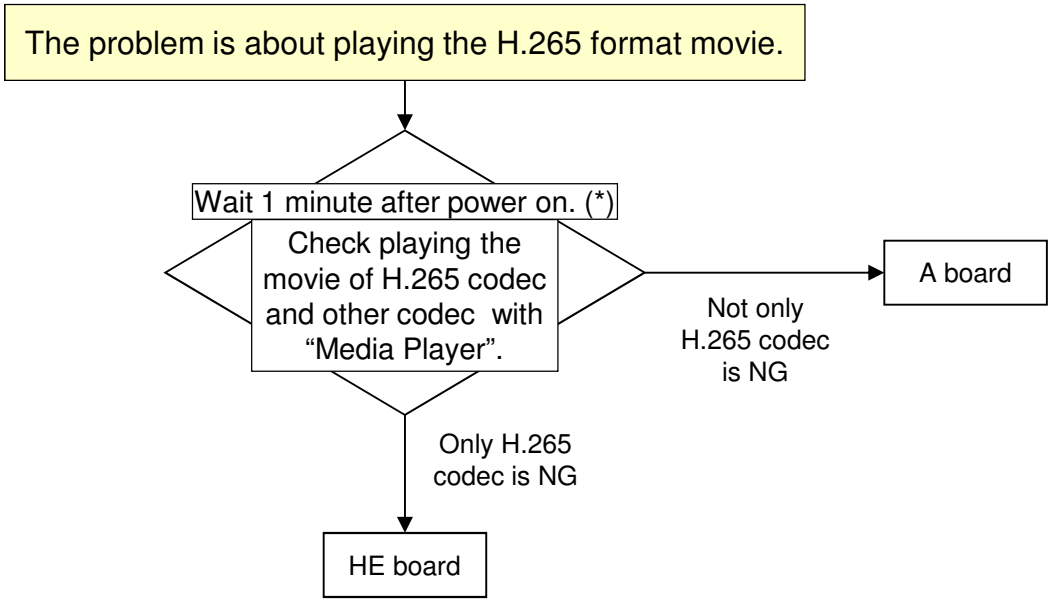
When the signal input from other than Display port/HDMI2.0 terminal displays, the signal flow from Peaks IC to IC1500. Then the signal output to FR board.

***) If the input 4K signal is encrypted by HDCP2.2, only YCbCr4:2:0 profile is supported. (YCbCr4:4:4 is not supported.) The decryption of HDCP2.2 is in IC1500.**

Troubleshoot for H.265 signal problem (only AX800)

AX800

HE Board operates only for the H.265/HEVC codec.
#: If disconnect(isolate) the HE Board, that TV unit works normally except playing the movie of H.265/HEVC codec.



(*)Caution: The HE Board wakes up after 1 minute since the TV power on.
The H.265/HEVC movie can not play before 1 minute.
Also "Self Check" of Service Mode don't work correctly.

Troubleshoot for Video Signal Problem

ADD AX800

<LCD Panel Test Mode> :When abnormal picture is displayed, troubleshoot by the test pattern in LCD module.

If the picture is no problem, A board must be defective.

If the picture is also abnormal, LCD panel module must be defective.

How to enter :

While pressing "volume(-)" button of the TV unit,

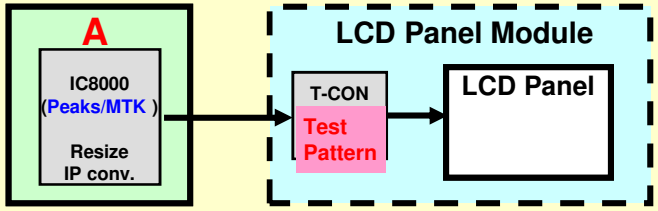
press "option/yellow" button of the remote control 3 times within 2 seconds.

How to exit :

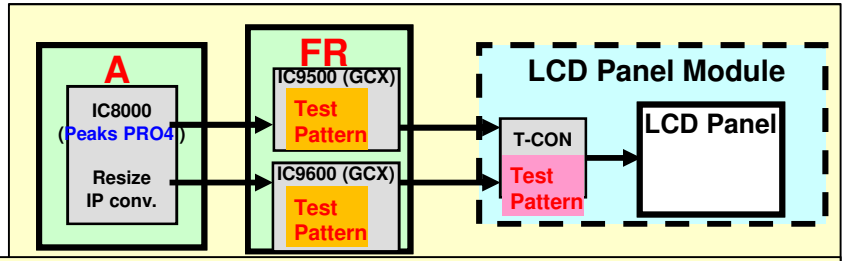
Switch off the TV unit

#)The test pattern is created by the circuit in LCD Panel Module(T-CON board).

Some patterns are automatically changed. The patterns are depend on the LCD panel.



Only AX800 model



<FR Test Mode> : The AX800 series have a FR Test Mode also. The test pattern output from FR board.

If above LCD Test Mode is OK, check this Test Mode next.

If LCD Test Mode is OK but this FR Test Mode is NG, FR board must be defective.

If both of LCD Test Mode and this FR Test Mode are OK, A board must be defective.

How to enter :

During the above LCD Panel Test Mode, press “OK” button of the remote control.

The pattern will change to shown in right.

How to exit :

Switch off the TV unit

#)The test pattern is created by the IC in FR board.

this pattern only

Troubleshoot for Video/Audio Signal Problem

<LCD Panel test mode> : When abnormal picture is displayed, troubleshoot by the test pattern in LCD module.
If the picture is no problem, A board must be defective.
If the picture is also abnormal, LCD panel module must be defective.

How to enter :
While pressing "volume(-)" button of the TV unit,
press "option/yellow" button of the remote control 3 times within 2 seconds.

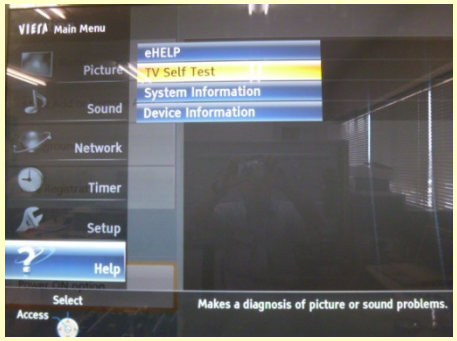
How to exit :
Switch off the TV unit

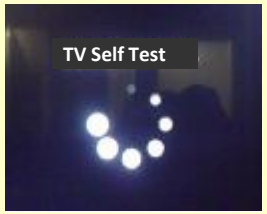
#)The test pattern is created by the circuit in LCD Panel Module(T-CON board).

<TV Self test> : Customers also can check the picture and sound by internal data.
If the picture and sound is no problem, the reason of trouble is mostly not a TV.

How to display :
Menu → HELP → TV Self Test

#)The test pattern and test sound are created by the main IC on the A board.





1) During this indication
"Self Check of Service Mode"
is working at the background.
2) If NG, indication is shown.
A board defective
3) If All OK, it shifts to picture
and sound test.

(OK)

Yes

1.Antenna level low
2.Connection mistake
3.Input devices NG
4.Input select mistake

No

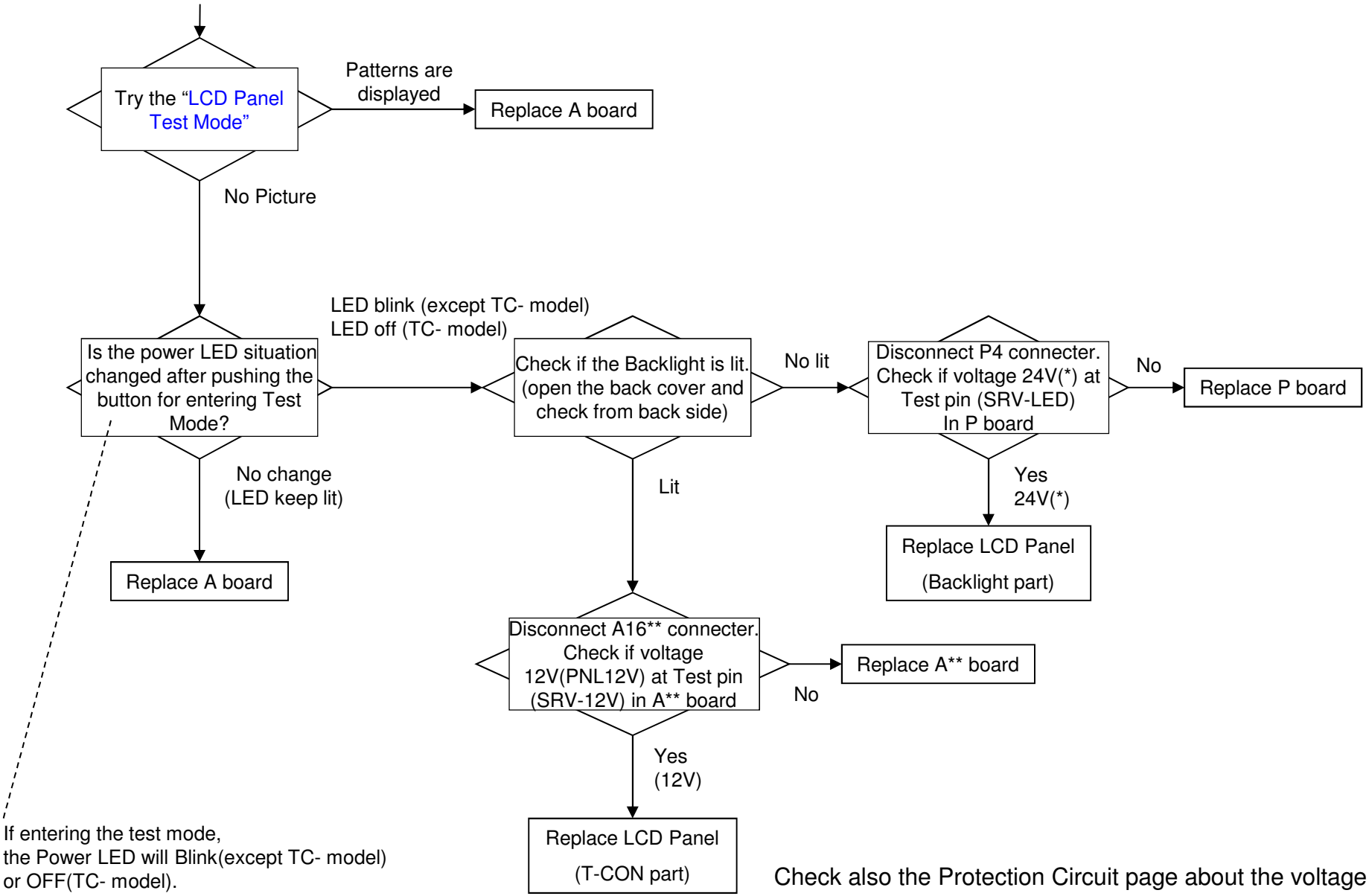
TV unit defective.
(A board, Panel or
Speaker)

***) A400/410/430 series do not support.**


Picture mode: Vivid
Sound mode: Standard
Audio out: TV speakers
Volume: 35
TV Self-test
This picture is displayed in High Definition and a melody is playing via the TV's internal speakers. Is the picture and sound OK?
Yes
No
OK
Select
RETURN

Troubleshooting for No picture and No OSD (Power LED is lit)

ADD



Check also the Protection Circuit page about the voltage line.

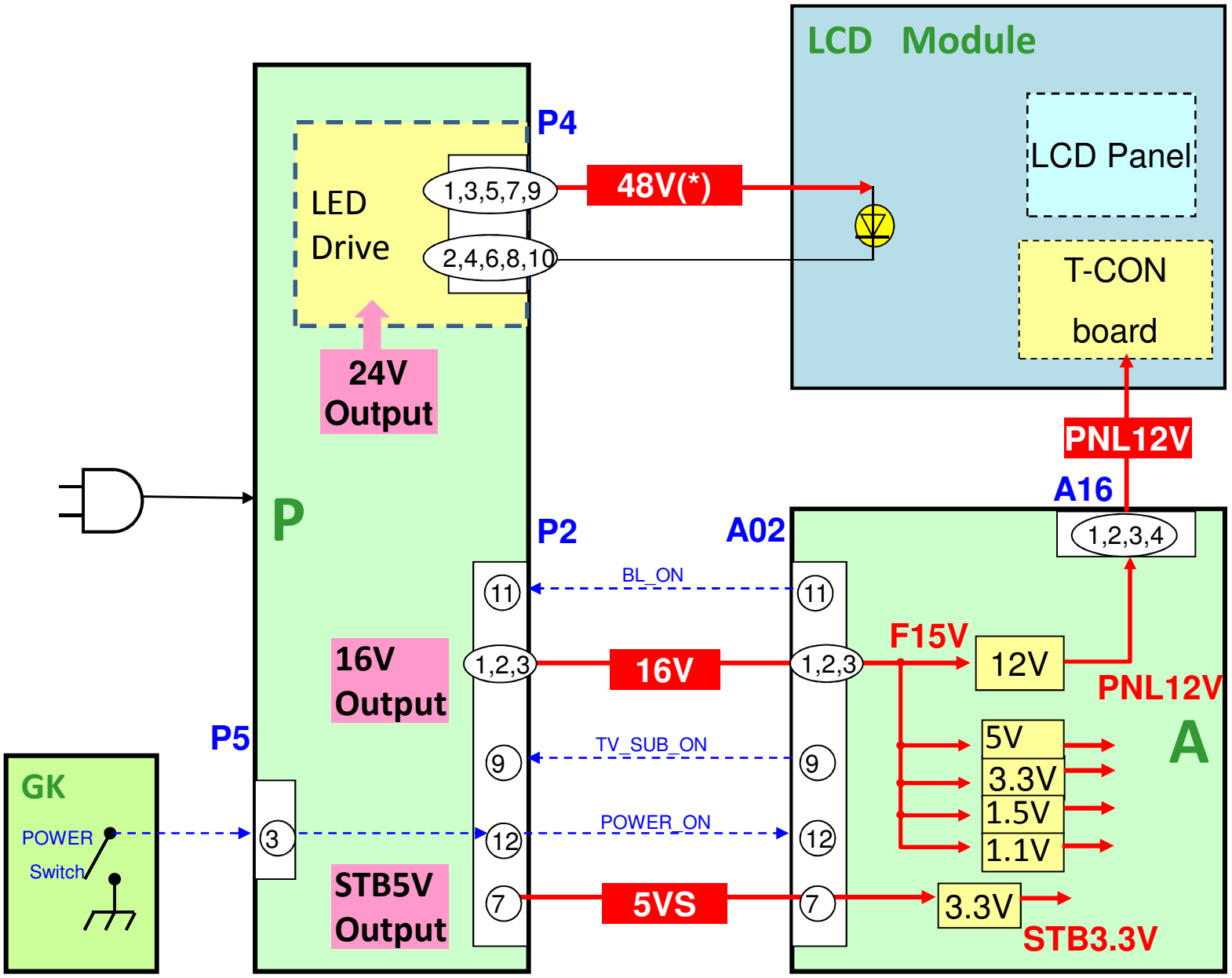
(*) The DC level is different by the LCD panel.

(**) AX800 model = FR Board)

4. Stand by / Start up Operation

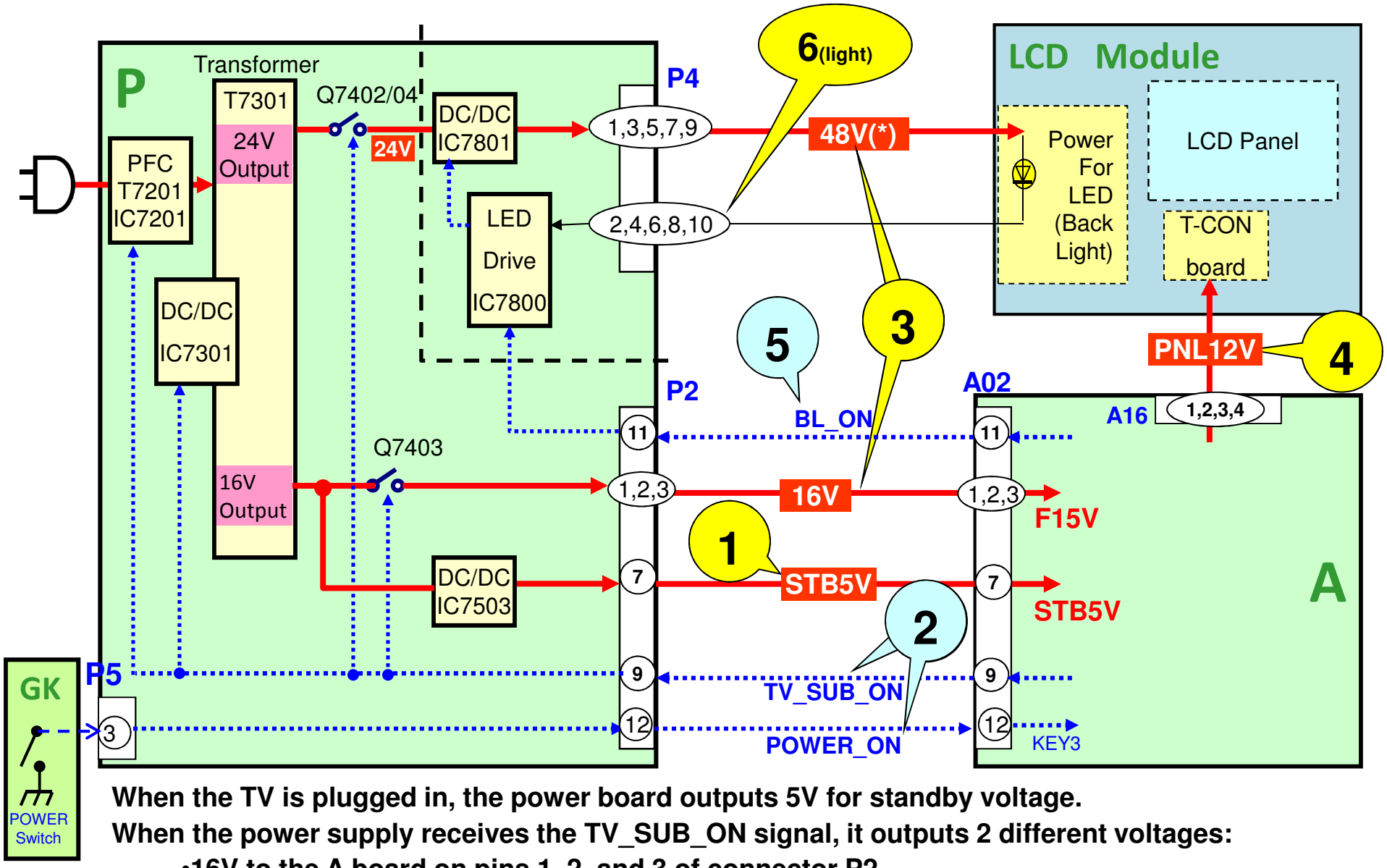
(SoC = Peaks LD6 model)

Voltage Distribution



(*)The DC level is different by the LCD panel.

Start up Operation-1



When the TV is plugged in, the power board outputs 5V for standby voltage.

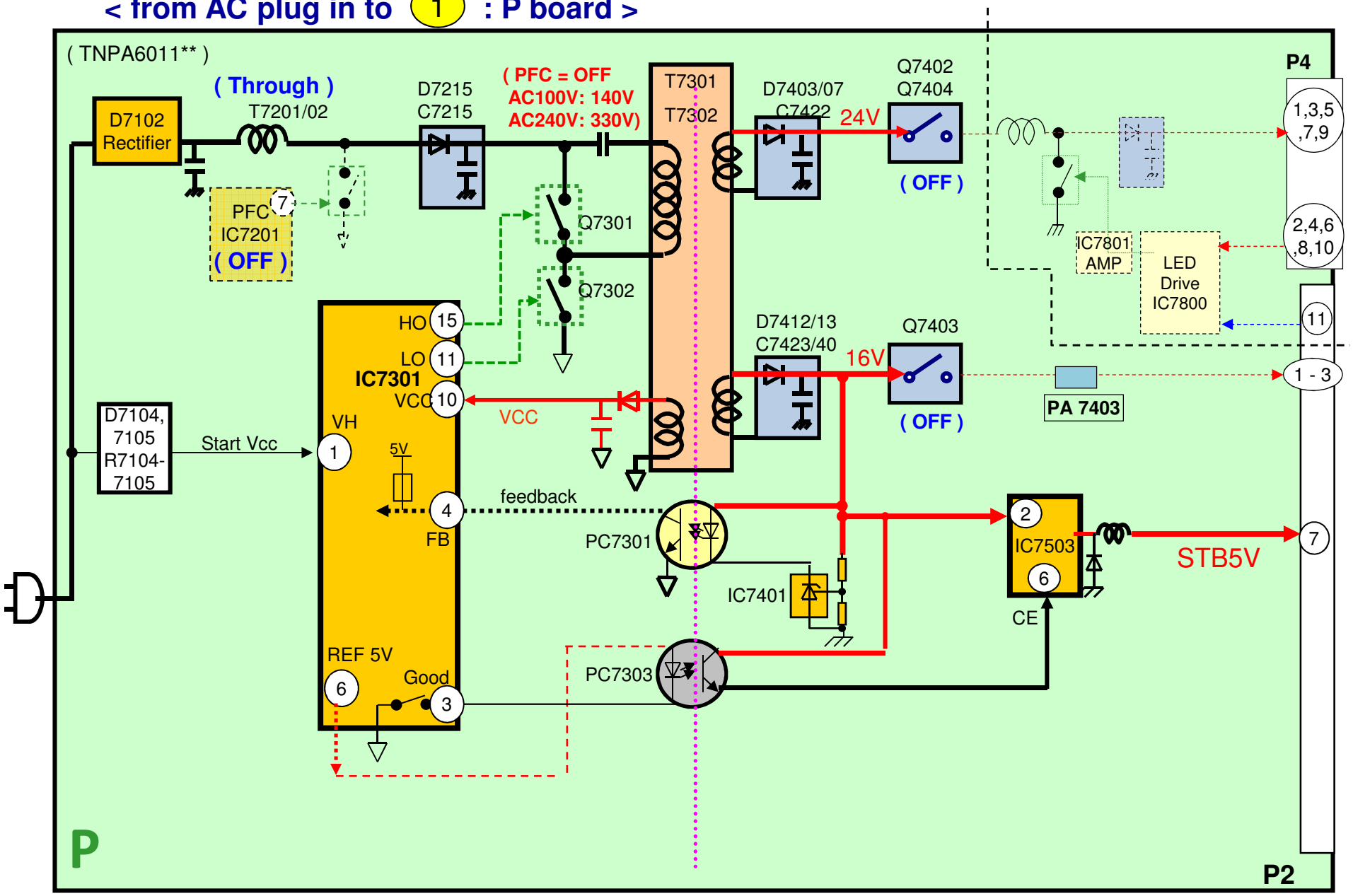
When the power supply receives the TV_SUB_ON signal, it outputs 2 different voltages:

- **16V to the A board on pins 1, 2, and 3 of connector P2.**
- **24V to the LED backlight board on pins 1,3,5,7 and 9 of connector P4.**

After A board is ready to display, it outputs Backlight_on command to LED Drive circuit.

Start up Operation-2

< from AC plug in to 1 : P board >



Start up Operation-3

< from AC plug in to (1) : P board >

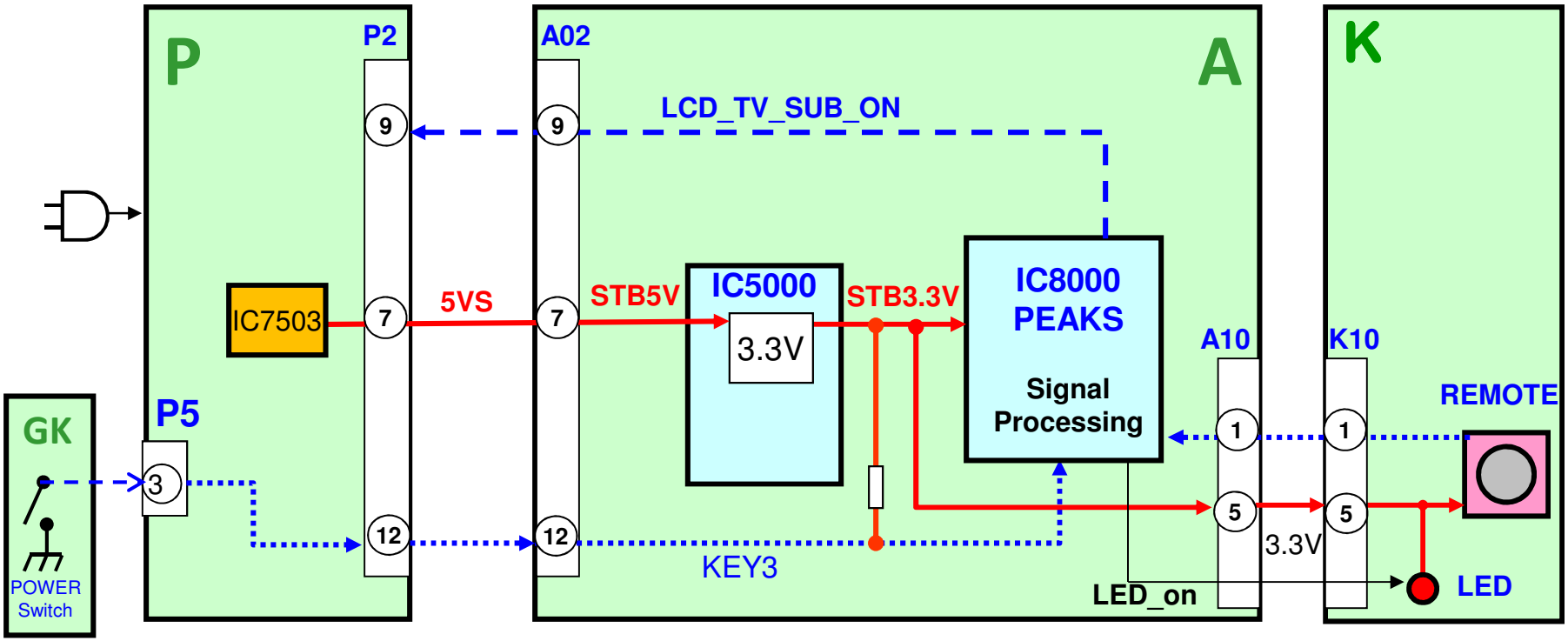
When the TV is plugged in, the rectifier start to produce DC voltage which leads through PFC circuit directly to the power switches Q7301, Q7302. (PFC circuit IC7201 does not operate at this moment.) Besides this DC voltage is provided also for D7104, D7105 which provide start voltage to pin 1 of power supply IC 7301. When the voltage on pin 1 rise up to predefined value IC7301 starts supplyinng of switching pulses for Q7301, Q7302. Due to this current starts to lead through winding of T7301 T7302 which starts to generate output voltages. One of these voltages VCC is used for power supplying of the IC 7301 to its pin 10.

When the power supply starts up, the 16V is providing by D7412,13/C7423,40. This voltage leads to IC7503, which is 5 volts DCDC converter. This converter needs to get starts commands, which is provides by IC 7301 pin 3. This pin is internaly grounded in normal state and the information is carried to the secondary side by PC7303. Finally there is input signal on pin 6 of IC7503 for start its operation.

This voltage (STB5V) is provided to A board via connector P2 pin7. So if the TV is plugged in, STB5V is provided to A board without trigger signal.

Start up Operation-4

< from 1 to 2 : A board >



	OFF (It can receive only Power SW)	Standby (It can receive Power SW, Remote, Viera Link and so on)
North America	(Automatically) →	Power LED: OFF
Except North America	Power LED: OFF Power SW on →	Power LED: RED

Start up Operation-5

< from 1 to 2 : A board >

The STB5V from pin7 of connector P2 is applied to the Analog ASIC (IC5000) for supplying power to the Main CPU/PEAKS (IC8000) on the A board. The Analog ASIC (IC5000) converts the STB5V to STB3.3V. This voltage energize and prepare the microprocessor (CPU) for program execution. The STB3.3V from the Analog ASIC (IC5000) is also applied to the remote control receiver and the power LED on the K board through pins 5 of connector A10/K10.

When the Power Switch on, the key3 signal is grounded. (#1)

The IC8000 lights on the RED LED and is ready to power on the TV by receiving the Power switch on, Remote on, Viera Link and so on. This is a standby state.

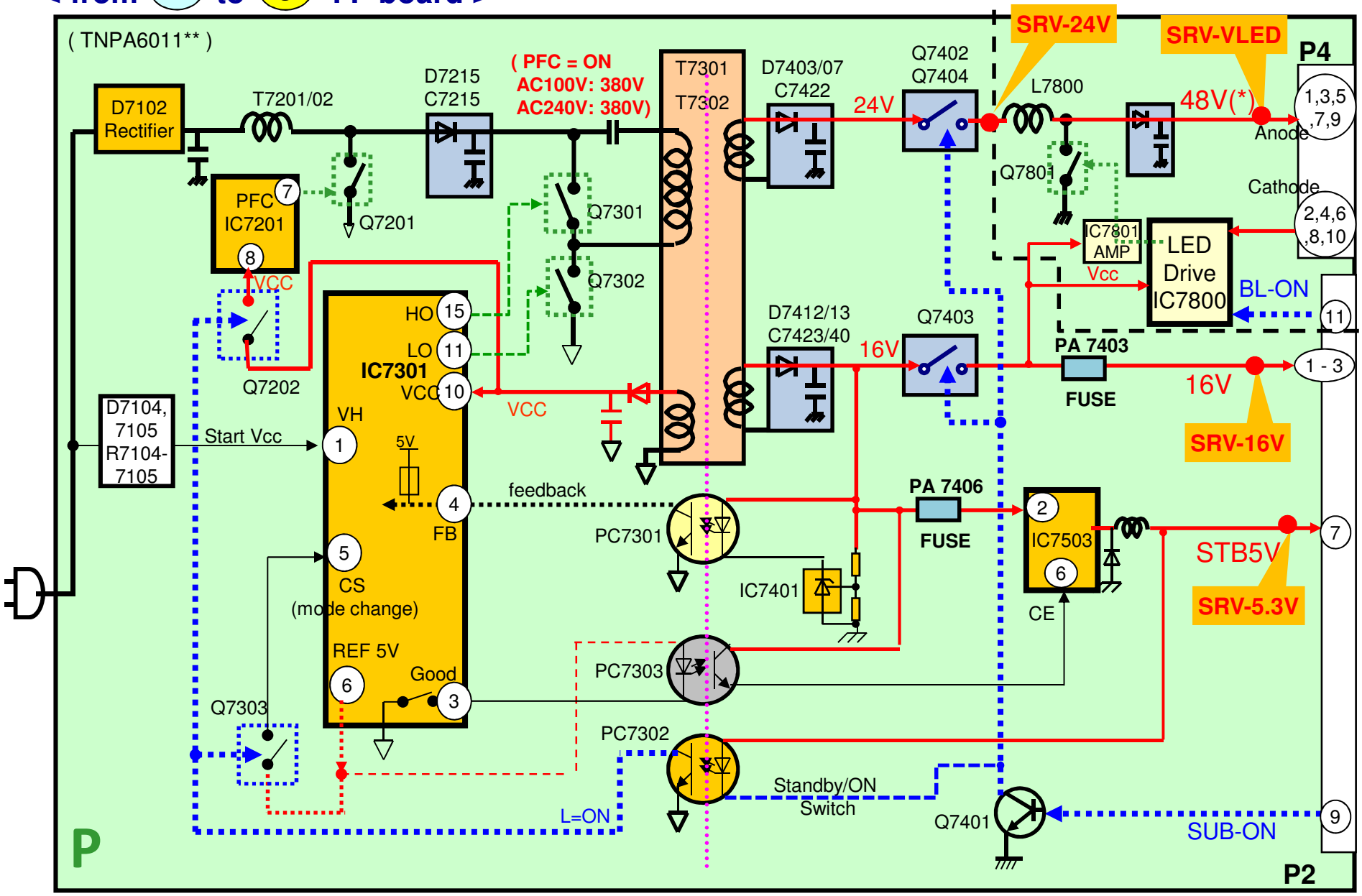
(#1)Only North America model: Power switch on is no need, automatically this procedure is operated after the TV is plugged in. But the RED LED does not light.

When the power on command from the power switch, the remote control and so on is provided to IC8000 PEAKS, IC8000 first outputs the “TV_SUB_ON” command. The “TV_SUB_ON” command is provided to power board via pin 9 of connector P2.

(#) Just after transition to Stand-by mode, the TV_SUB_ON(16V) output for few minutes.
(North America model : 10s)

Start up Operation-6

< from 2 to 3 : P board >



(*)The DC level is different by the LCD panel.

Start up Operation-7

< from 2 to 3 : P board >

When the power board receives the TV_SUB_ON signal from IC8000 via pin 9 of connector P2, it outputs 2 different voltages:

16V to the A board on pins 1, 2 and 3 of connector P2.

24V to the LED backlight board on pins 1,3,5,7 and 9 of connector P4.

This command is carried to the primary side by PC7302. This voltage is leaded to Q7303 whcih provide reference voltage from pin 6 to pin 5 of IC7301.

Therefore the operation of the IC 7301 changes the switching frequency from standby state to working state and output voltages rise up.

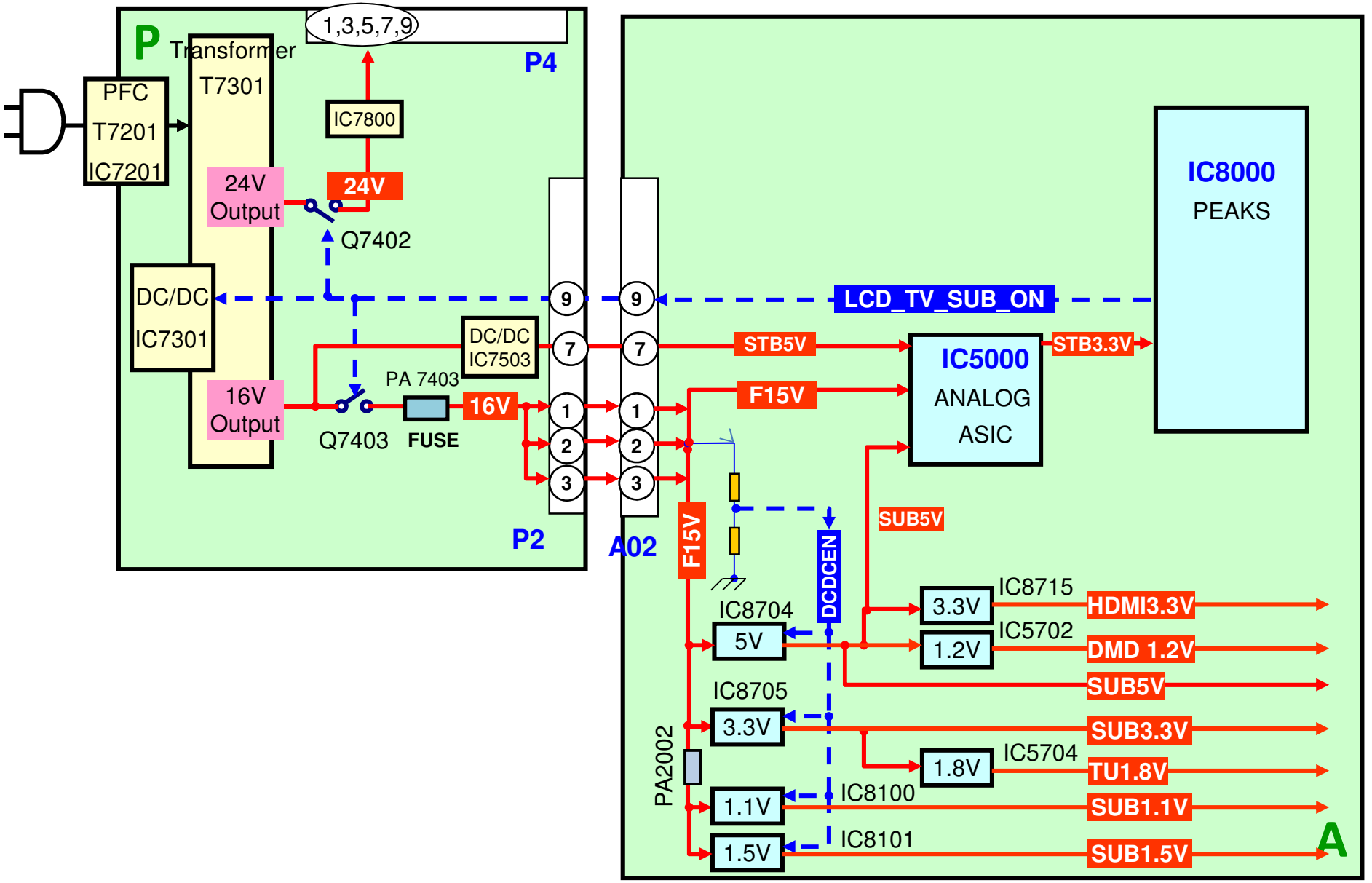
Besides the ON command is connected to the Q7202 which provide power supply VCC of PFC circuit. The PFC starts to operate then.

Output voltages from transformer T7301 start rising up until the moment when IC7401 started to operate. This IC measures the 16V line output in the secondary side. The output of this IC is provided by PC7301 to pin 4 of IC7301. IC7301 adjust the switching frequency by this feedback signal.

The TV_SUB_ON signal also switches on the Q7402-04 to provide output voltages (16V and 24V) to other boards. The 24V is provided to the LCD Module (LED Backlight Power Supply). The 16V is provided to the A board.

Start up Operation-8

< 3 : A board (SUB voltage) >



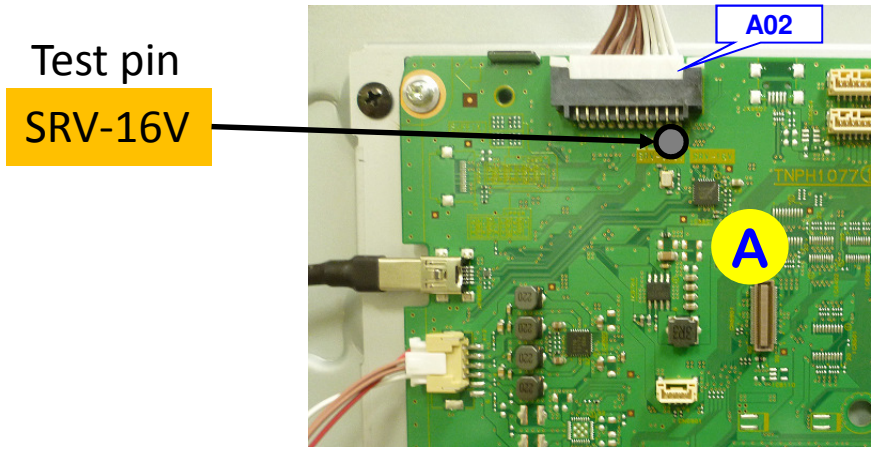
Start up Operation-9

< 3 : A board (SUB voltage) >

The 16V(F15V) from the P board via pin1,2 and 3 of connector A02 is applied to Analog ASIC IC5000 and ICs (Voltage regulators) on the A board to generate the SUB-Voltages used for signal processing operation.

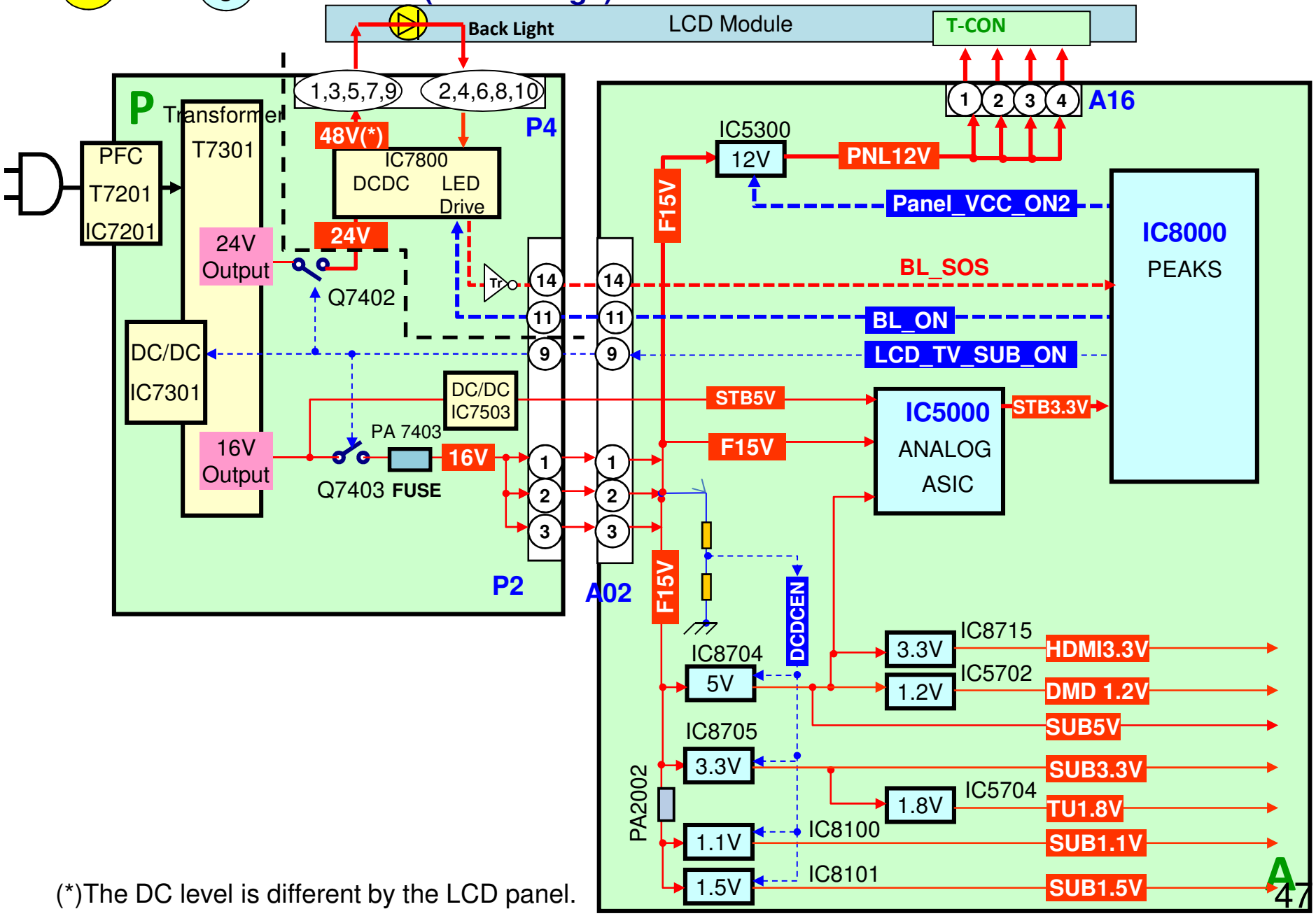
: SUB1.1V, 1.5V, 3.3V, 5V and HDMI3.3V, DMD1.2V, TU1.8V

Each voltage regulators start up by high state of DCDCEN signal which is pull up to F15V. So F15V is provided to A board, each SUB-voltage regulator ICs start output.



Start up Operation-10

< 4 and 5 : A board (PNL voltage) >



(*)The DC level is different by the LCD panel.

Start up Operation-11

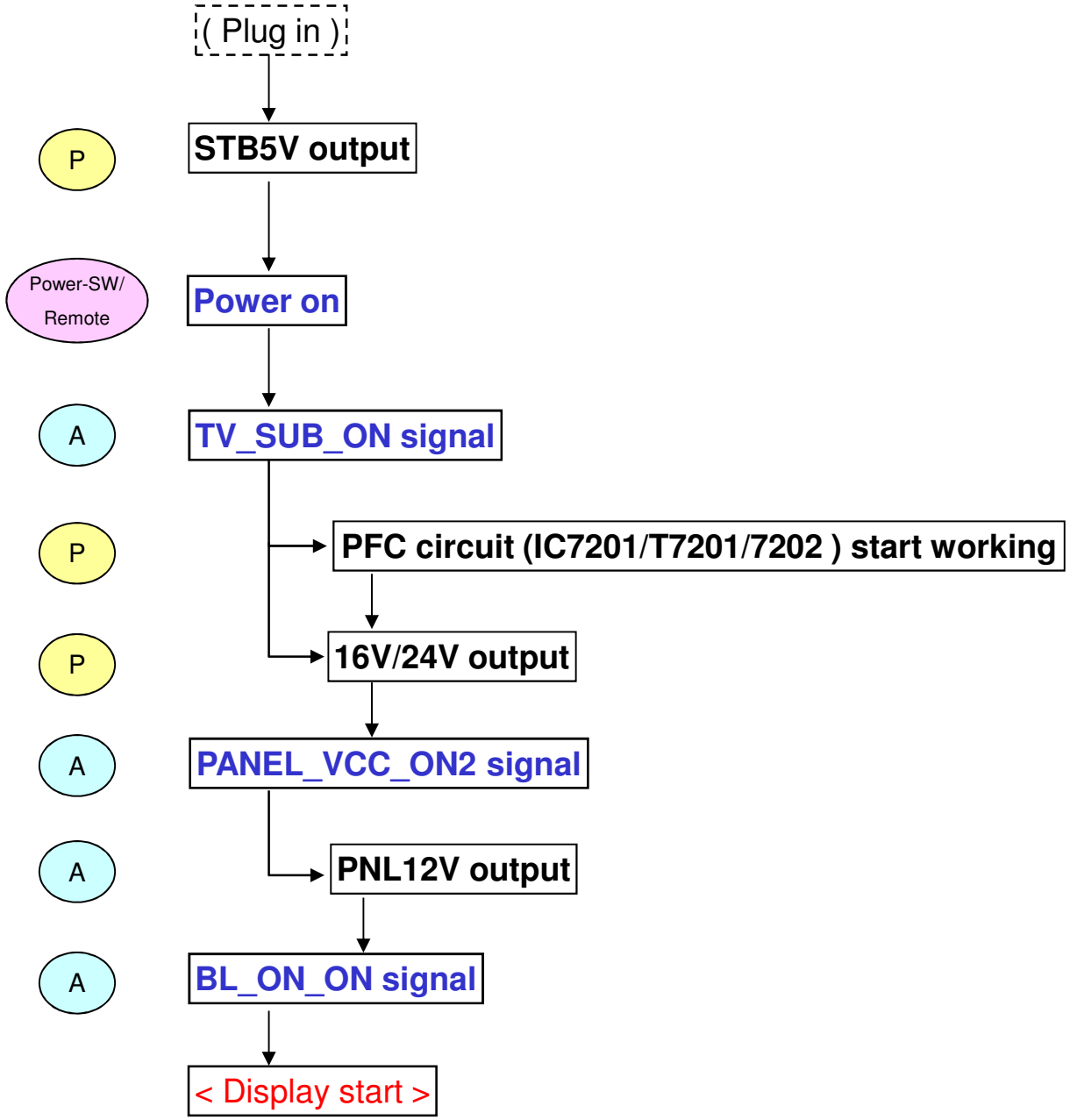
< 4 and 5 : A board (PNL voltage) >

The F15V is also used to generate the PNL-Voltage on A board. IC8000 outputs the Panel VCC On2 signal. IC5300 starts generating the PNL12V by this signal. The PNL12V is provided to T-con circuit of the LCD Module.

After that, IC8000 outputs the BL_ON command to the P board. The BL_ON command turns on the IC7800 for LED backlight drive. Then the backlight starts lighting, and LCD panel displays the pictures.

If the backlight drive circuit does not work normally, the BL_SOS signal is informed to the IC8000. At that time, IC8000 stops outputting the TV_SUB_ON signal and blinks the red LED 1 times.

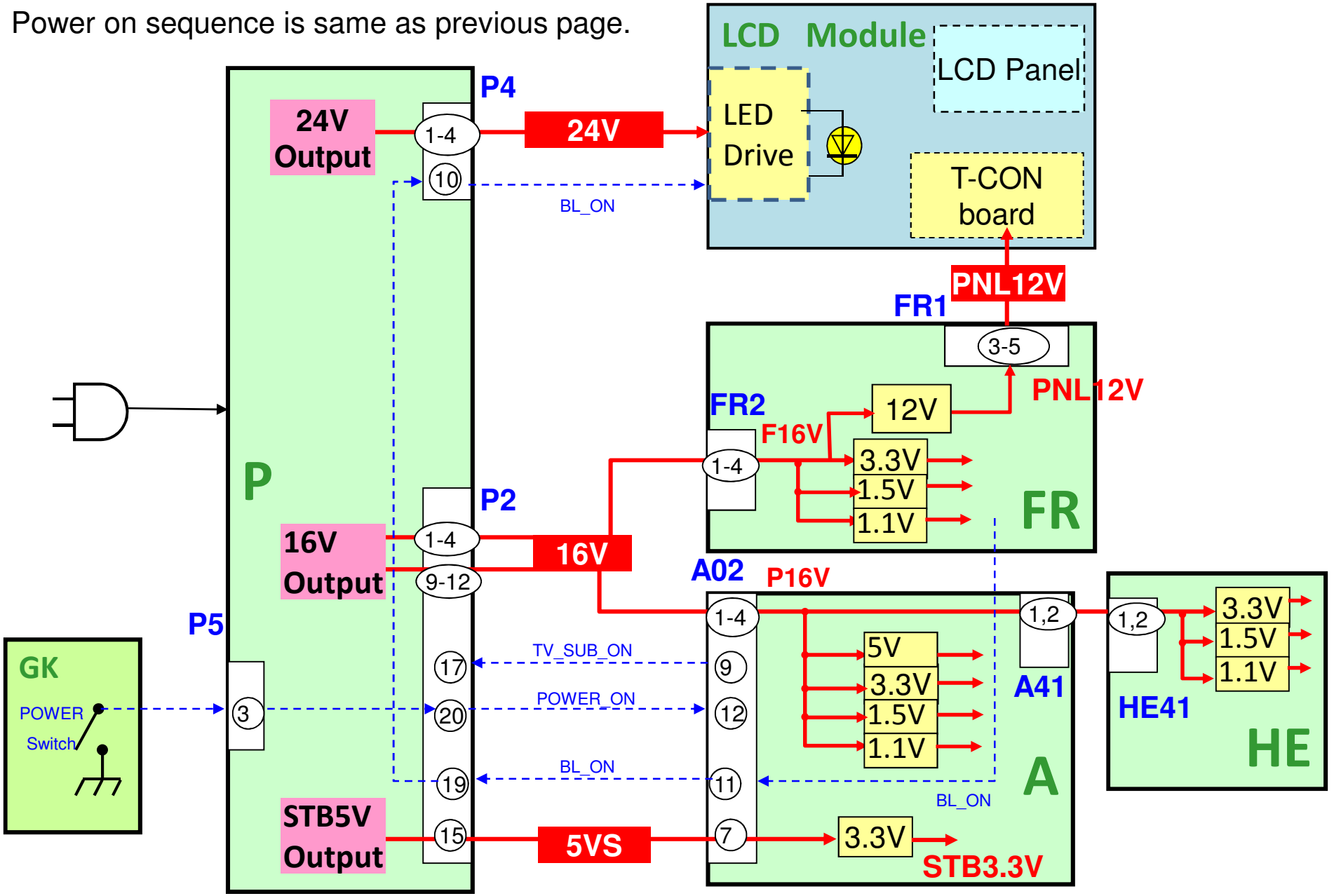
Simple Power On Sequence



Voltage Distribution (AX800)

AX800

Power on sequence is same as previous page.



5. SOS Protection Circuit and Troubleshooting

LED Blinking Summary (Except AX800)

REV

When an abnormality occurs in the unit, the “SOS Detect” circuit is triggered and the TV shuts down. Shut down means that turn off the TV_SUB_ON signal. The power LED on the front panel will flash a pattern indicating the circuit that has detected an abnormality.

Detect content \ Model name	Blinking time				Estimated defect board
	MT5591/5561 (T*-A430/420/410/400 TX-AS600/TH-S630)	Peaks LD6 (refer to the model lineup page)	Peaks sLD8A (refer to the model lineup page)	Peaks Pro4 (AS800)	
BL_SOS (LED driver)	1	1 (occurred 10s after power on)	1	1	Panel/P
IROM SOS = Power on problem (No F15V/SUB3.3V voltage)	---	1 (occurred soon after power on)	quick 3	quick 3	P/A
IROM SOS = Power on problem (No SUB5V/SUB1.5V/SUB1.1V voltage)		quick 3			P/A
No voltage SUB3.3V (after wake up once)	7	7	7	7	A
Audio amplifier: SOUND_SOS	9	9	9	9	A/ Speaker
GCX_SOS (IC9500)	---	---	---	10 (only AS800)	A
Back End SOS (inside of Peaks)	---	12	12	12	A
Emergency SOS	13	13	13	13	A

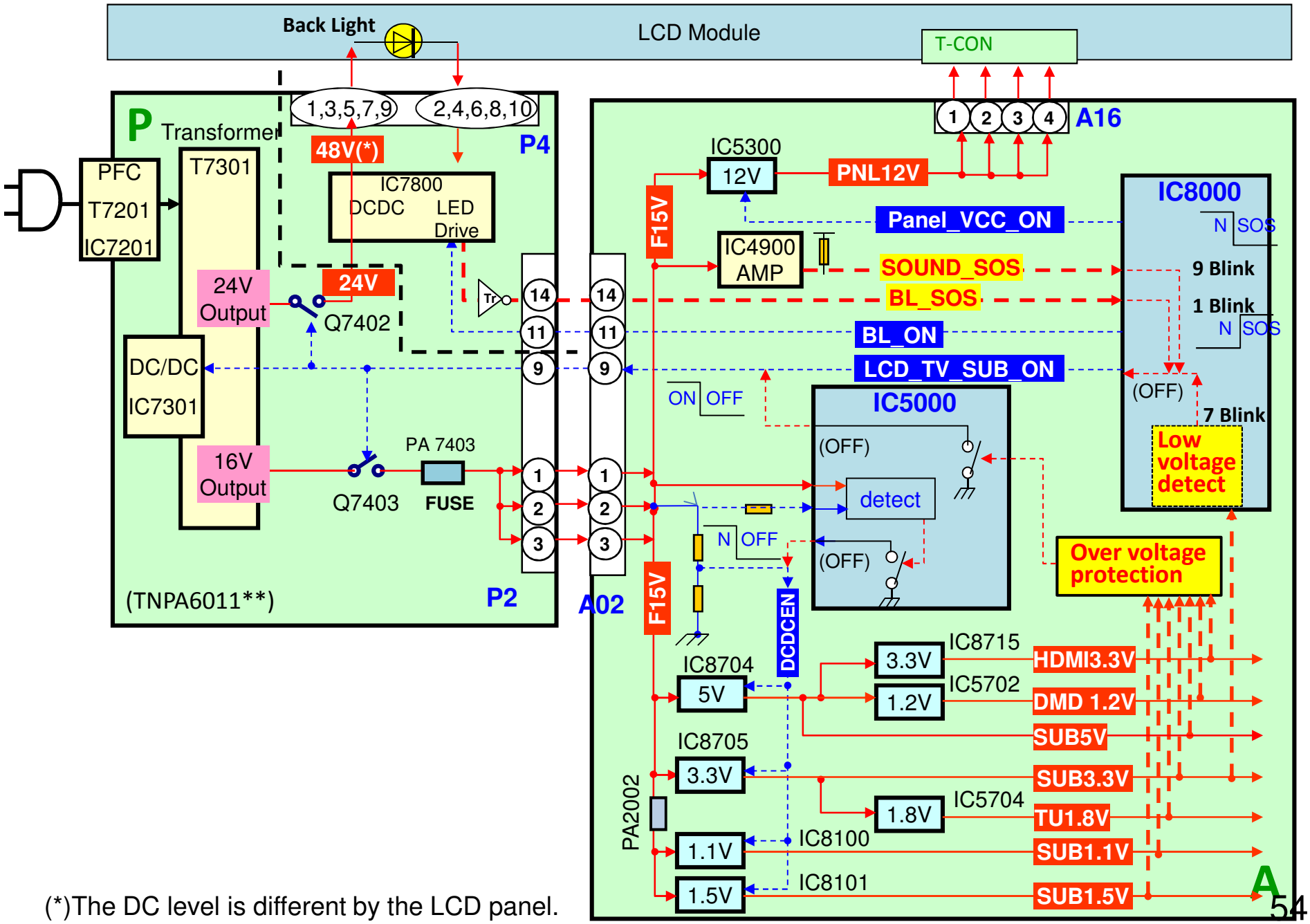
LED Blinking Summary (AX800)

AX800

When an abnormality occurs in the unit, the “SOS Detect” circuit is triggered and the TV shuts down. Shut down means that turn off the TV_SUB_ON signal. The power LED on the front panel will flash a pattern indicating the circuit that has detected an abnormality.

	Blinking time	Estimated defect board
Detect content	**Peaks Pro4 (AX800)**	
LED driver: BL_SOS	**1**	**Panel/P**
IROM SOS = Power on problem (No P16V/SUB3.3V/SUB5V/SUB1.5V/SUB1.1V voltage)	**quick 3**	**P/A/FR**
FPGA(IC1500)_SOS	**6**	**A**
No voltage SUB3.3V detected	**7**	**A**
Audio amplifier: SOUND_SOS	**9**	**A/Speaker**
GCX_SOS (IC9500:FR Board)	**10**	**FR**
Back End SOS (inside of Peaks)	**12**	**A**
Emergency SOS	**13**	**A**

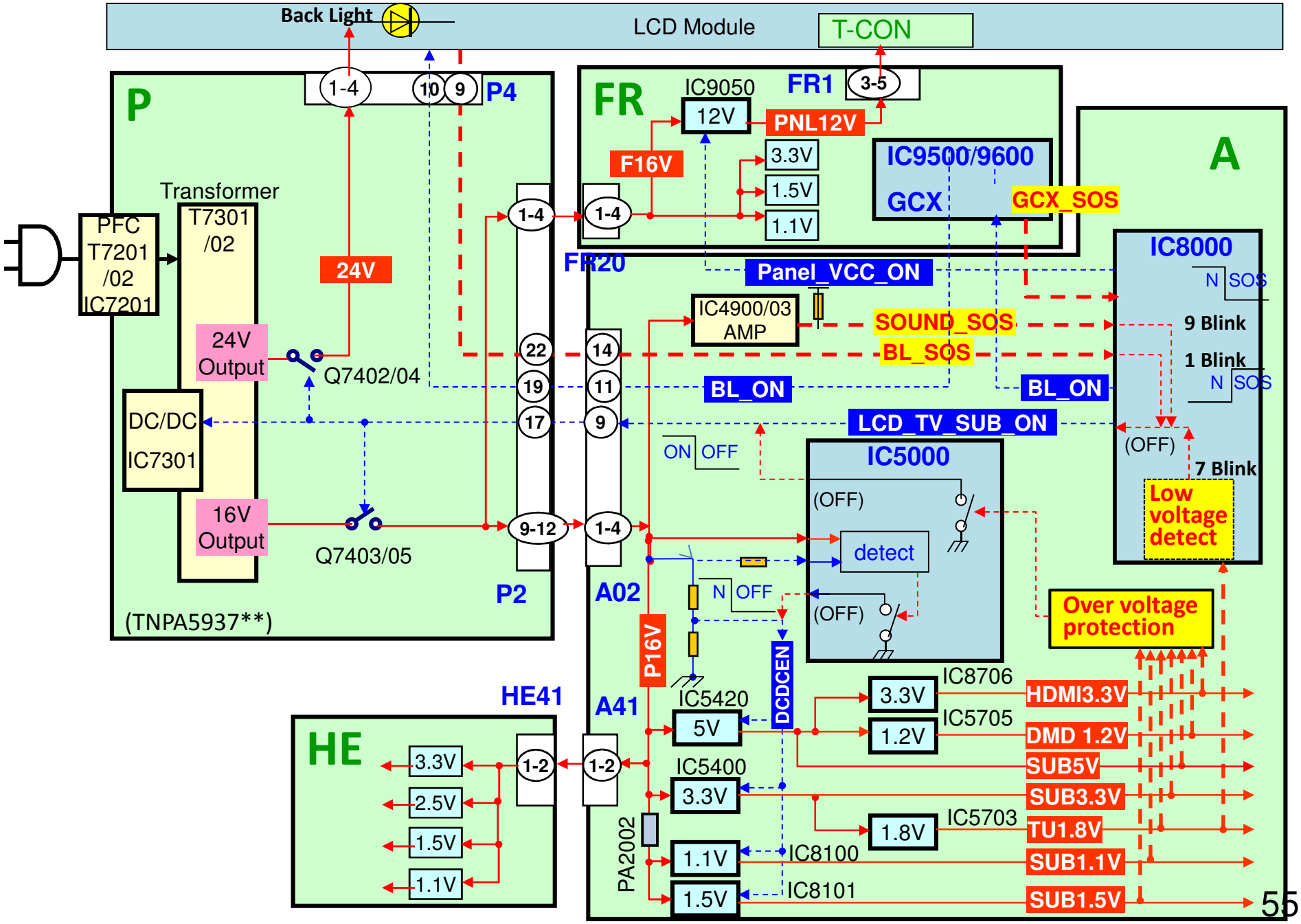
Protection Circuit



(*)The DC level is different by the LCD panel.

Protection Circuit (AX800)

AX800

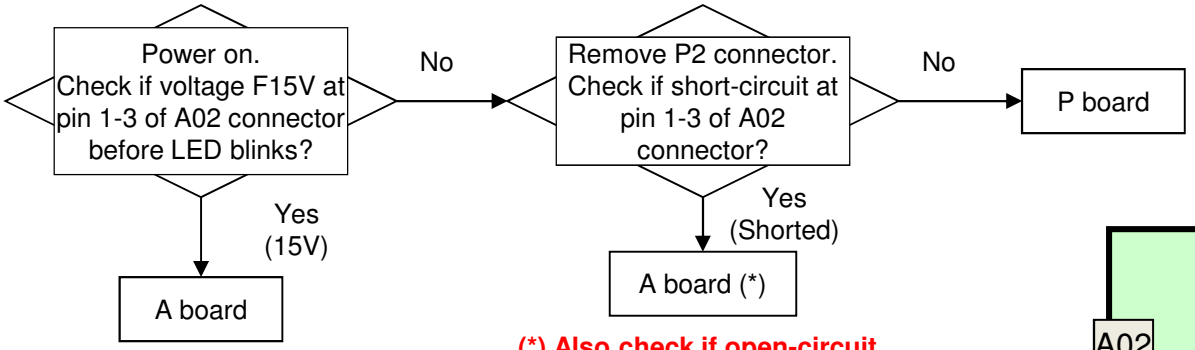


Troubleshooting for LED Blinking (Except AX800: Quick 3 time blink)

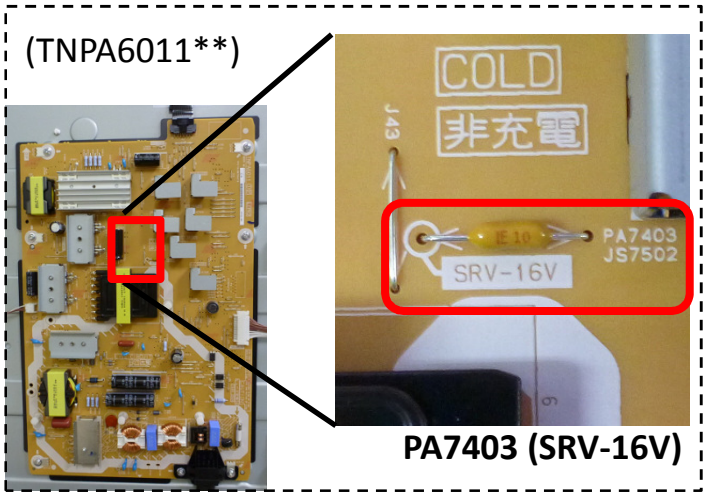
LED blinks	Detail error	Board may defect
Quick 3	Power on problem (No F15V/SUB3.3V/SUB1.5V voltage)	P/A

F15V(16V) is supplied from P board. If the F15V /SUB voltage is not supplied

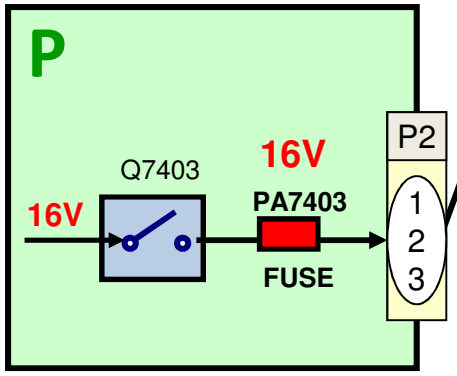
→ LED blinks 3 times (quick blink).

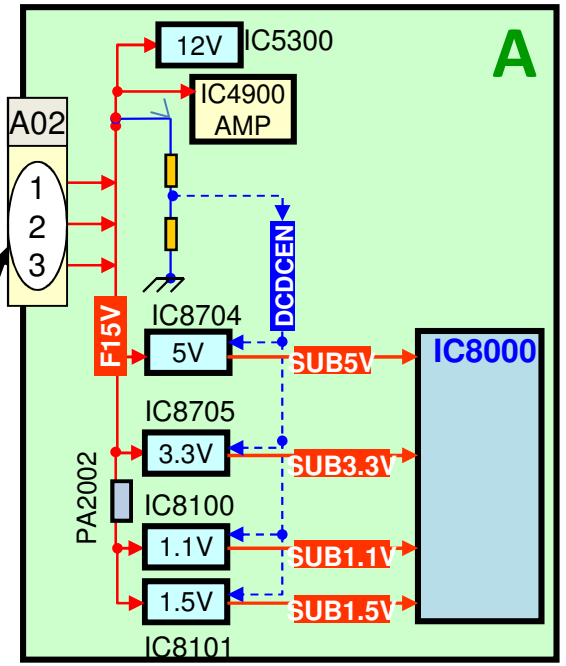


(*) Also check if open-circuit the Fuse PA7403. If it is opened replace also P board.



PA7403 (SRV-16V)





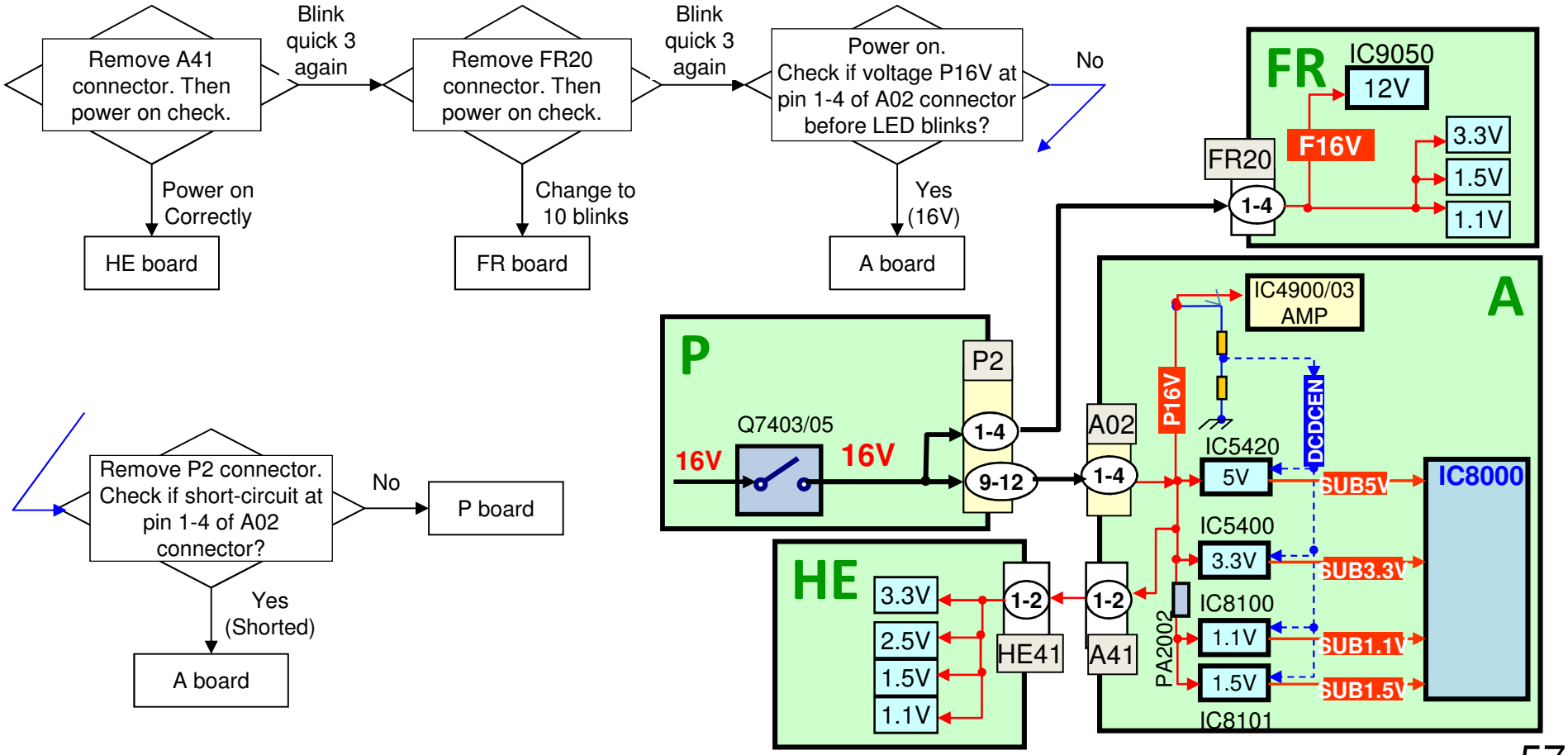
Troubleshooting for LED Blinking (AX800: Quick 3 time blink)

AX800

LED blinks	Detail error	Board may defect
Quick 3	Power on problem (No P16V/SUB3.3V/SUB1.5V voltage)	P/A/FR/(HE)

P16V is supplied from P board. If the P16V /SUB voltage is not supplied

→ LED blinks 3 times (quick blink).

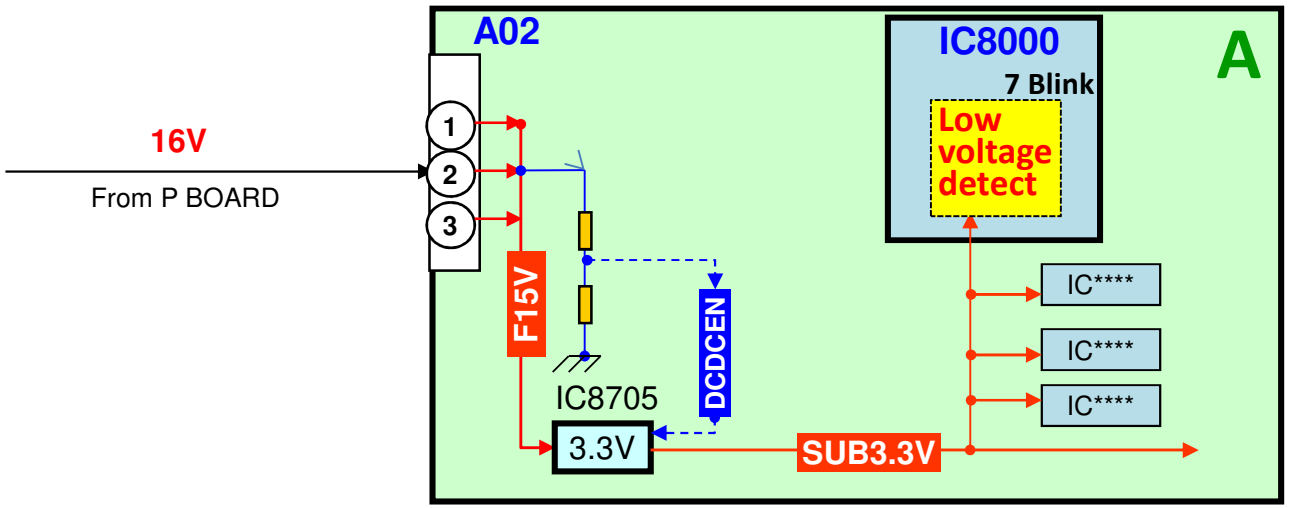


Troubleshooting for LED Blinking (7 time blink)

LED blinks	Detail error	Board may defect
7	No voltage SUB3.3V detected	A

SUB3.3V is regulated by IC8705 from F15V. SUB3.3V is only available as long as DCDCEN signal goes high. If the voltage SUB3.3V is not detected by IC8000, the LED indicator will blink 7 times. (But if the SUB3.3V is not supplied at the power on, the LED indicator would blink quick 3 times.)

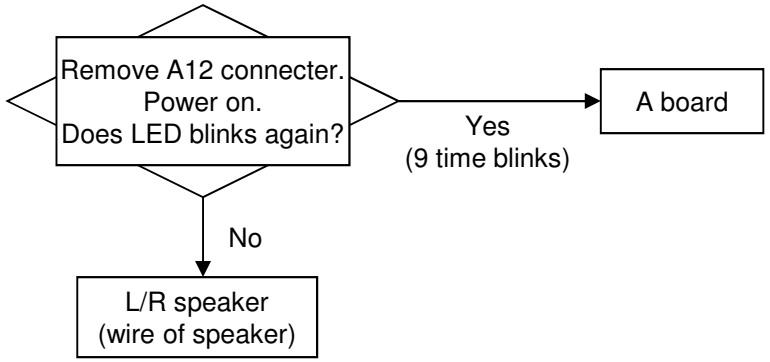
IN THIS CASE, A BOARD DEFECTS

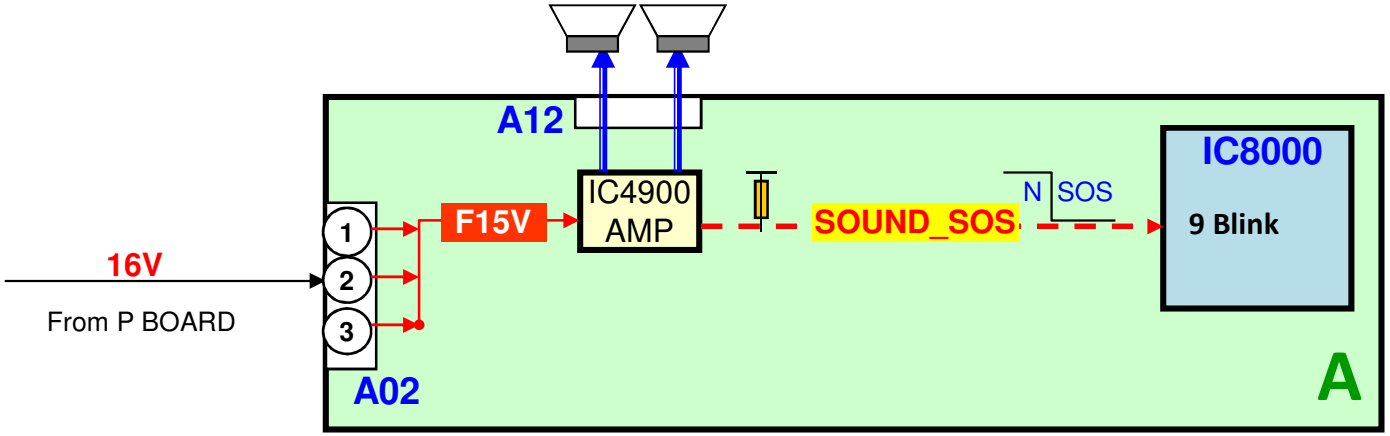


Troubleshooting for LED Blinking (9 time blink)

LED blinks	Detail error	Board may defect
9	Audio amplifier: SOUND_SOS	A/Speaker

Audio amplifier is sourced power F15V from P board. If the amplifier work abnormally (may due to short-circuit or overload), the SOUND_SOS signal will go low level and be detected by IC8001 → LED blinks 9 times.





Troubleshooting for LED Blinking (12/13 time blink)

LED blinks	Detail error	Board may defect
12	Back End SOS (inside of Peaks)	A
13	Emergency SOS	A

12 and 13 blinks are problem about IC8000 and software item.

IN THIS CASE, A BOARD DEFECTS

Troubleshooting for LED Blinking (6/10 time blink)

ADD

LED blinks	Detail error	Board may defect
6	FPGA_SOS (Initialization of IC1500)	A (AX800)
10	GCX_SOS (Initialization of IC9500)	A (AS800) / FR (AX800)

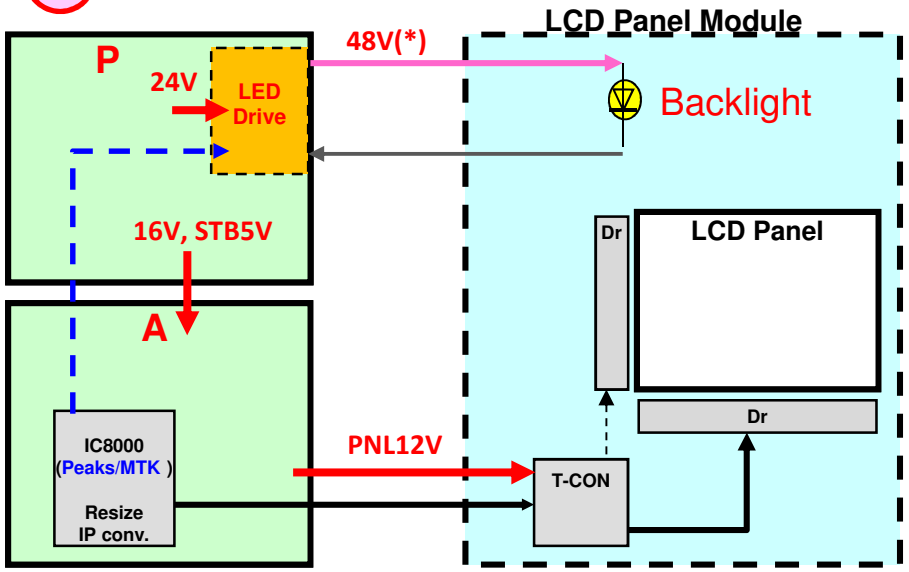
6 and 10 blinks are problem about initialization of FPGA,GCX IC.

IN THIS CASE, A / FR BOARD DEFECTS

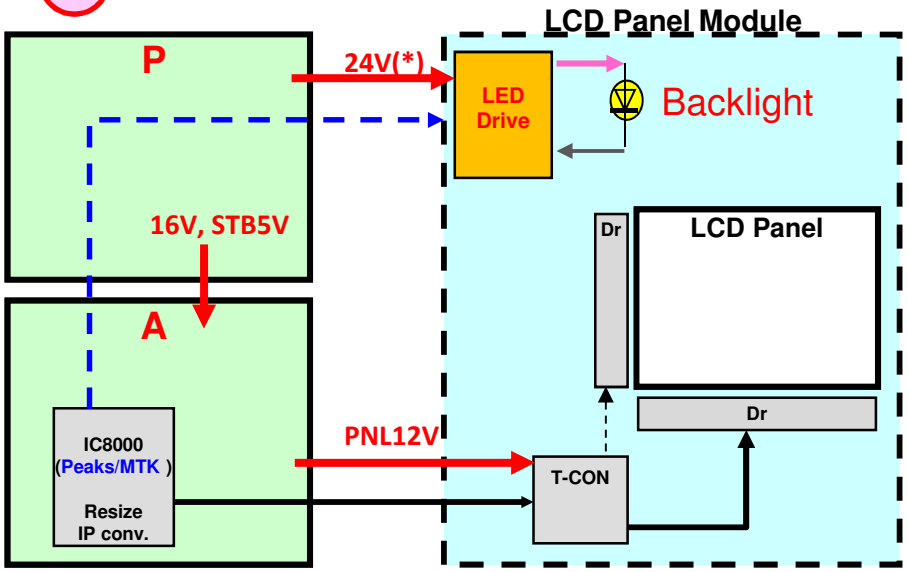
6. Difference of LED Drive Circuit (Troubleshooting for 1 time blink)

Structure of LED Drive Circuit

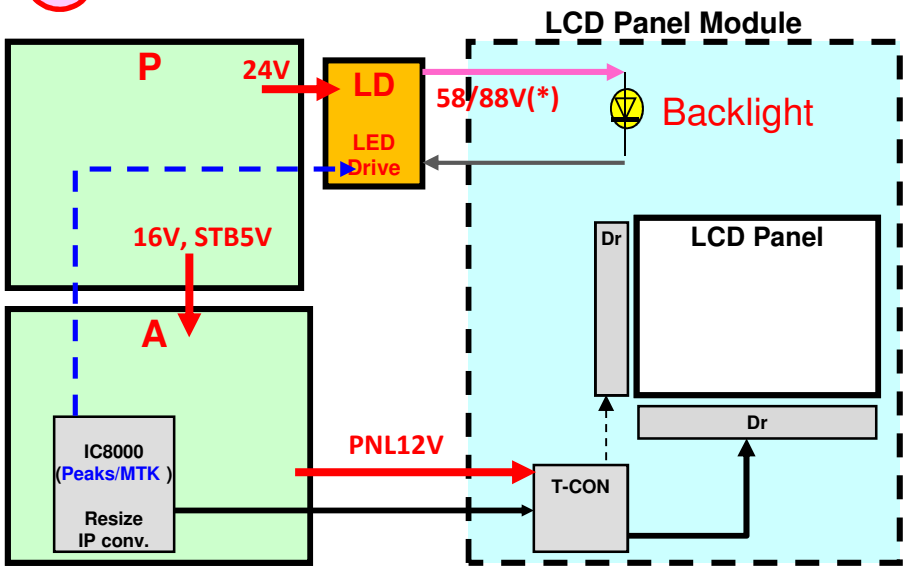
< 1 LED drive circuit in P board >

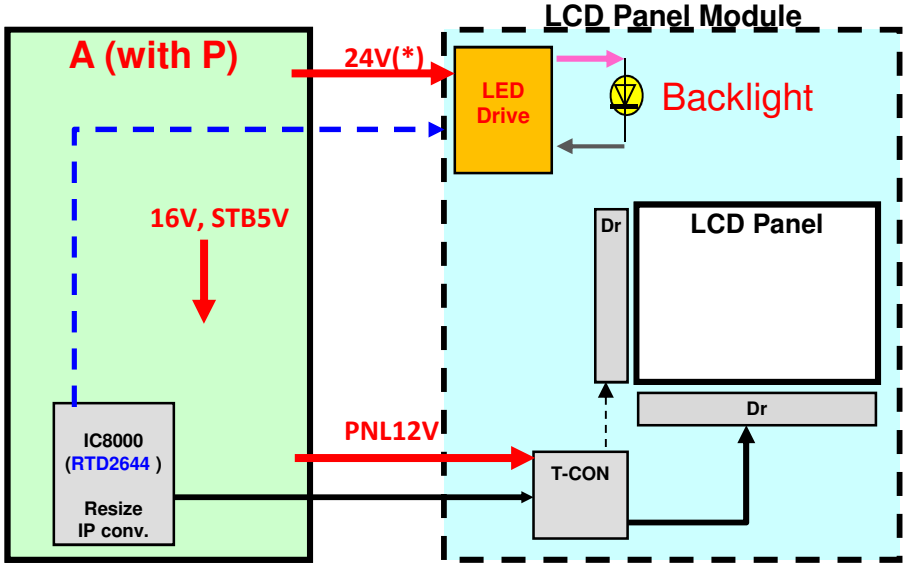


< 3 LED drive circuit in LCD Panel >



< 2 LED drive circuit is LD board >



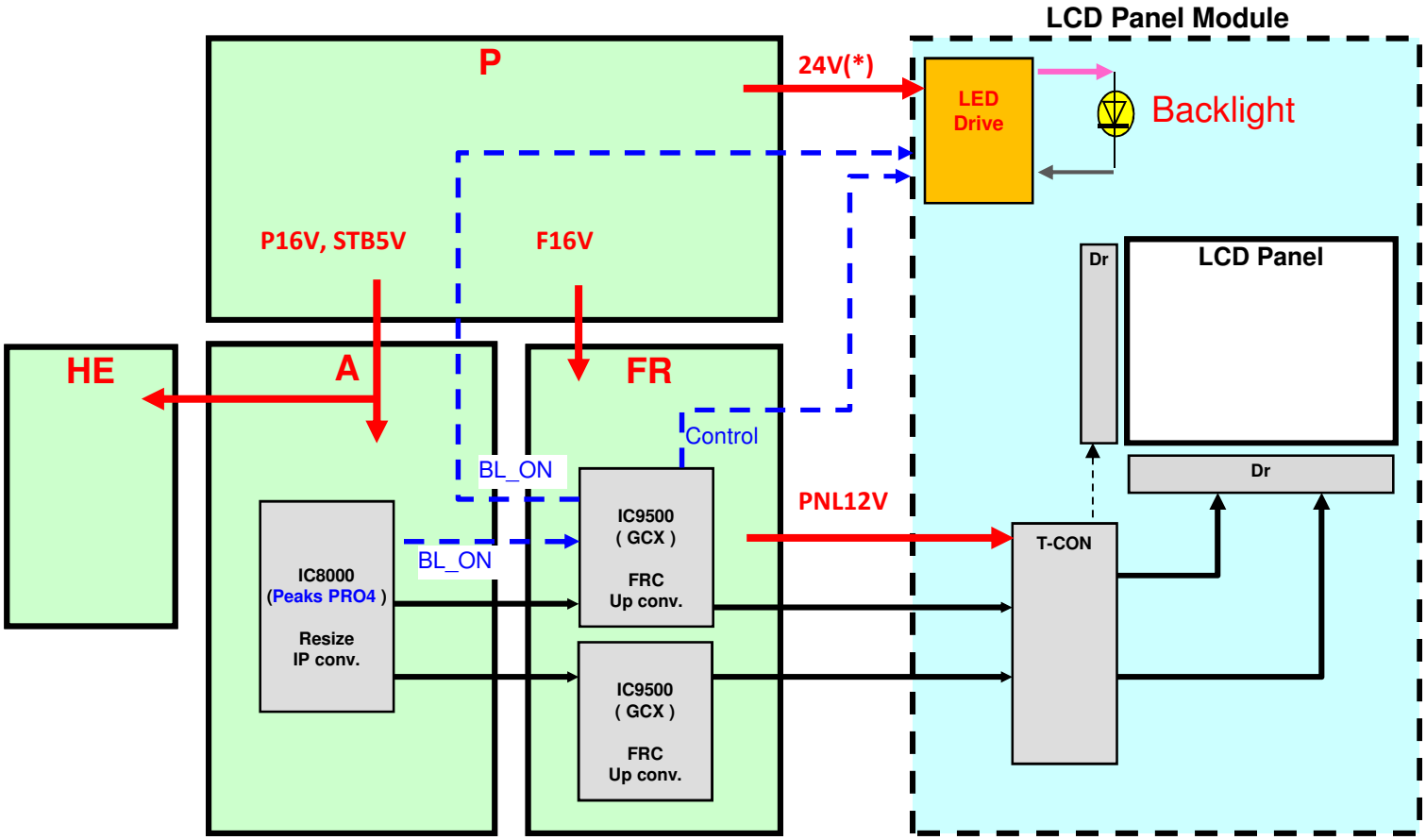


(*)The DC level is different by the LCD panel.

Structure of LED Drive Circuit

AX800

< 4 LED drive circuit in LCD Panel (AX800) >



(*)The DC level is different by the LCD panel.

Troubleshooting for LED Blinking (1 time blink) LED Drive Circuit (in P Board) -1

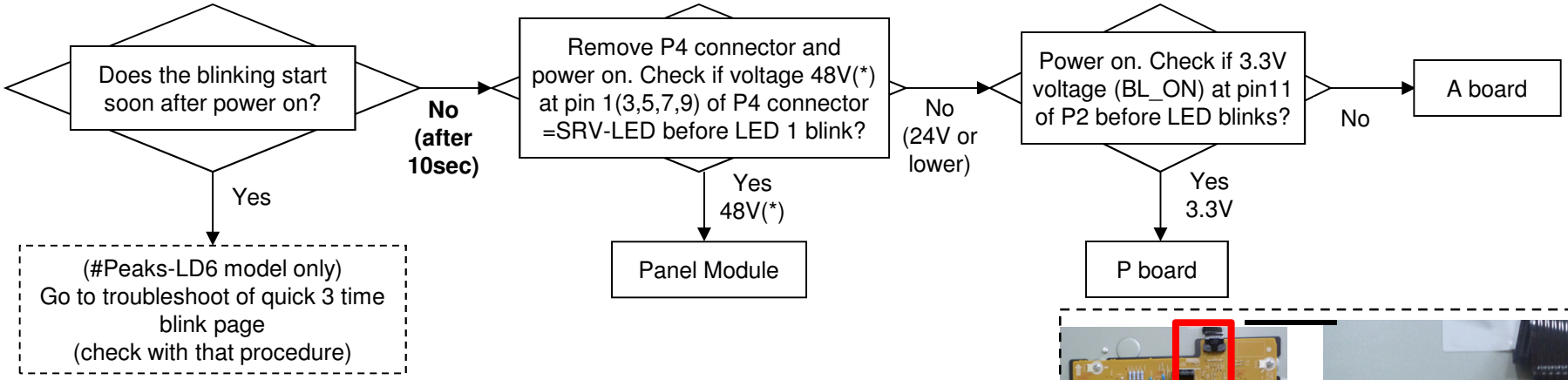
REV

< 1 LED Drive Circuit (in P Board) >

LED blinks	Detail error	Board may defect
1	LED driver: BL_SOS	P>A>Panel

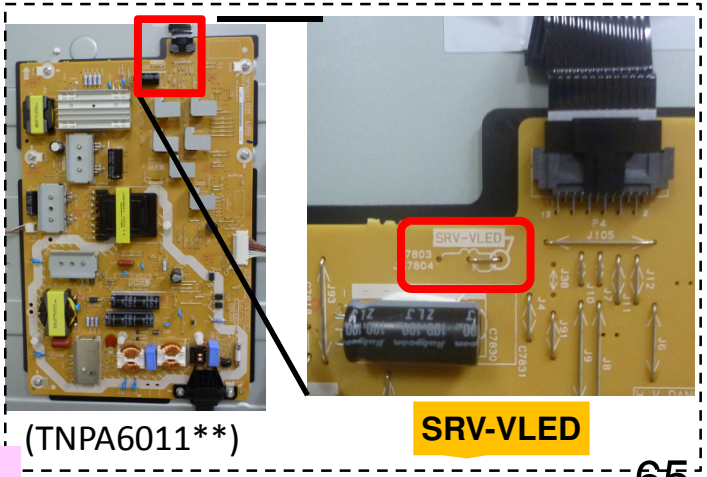
BL_SOS is generated by LED backlight drive block of P board and sent to IC8000 of A board via connector P2 at pin 14 when detecting malfunction of LED driver.

- Normal : BL_ON is high (3.3V) , BL_SOS is low (0V)



(*)The DC level is different by the LCD panel.

Refer to the next page block diagram.

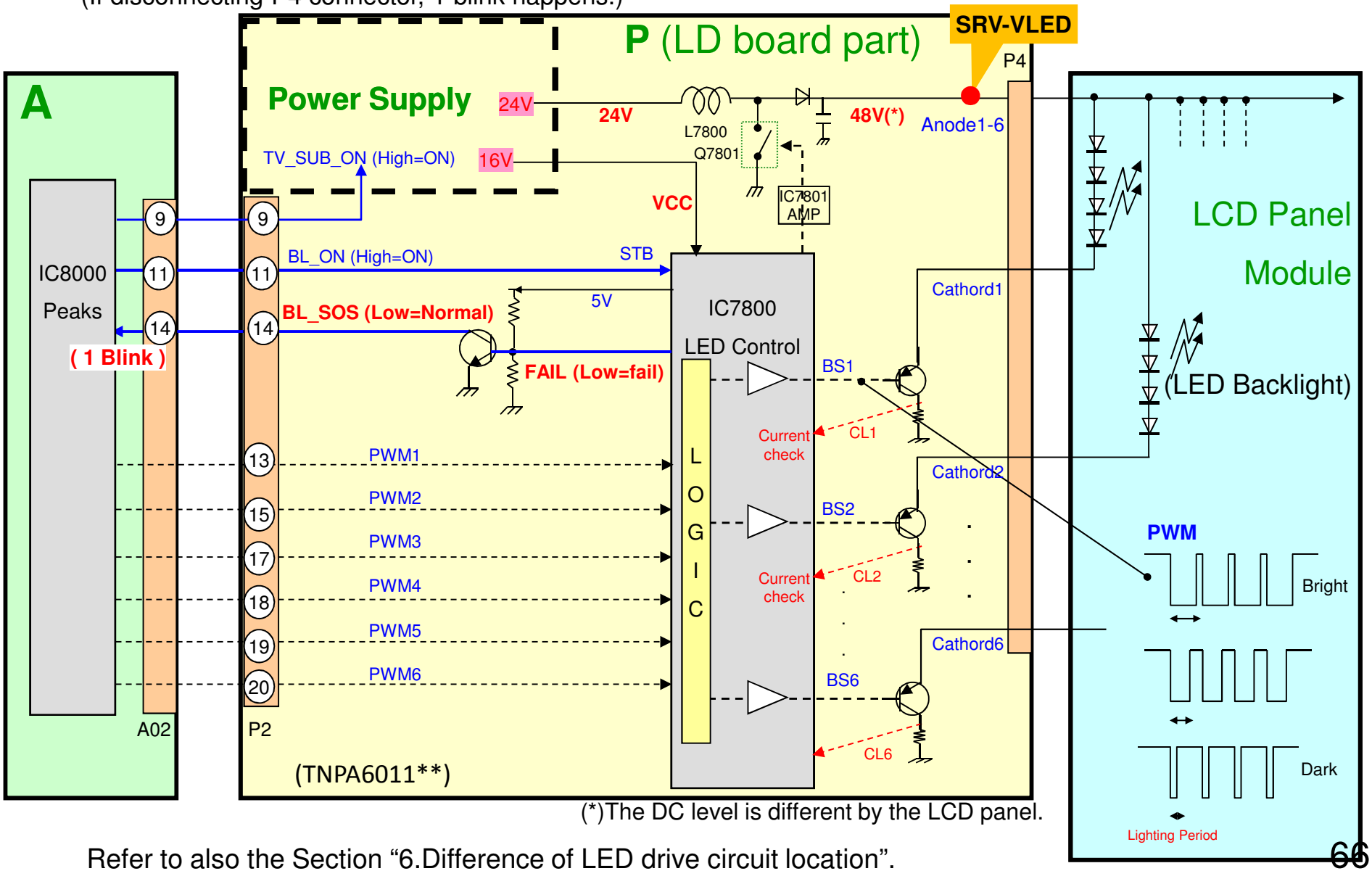


Refer to "6. Difference of LED Drive Circuit" about other structure of LED Drive circuit.

Troubleshooting for LED Blinking (1 time blink) LED Drive Circuit (in P Board) -2

< 1 LED Drive Circuit (in P Board) >

IC7800 checks the DCDC converter block and current and voltage of each output to LED in panel module.
(If disconnecting P4 connector, 1 blink happens.)



(*)The DC level is different by the LCD panel.

Refer to also the Section “6.Difference of LED drive circuit location”.

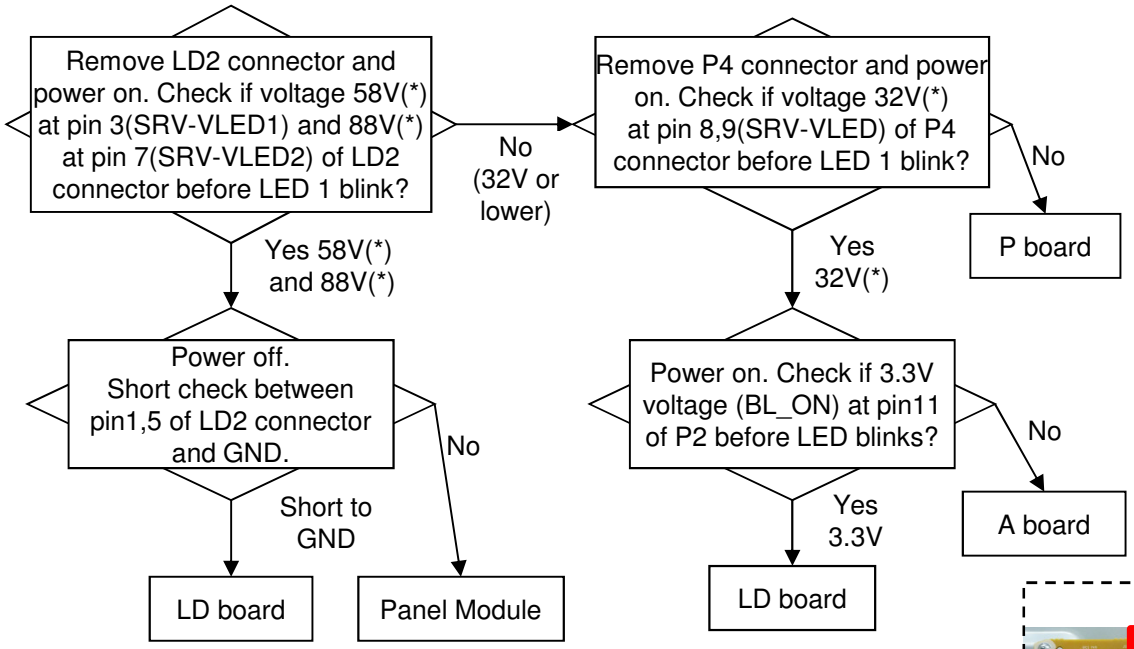
Troubleshooting for LED Blinking (1 time blink) LED Drive Circuit (in LD Board) -1

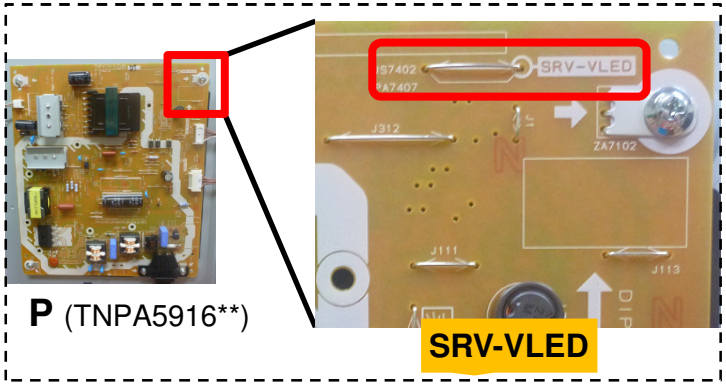
< 2 LED Drive Circuit (in LD Board) >

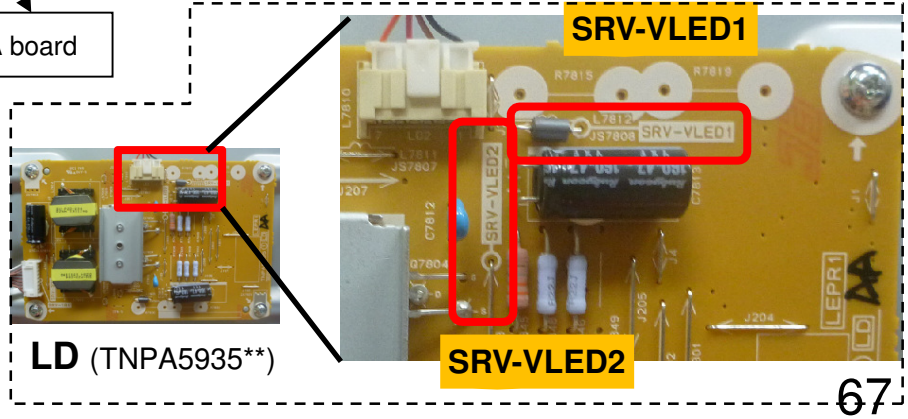
LED blinks	Detail error	Board may defect
1	LED driver: BL_SOS	LD>P>Panel

BL_SOS is generated by LED backlight drive block in LD board and sent to IC8000 of A board via connector P2 at pin 14 when detecting malfunction of LED driver.

- Normal : BL_ON is high (3.3V) , BL_SOS is low (0V)







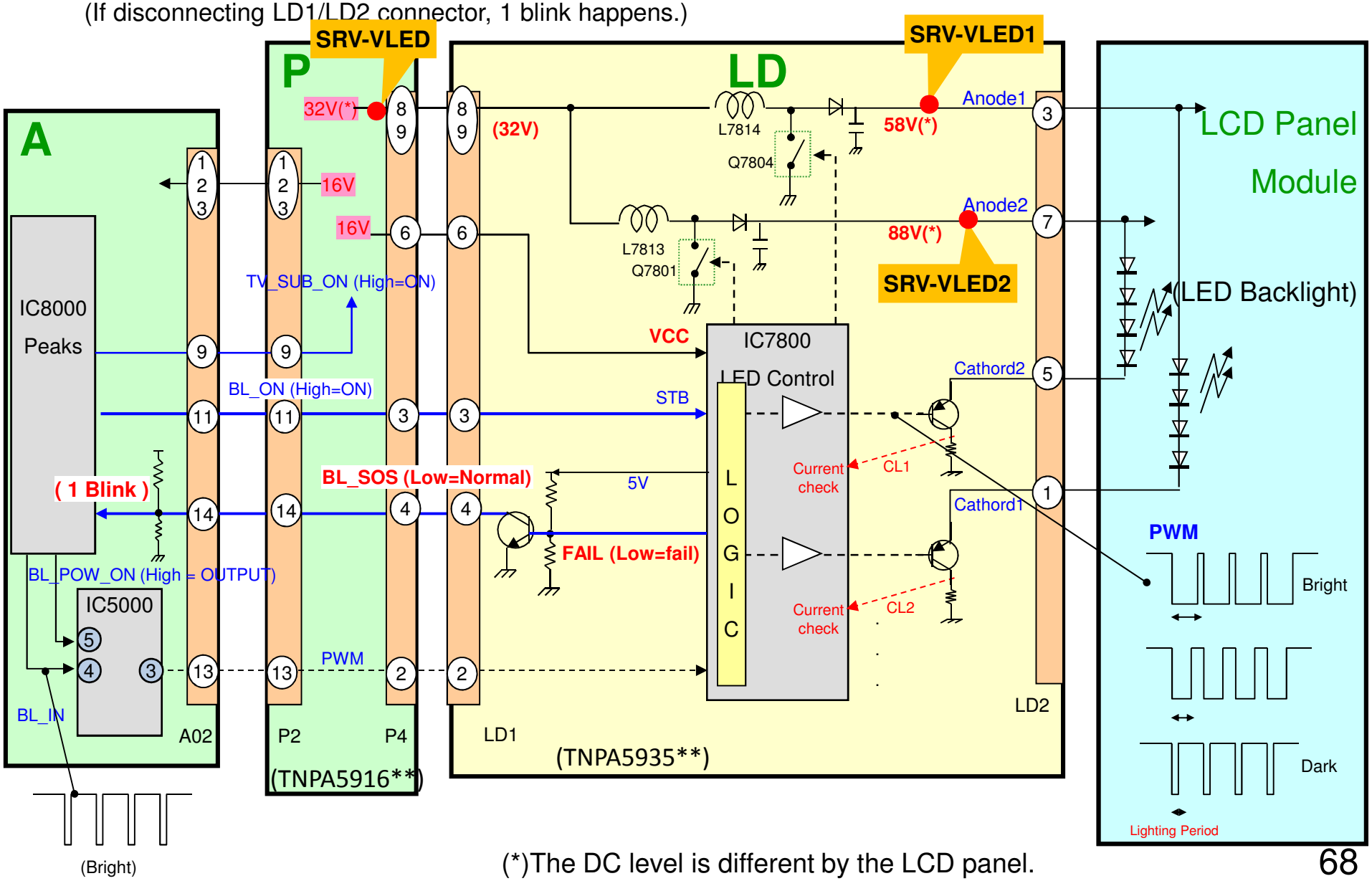
(*)The DC level is different by the LCD panel.

Refer to the next page block diagram.

Troubleshooting for LED Blinking (1 time blink) LED Drive Circuit (in LD Board) -2

< 2 LED Drive Circuit (in LD Board) >

IC7800 checks the DCDC converter block and current and voltage of each output to LED in panel module.
(If disconnecting LD1/LD2 connector, 1 blink happens.)



(*)The DC level is different by the LCD panel.

Troubleshooting for LED Blinking (1 time blink) LED Drive Circuit (in LCD Panel) -1

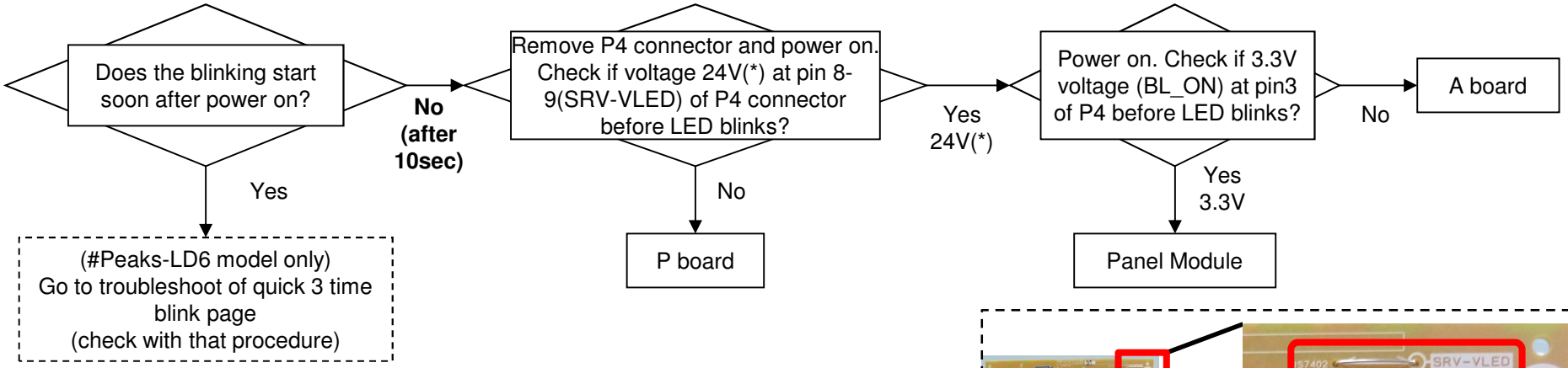
REV

< 3 LED Drive Circuit (in LCD Panel) >

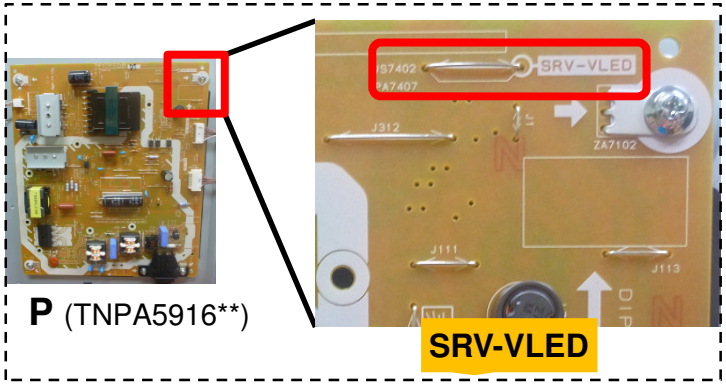
LED blinks	Detail error	Board may defect
1	LED driver: BL_SOS	Panel>P>>A

BL_SOS is generated by backlight LED drive block of LCD Panel and sent to IC8000 of A board via connector P2 at pin 14 when detecting malfunction of LED driver.

- Normal : BL_ON is high (3.3V) , BL_SOS is low (0V)



(*)The DC level is different by the LCD panel.

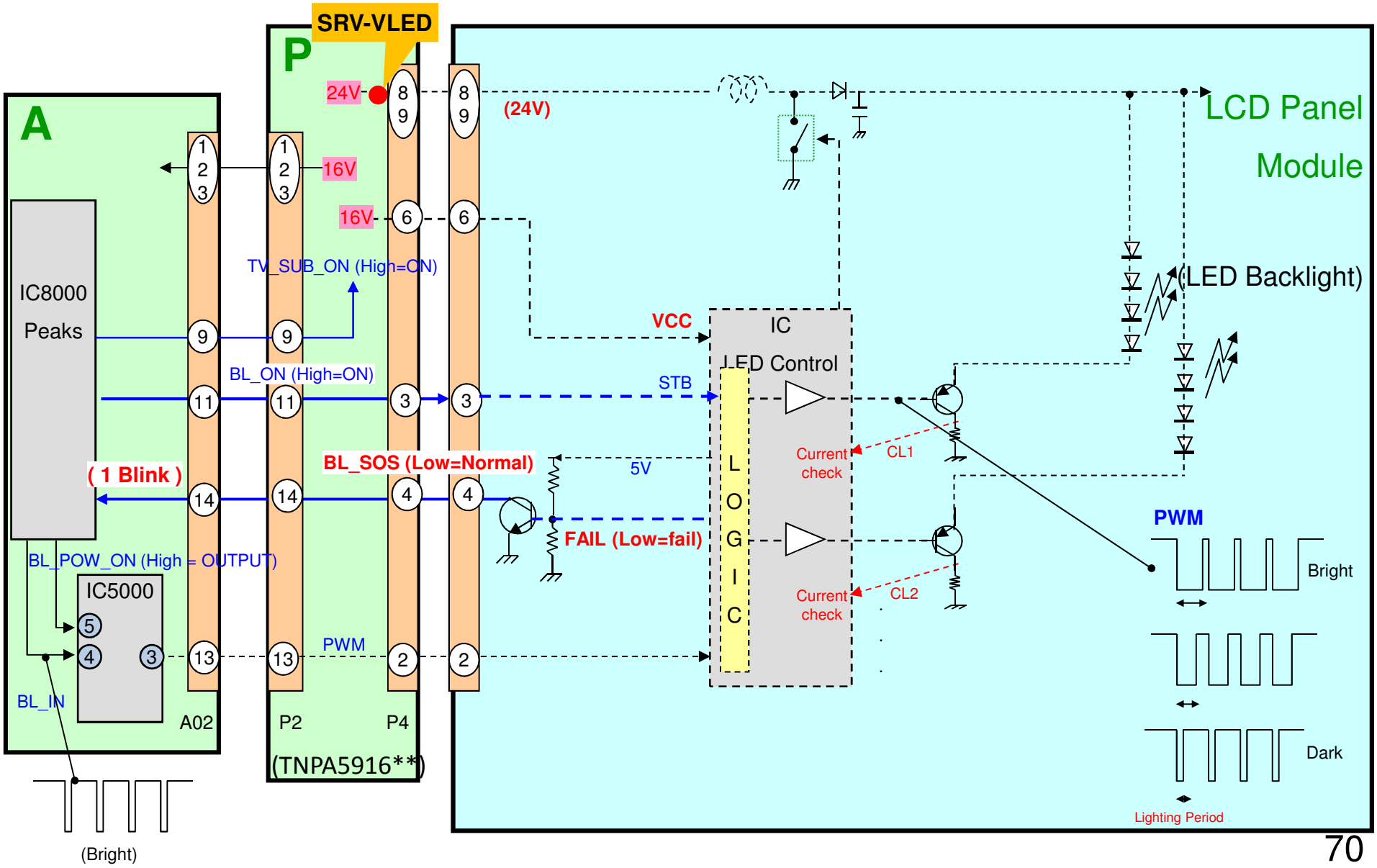


Refer to the next page block diagram.

Troubleshooting for LED Blinking (1 time blink) LED Drive Circuit (in LCD Panel) -2

< 3 LED Drive Circuit (in LCD Panel) >

LCD module checks the LED drive block.



Troubleshooting for LED Blinking (1 time blink) LED Drive Circuit (in LCD Panel) -1

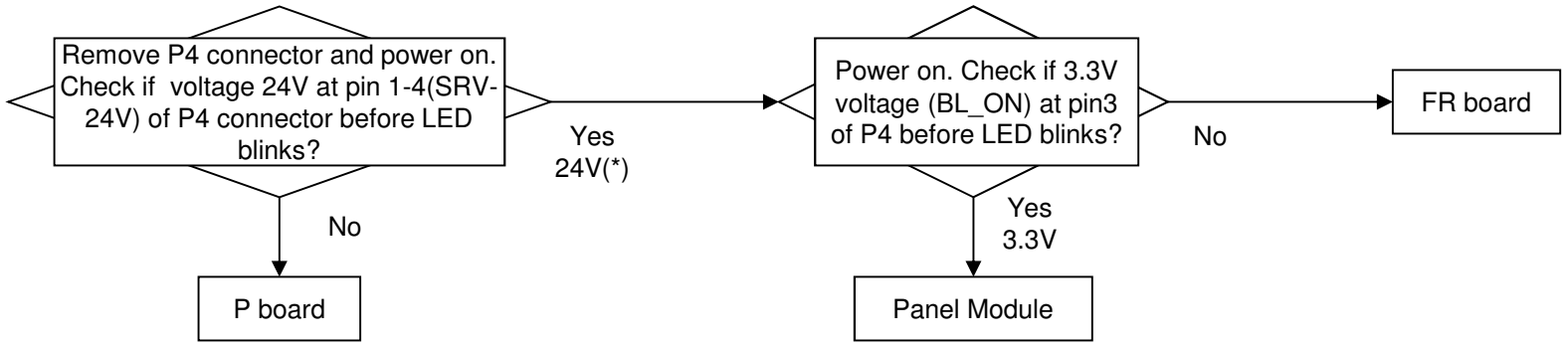
AX800

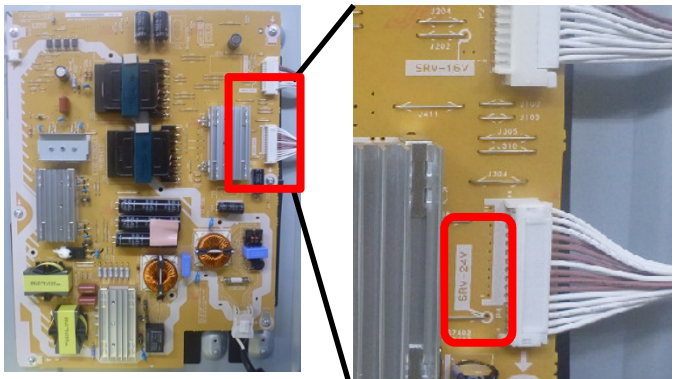
< 4 LED Drive Circuit (in LCD Panel) : AX800>

LED blinks	Detail error	Board may defect
1	LED driver: BL_SOS	Panel>P>>A

BL_SOS is generated by backlight LED drive block of LCD Panel and sent to IC8000 of A board via connector P2 at pin 14 when detecting malfunction of LED driver.

- Normal : BL_ON is high (3.3V) , BL_SOS is low (0V)





P (TNPA5937**)

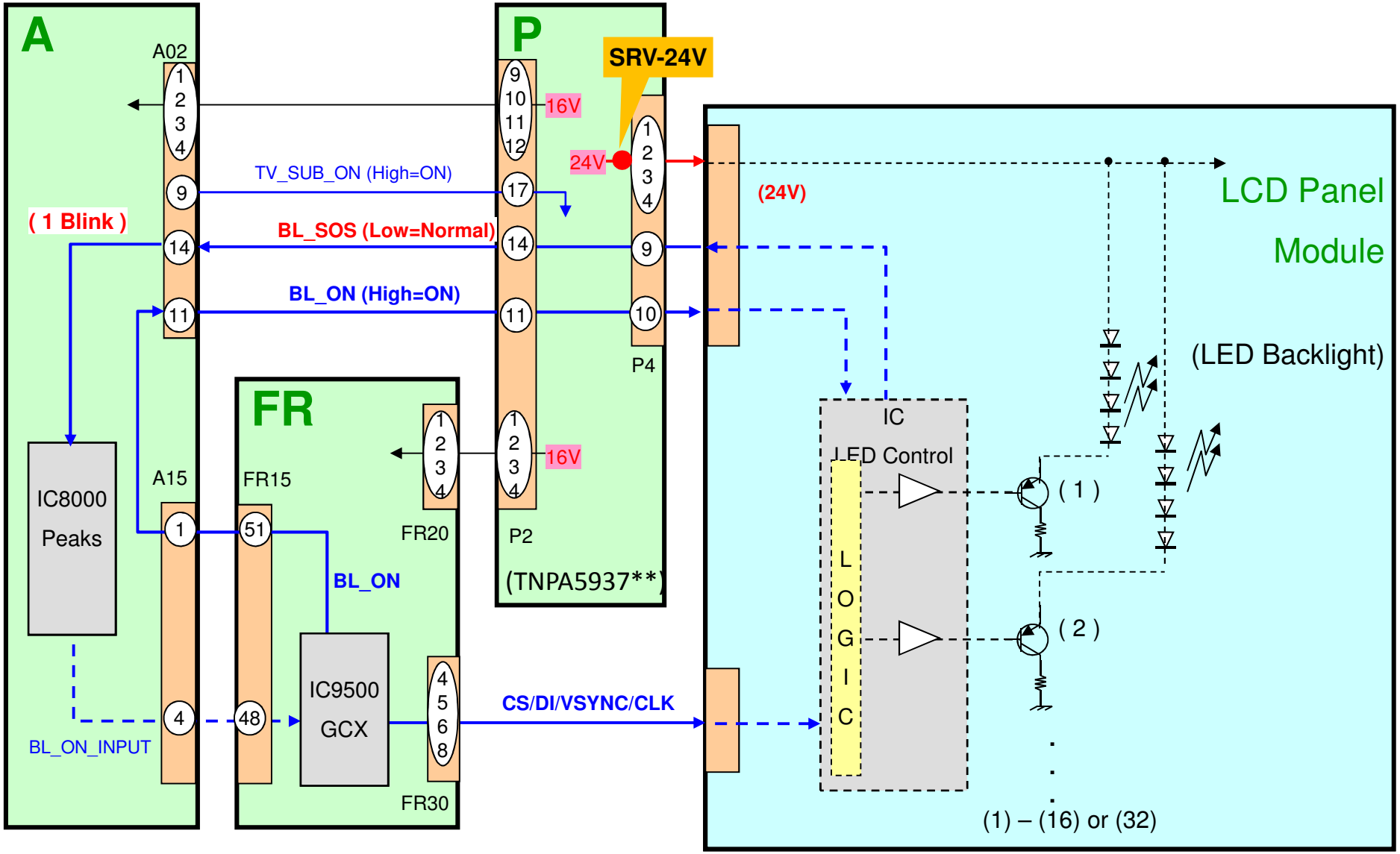
Refer to the next page block diagram.

Troubleshooting for LED Blinking (1 time blink) LED Drive Circuit (in LCD Panel) -2

AX800

< 4 LED Drive Circuit (in LCD Panel) : AX800>

LCD module checks the LED drive block.



LED drive circuit location (North/Central/South America)

ADD AS/AX800

	TC-** A430/420/ 410/400	TC-** AS560/540/ 530/520/500	TC-** AS610/600	TC-** AS630	TC-** AS660/650/ 640	TC-** AS800	TC-** AX800 (4K)
Main SoC	MT5561	Peaks sLD8A	Peaks sLD8A	Peaks LD6	Peaks LD6	Peaks Pro4	Peaks Pro4
32inch	In P Board 1	In P Board 1	In P Board 1	---	In P Board 1	---	---
39inch	In Panel Module 3	In Panel Module 3	In Panel Module 3	---	In P Board 1	---	---
40inch	In P Board 1	In P Board 1	---	---	---	---	---
42inch	---	---	LD Board 2	In Panel Module 3	In P Board 1	---	---
47inch	---	---	---	---	---	---	---
50inch	In Panel Module 3	In Panel Module 3	In Panel Module 3	In Panel Module 3	In P Board 1	---	---
55inch	---	In P Board 1	---	---	In P Board 1	LD Board 2	---
58inch	---	---	---	---	---	---	In Panel Module 4
60inch	---	In P Board 1	---	In P Board 1	In P Board 1	LD Board 2	In Panel Module 4

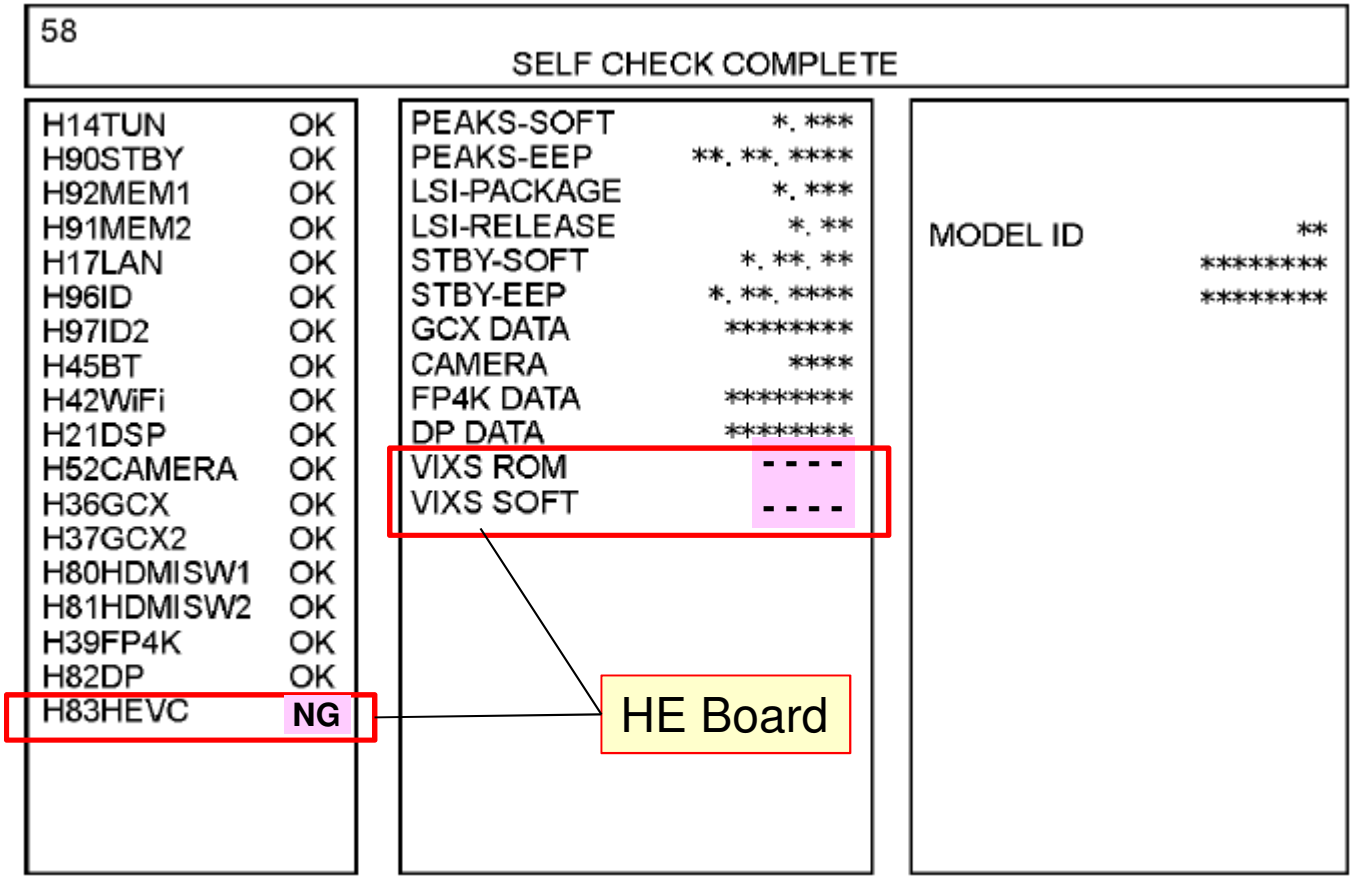
7. WiFi Connection Troubleshooting and Other Information

Self Check of AX800

AX800

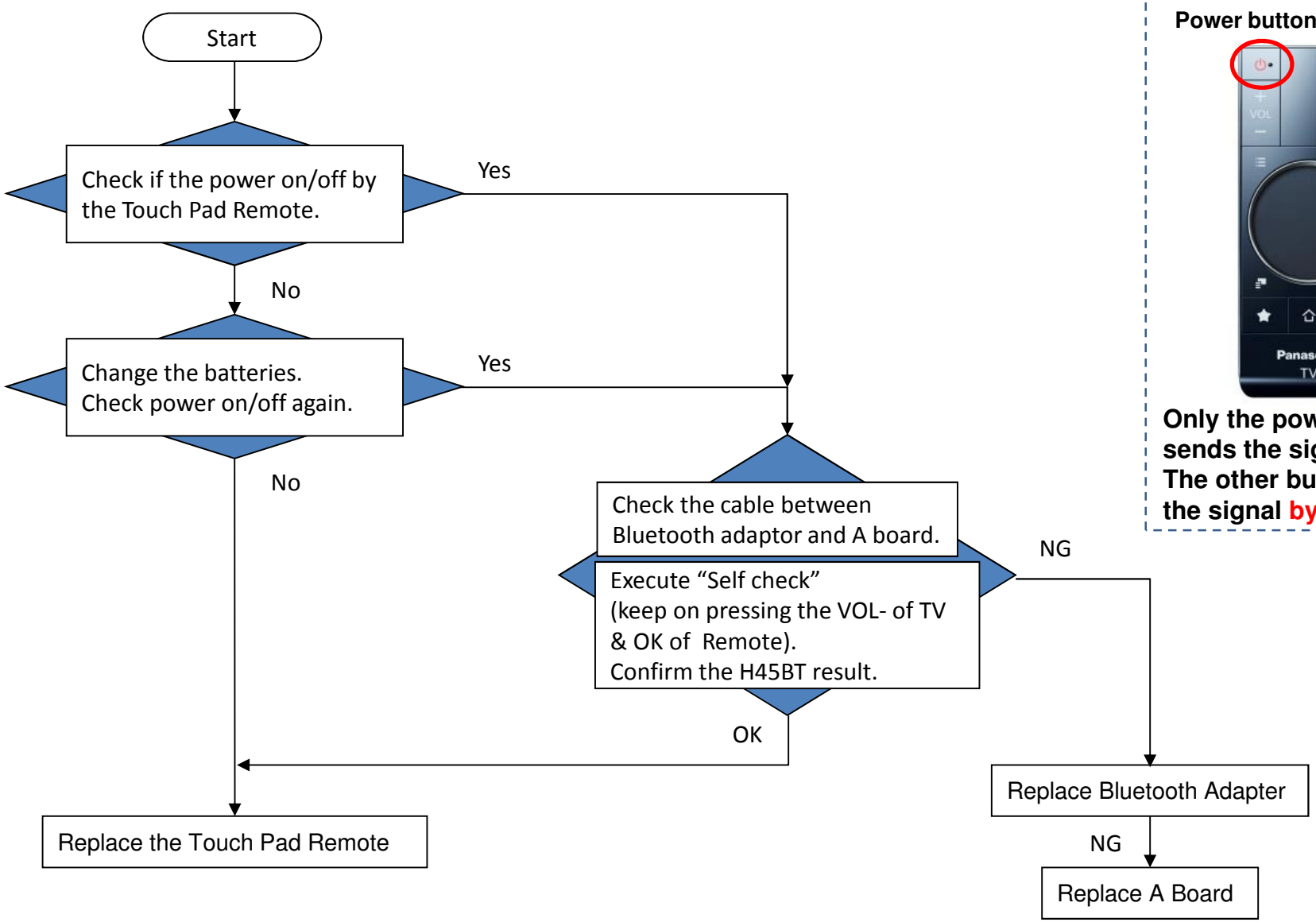
Caution (Only AX800):

Don't execute the "Self-Check soon after power on. Wait 1 minute.
Because the HE Board wakes up after 1 minute.
If execute the "Self-Check" soon, H83HEVC shows "NG" and the version of VIXS ROM and VIXS SOFT shows "----".



Troubleshoot of the Touch Pad Remote

ADD



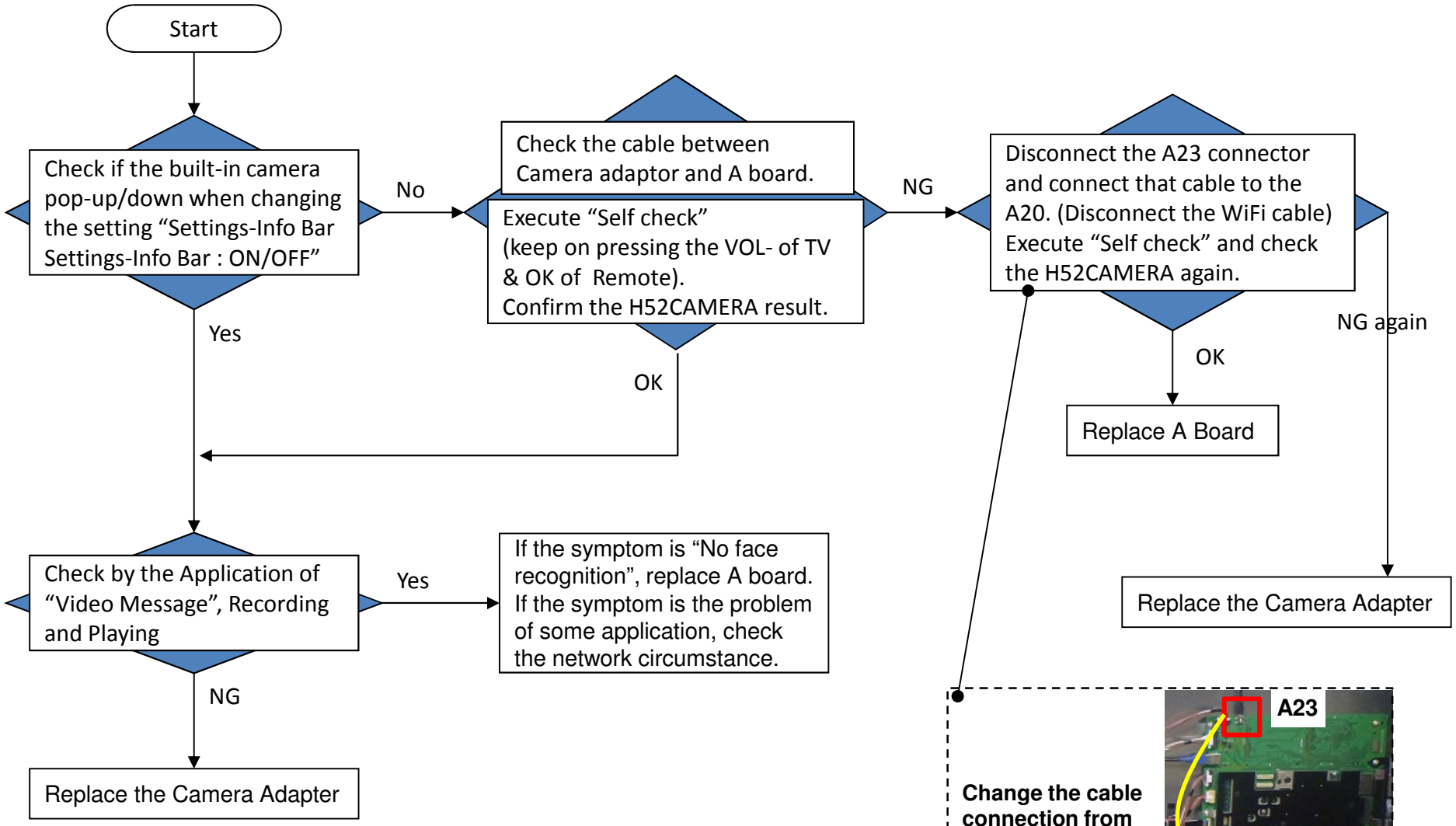
Power button

Only the power button sends the signal by IR. The other buttons send the signal by Bluetooth.

Caution (Only AX800): Execute the "Self-Check after 1 minute since the TV power on.
Because the HE Board wakes up after 1 minute,
H83HEVC of "Self-Check" shows NG before 1 minute.

Troubleshoot of the Built-in Camera

ADD



Caution (Only AX800): Execute the “Self-Check after 1 minute since the TV power on.
Because the HE Board wakes up after 1 minute,
H83HEVC of “Self-Check” shows NG before 1 minute.

Troubleshoot of the Motion Sensor (MD Board)

ADD

The IR sensor for the function of " Info Bar " is mounted to MD Board. The sensor position is located at the center bottom of the TV unit (just under the Panasonic logo)

Sensor doesn't work.
"Info Bar" doesn't display.

Set to "ON" the Info Bar function.
(Menu-Setup-Info Bar Settings-
Info Bar = "ON")

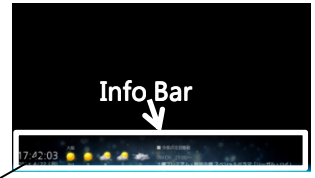
If the camera doesn't pop up, refer to the previous camera troubleshoot.

Power off by remote.

Hide the camera and sensor in order not to detect anything.
Wait 1 minute. (Until popping down the camera)

Just thin paper can not mask the sensor.

Put hand above the IR sensor.



Is the Info Bar displayed?

Not displayed

displayed

No problem

Disconnect the A10 connecter.
Power on then wait 30sec.
Check if 3.3V voltage at pin3 of A10.

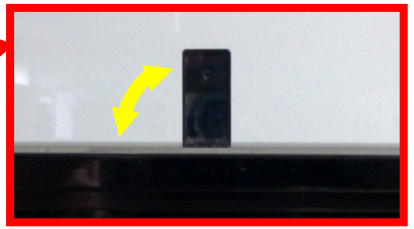
NG

Replace A Board

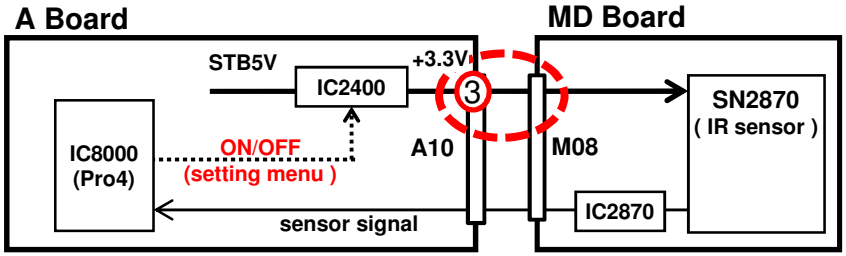
OK

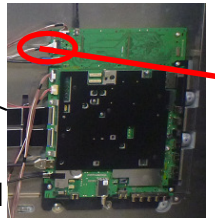
Replace MD Board

Built-in Camera

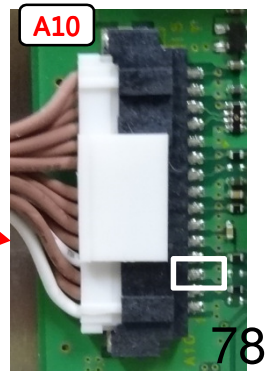


Motion Sensor





A Board



Connection Test (2013 model -)

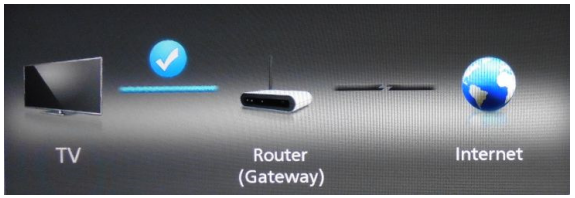
< Network Status >

Result of Connection Test

There are 4 kinds of result.

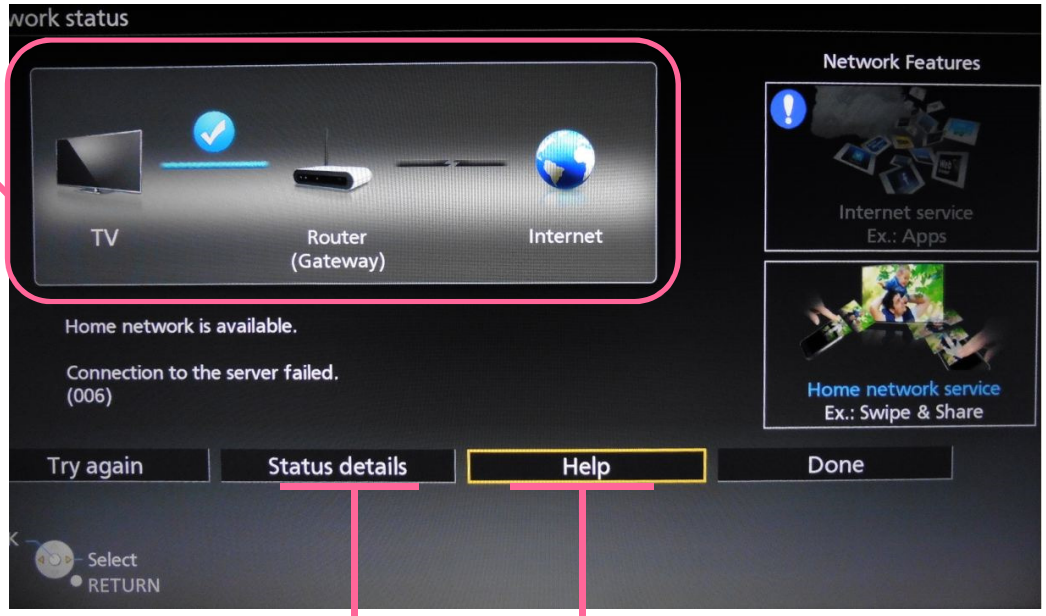
1. Correctly connected

2. Can't connect to Internet



3. Can't connect to network

4. Connected to the DLNA device directly)

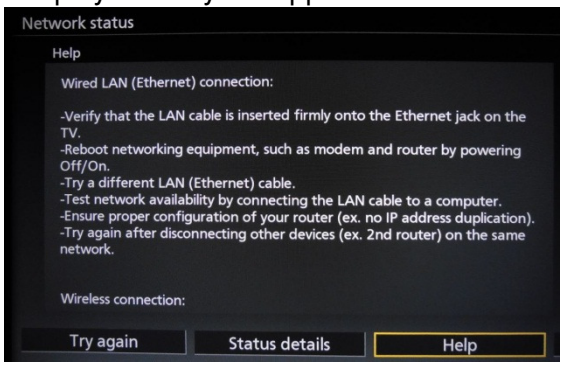


Detail Status

VIERA Name	: VIERA VT60 Series
Network Connection	: WIRELESS
Network Name (SSID)	: 000000000000
Wireless type	: 11n (5GHz)
Security type	: WPA2-PSK
Encryption type	: AES
Connection status	: Connected
Reception	:
MAC Address	: 192. 168. 11. 2
Subnet Mask	: 255.255.255.0
Default Gateway	: 192.168.11.1
DNS Address	: 192.168.11.1
Proxy Address	:
Proxy Port	: 0

Help

Display the way of support

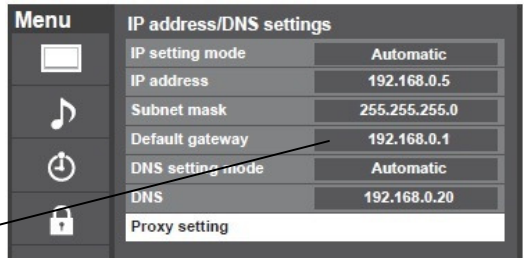


Troubleshoot: TV can not access to the internet or other equipment (Wireless status is “Connected”)

“Connected” means that only the connection between TV and Access point is completed.
TV is not defective.

Connected

VIERA Name	: VIERA VT60 Series
Network Connection	: WIRELESS
Network Name (SSID)	: 000000000000
Wireless type	: 11n (5GHz)
Security type	: WPA2-PSK
Encryption type	: AES
Status	: Connected
MAC Address	: 192. 168. 11. 2
Subnet Mask	: 255.255.255.0
Default Gateway	: 192.168.11.1
DNS Address	: 192.168.11.1
Proxy Address	:
Proxy Port	: 0



Check if the clock setting is done.(Menu-Timer-Clock)

Is the information of Gateway Address indicated?

Yes

(WiFi router is normal.)

1.Check the cable connection of WAN terminal of router. Check all equipment are power on.

2. Check the Networking settings of TV.
(1) Check if inputting the wrong IP address manually
(2) Check if inputting the (wrong) proxy address or port number.
→In home use it is not necessary to input the proxy address. Clear the address and set the port number to 0.

3. Check the setting of the router.
(1) If the IP address indicates 169.254.###.### , Check the DHCP function available.
(2) Is the user name (ID ,password) set correctly (that is specified by Internet Provider.)

NO

Is there a router (function) in home network ? (Check if there is only access point or Hub ?)

NO
(or Switch off)

Check the switch of wireless router function. (router/bridge mode)

OK
(or Switch ON/Auto/RT etc.)

Router does not work.

Try to connect again after installing the router (function).
If change the Switch of router function, restart the router.

Troubleshoot: TV (Wireless LAN Adaptor) can't connect to access point

Trouble of the wireless connection

Check if the clock setting is done.(Menu-Timer-Clock)

Check the power of Access point (WiFi router)

Power ON

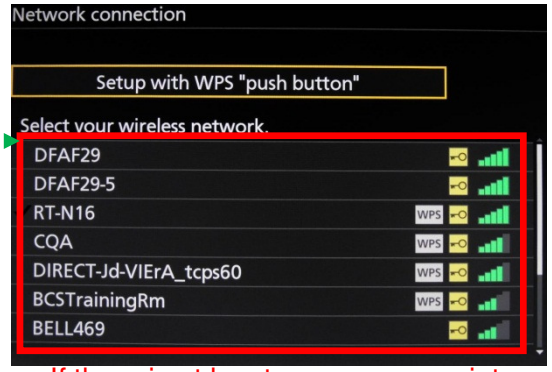
Execute "Quick Setup"

NG again

Is there the SSID of your Access point in the wireless list ?

Yes

TV is no problem.
1.Select that SSID and continue the setting
2. Check the setting of Access Point



If there is at least one access point, TV can detect the WiFi signal - TV works correctly.

NO

How about another SSID ?
(Is there some SSID in the list ?)

Yes

TV is no problem.
the Access Point does not work.

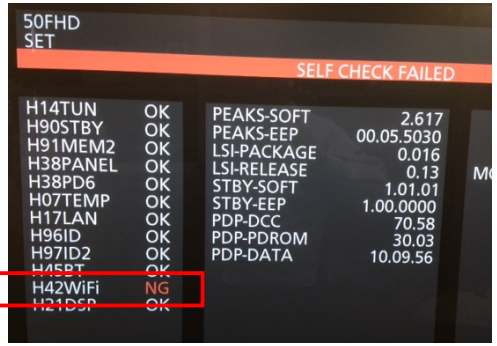
NO

Execute Self Check (Keep on pressing the VOL- of TV & OK of Remote)
Confirm the H42WiFi result

OK

Replace A board (or wireless LAN adaptor)

(short circuit check between GND and pin2, 3 of USB connector on A board)



NO

Check the USB cable between wireless LAN adaptor and A board.
(Disconnect and reconnect once.
Self Check again)

OK

NO

Replace wireless LAN adaptor

< TV may be defective >