



Wireless Audio – Soundbar (Active Speaker System)

Model Name

HW-K360

Model Code

HW-K360/ZA

SERVICE MANUAL

Wireless Audio – Soundbar (Active Speaker System)



HW-K360

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2. Product Specification
3. Disassembly & Reassembly
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1. Precaution

Follow these safety instructions while servicing the ESD to prevent damage and to protect against potential hazards such as electrical shock and X-rays.

1.1. Safety Precautions

- 1) When reinstalling the chassis and its assemblies, be sure to restore all of the protective devices, including the control knobs and the compartment covers.
- 2) Make sure that there are no cabinet openings through which people (particularly children) can make contact with dangerous internal components.
- 3) Design Alteration Warning:
Never alter or add to the mechanical or electrical design of the unit.
Example: Do not add auxiliary audio or video connectors. Such alterations might create a safety hazard.
Also, any design changes or additions will void the manufacturer's warranty.
- 4) Leakage Current Hot Check [Figure 1.1 AC Leakage Test](#):



WARNING

Do not use an isolation transformer during this test. Use a leakage-current tester or a metering system that complies.

With the unit completely reassembled, plug the AC cord directly into a AC outlet. With the unit's power switched from the ON to the OFF position, measure the current between a known ground and all exposed metal parts.

Known Grounds - Earth

Known Metal parts - screwheads, metal cabinets, etc.

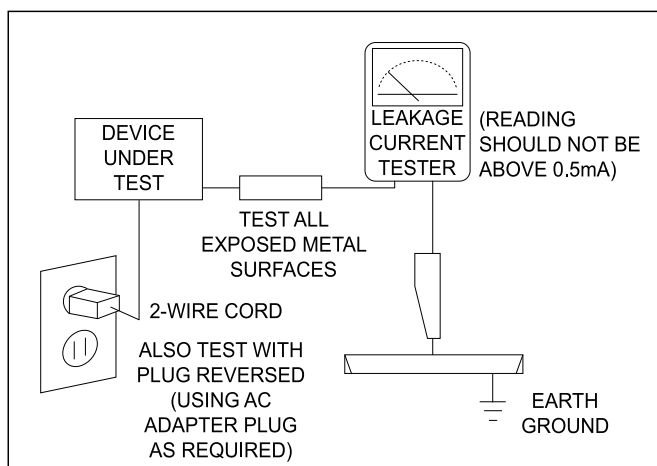


Figure 1.1 AC Leakage Test

5) Insulation Resistance Cold Check:

- (1) With the unit's AC plug disconnected from the AC source, connect an electrical jumper across the two AC prongs.
- (2) Set the power switch to ON. (3) Measure the resistance between the shorted AC plug and any exposed metallic parts.

Example: screwheads, metal cabinets, antenna port, etc. If any of the exposed metallic parts has a return path to the chassis, the measured resistance should be between 1 and 5.2 megohms. If there is no return path, the measured resistance should be "infinite." If the resistance is outside these limits, a shock hazard might exist. See [Figure 1.2](#)

[Insulation Resistance Test](#)

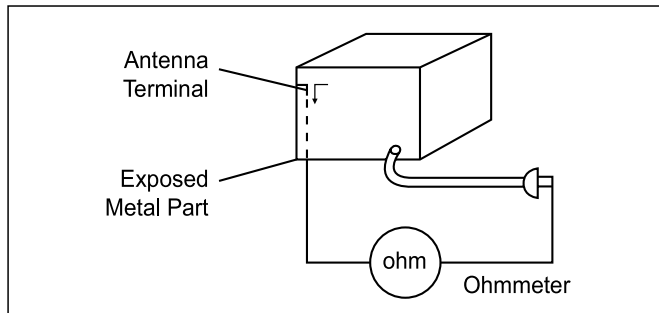


Figure 1.2 Insulation Resistance Test

- 6) Components, parts and wiring that appear to have overheated or that are otherwise damaged should be replaced with parts that meet the original specifications. Always determine the cause of damage or overheating, and correct any potential hazards.
- 7) Observe the original lead dress, especially near the following areas: Antenna wiring, sharp edges, and especially the AC and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring.
Do not change the spacing between components and the printed circuit board. Check the AC power cord for damage. Make sure that no wires or components touch thermally hot parts.
- 8) Product Safety Notice:
Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original—even if the replacement is rated for higher voltage, wattage, etc.
- 9) Components that are critical for safety are indicated in the circuit diagram by shading, $\triangle$ or $\triangle$. Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

1.2. Servicing Precautions

- 1) Servicing precautions are printed on the cabinet. Follow them.
- 2) Always unplug the unit's AC power cord from the AC power source before attempting to :
(a) Remove or reinstall any component or assembly, (b) Disconnect an electrical plug or connector, (c) Connect a test component in parallel with an electrolytic capacitor.
- 3) Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring may be clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
- 4) After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.
- 5) Check the insulation between the blades of the AC plug and accessible conductive parts (examples : metal panels, input terminals and earphone jacks).
- 6) Insulation Checking Procedure :
Disconnect the power cord from the AC source. 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.
- 7) Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
- 8) 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.



CAUTION

First read the "Safety Precautions" section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precautions.

1.3. Precautions for Electrostatically Sensitive Devices (ESDs)

Some semiconductor ("solid state") devices are easily damaged by static electricity.

Such components are called Electrostatically Sensitive Devices (ESDs).

Examples include integrated circuits and some field-effect transistors.

The following techniques will reduce the occurrence 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. (Be sure to remove it prior to applying power—this is an electric shock precaution.)
- 2) After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.
- 3) Do not use freon-propelled chemicals. These can generate electrical charges that damage ESDs.
- 4) Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.
- 5) Use only an anti-static solder removal device. Many solder removal devices are not rated as "anti-static" (these can accumulate sufficient electrical charge 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.
- 8) Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting a foot from a carpeted floor can generate enough static electricity to damage an ESD.

1.4. Installation Precautions

- 1) Keep the product away from a heat source such as candle light, mosquito repellent incense, heating equipment, or direct sunlight. Otherwise, this may cause fire.
- 2) Do not install the product on a place that is shaking, tilted, unstable, or seriously vibrating. The product may drop to get damaged or injure a person. If using the product in a highly vibrating place, it may be broken or cause fire.
- 3) When moving the product, turn off the power switch and unplug all the connected cables with the product such as the power plug and antenna cable. If the power cord is damaged, this may cause electric shock or fire.
- 4) Secure room for ventilation. Keep at least 10 cm of distance from the rear wall, and at least 5 cm from either side wall.
- 5) Installing the product in a special place like below rather than normal environment may cause serious quality concerns due to its special conditions. If this is the case, make sure to contact a local Samsung service center before installing the product. (Special places: a place where a large amount of dust is accumulated; where chemical substances are used or the ambient temperature is too high or low; a place that is full of moisture or water; in transportation vehicles such as a car; or in public places such as the airport or subway station where the product is supposed to operate uninterruptedly for a long time)
- 6) Keep the packaging plastic wrapper out of children's reach. If children play with it improperly, they may get suffocated.
- 7) If installing the product on a display cabinet, shelf, desk, etc., keep the product from protruding on its lower side. If the product falls, it may break or cause physical injury. Use only the display cabinet or shelf that fully covers the product.
- 8) If using lithium batteries, carefully read the following precautions:



NOTE

- Ensure the batteries are inserted in the right direction. Otherwise, they may cause an explosion. Dispose of used batteries according to the manufacturer's instructions.
- Do not expose the battery to fire.
- Do not disassemble, short - cut, or heat the battery.
- Use only the same type and size of batteries for replacement.
- Do not expose the battery to fire or excessive heat.

2. Product Specification

2.1. Product Feature

■ HW-K360

- 130 W (Front 35 W x 2 + Woofer 60 W)
- 2.1CH, System
- 1 analog / 1 optical
- USB Host, Bluetooth
- Wireless Subwoofer

2.2. Specifications

■ Basic Specification

General	USB		5 V / 0.5 A
	Weight	Main unit	3.3 lbs (1.5 kg)
		Subwoofer	6.4 lbs (2.9 kg)
	Dimensions (W x H x D)	Main unit	35.7 x 2.1 x 2.8 inches (907.5 x 53.5 x 70.5 mm)
		Subwoofer	6.1 x 11.8 x 11.5 inches (155 x 300 x 293 mm)
	Operating temperature range		+41F °C to +95 °C
	Operating humidity range		10 % to 75 %
Amplifier	Rated output power	Main unit	30 W/CH, 8 OHM, THD = 10 %, 1 kHz
		Subwoofer	60W, 3 OHM, THD = 10%, 100Hz
	S/N ratio (analog input)		65 dB
	Separation (1 kHz)		65 dB



NOTE

- S/N ratio, distortion, separation and usable sensitivity are based on measurement using AES (Audio Engineering Society) guidelines.
- Samsung Electronics Co., Ltd reserves the right to change the specifications without notice.
- Weight and dimensions are approximate.

2.3. Specifications Analysis

Model Name		HW-K360	HW-J355
Photo			
Output Power	RMS (10% THD), REF: 1ch	130 W	120 W
	Output Power (ch)	35 W x 2 + 60 W	30 W x 2 + 60 W
Compatible media	Disc playback	N/A	N/A
	iPod Dock (selected region only)	-	-
Extra Features	Wireless Ready	-	-
	USB HOST	O	O
	Bluetooth	O	O
DSP	3D SOUND	-	O
	ASC	-	-
	Smart Volume	-	Smart Volume II
	Audio Up Scale	-	-
	Power Bass	-	-
Audio Decoding	Dolby Digital / Plus	Dolby Digital 2ch	Dolby Digital 2ch
	Dolby True HD	N/A	N/A
	DTS / DTS-HD (HR/MA)	DST 2.0	DST 2.0
Video	Component out	-	-
	HDMI Out (CEC)	-	-
	HDMI Input	-	-
Audio In/Out	Mini Jack Audio In	AUX1 (3.5φ)	AUX1 (3.5φ)
	RCA Input	-	-
Optical Jack	In (Digital In)	O (1)	O (1)
Headphone	Headphone Jack	-	-
USB Jack	Jack Type	USB 2.0 Micro USB Type B Plug (Male)	USB 2.0 Type A Jack (Female)
Speaker	Type (Sat/Tallboy)	Sealed Enclosure	Sealed Enclosure
	Active (Powered) S/W	Wireless Active	Wireless Active

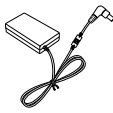
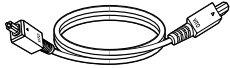
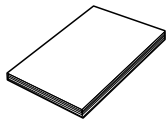
**TIP**

O : Feature Included

X : Not Included

2.4. Accessories

2.4.1. Supplied Accessories

Accessories	Item	Item code	Remark
	Remote Control	AH59-02733B	Local Samsung Dealer
	Lithium Battery (3V : CR2032)	4301-001042	
	Power Cord : 1EA	3903-000853	
	DC Adapter	BN44-00835A	
	Optical cable	AH39-00779A	
	Wall Mount Guide	AH63-04369A	
	Holder-screw 1 : 2EA	AH61-04110A	
	Holder-screw 2 : 2EA	6001-001961	
	Bracket-Wall Mount	L : AH61-04106A R : AH61-04114A	
	User Manual	AH68-02608A	

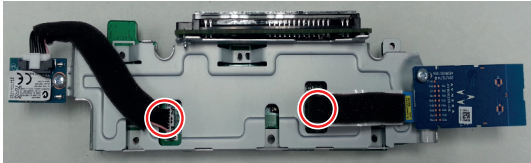
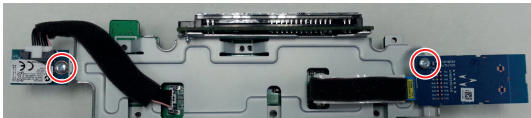
3. Disassembly & Reassembly

3.1. Overall Disassembly and Reassembly



CAUTION

- Be careful to follow the disassembly sequence described in the manual. Otherwise, the product may be damaged.
- Be sure to carefully read and understand the safety instructions before performing any work as the IC chips on the PCB are vulnerable to static electricity.
- In order to assemble reverse the order of disassembly.

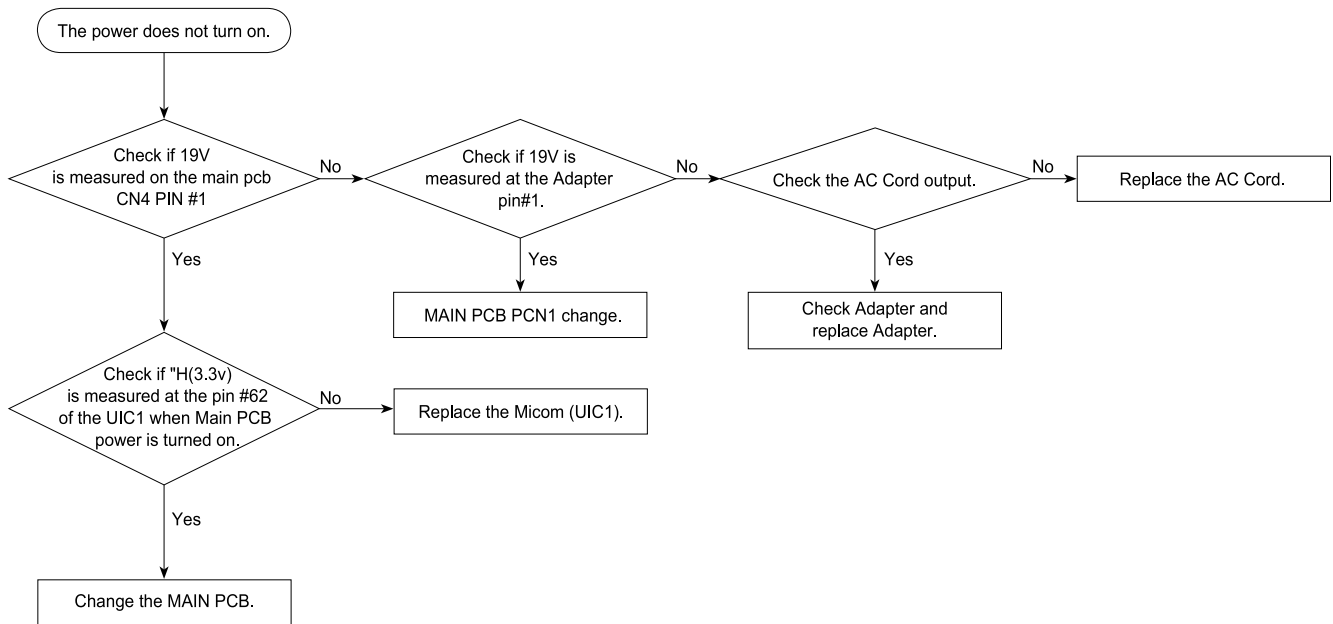
Description	Description Photo
1. Unfasten 5 screws on the Rear :  CAUTION Be careful not to make any scratches as you remove them.	
2. Remove Cover Rear	
3. Disconnect wire 4ea.	
4. Unfasten 4 screws on the MAIN. :	
5. Remove the COVER-JACK and take the PBA out, Then disconnect wire 2ea,remove the main	
6. Unfasten 1 screws on the VFD. and remove VFD form the bracket	
7. Unfasten 2 screw on the wireless and BT module	

4. Troubleshooting

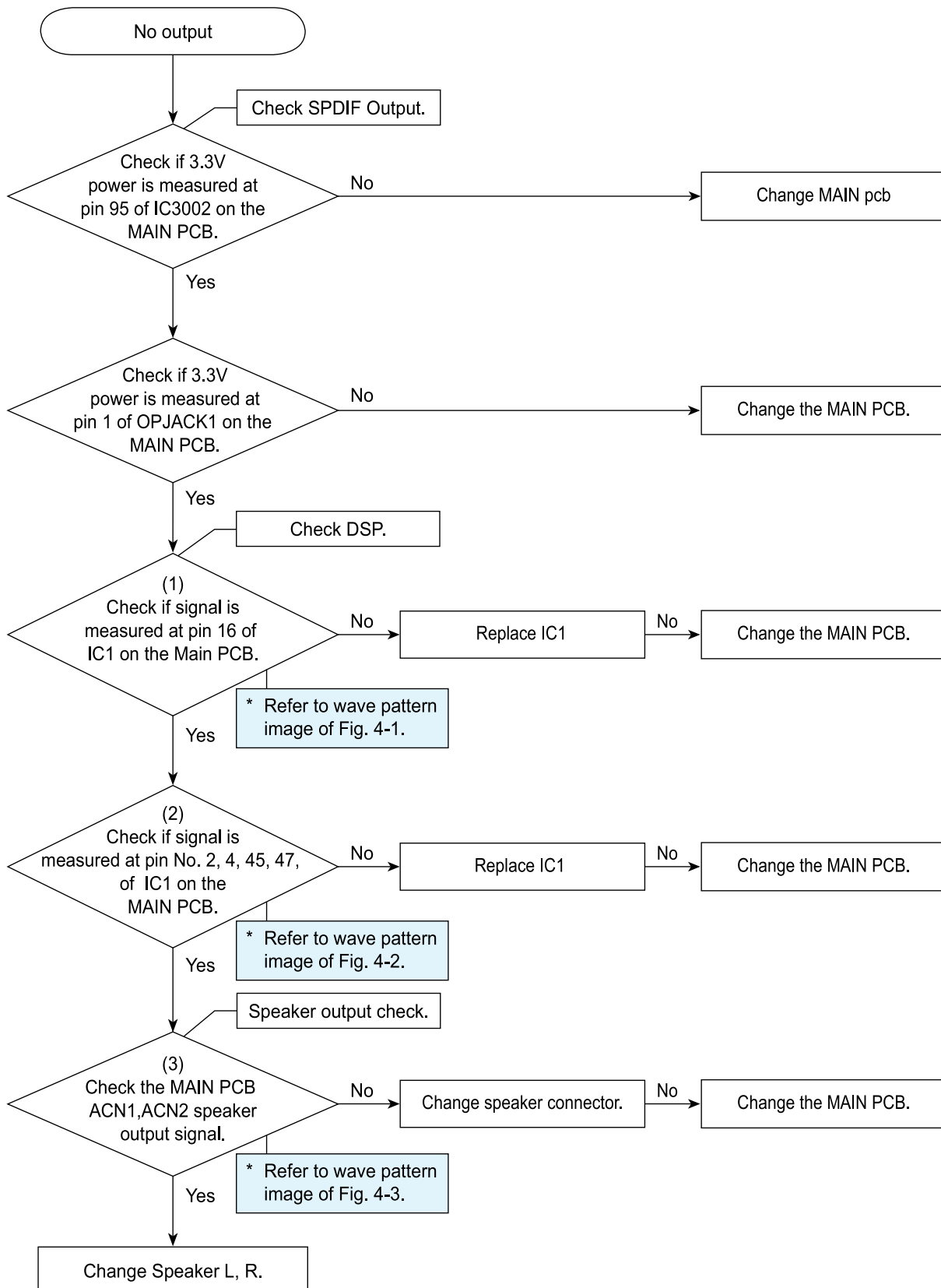
4.1. Checkpoints by Error Mode

Oscilloscope Setting Values	
Voltage/DIV	1 V/div
TIME/DIV	500 ms/div

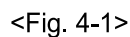
4.1.1. No Power



4.1.2. No Sound Output



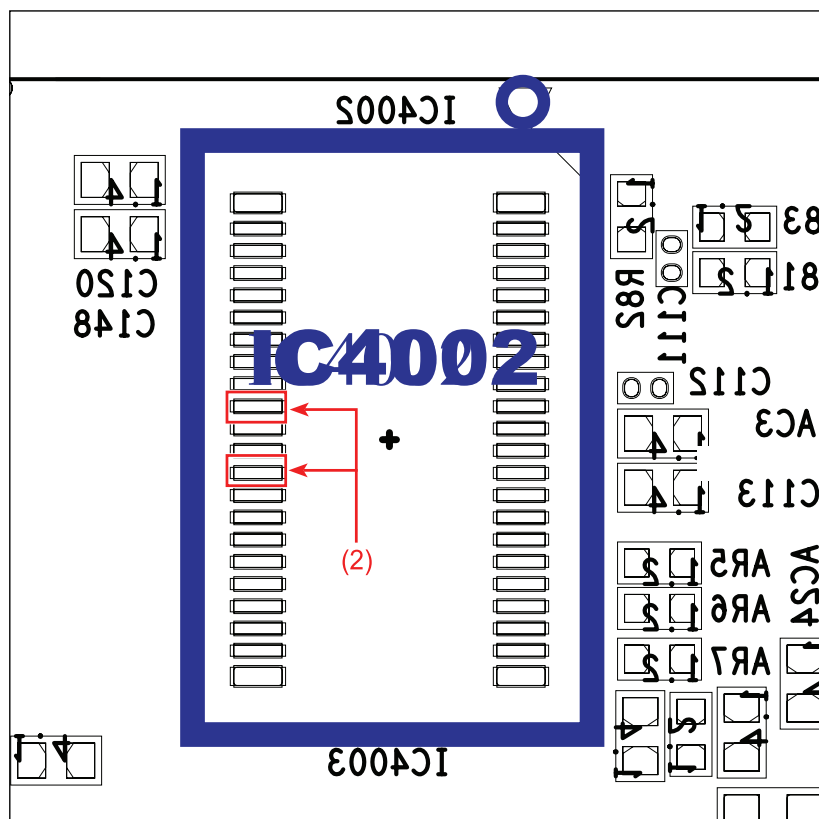
4-4



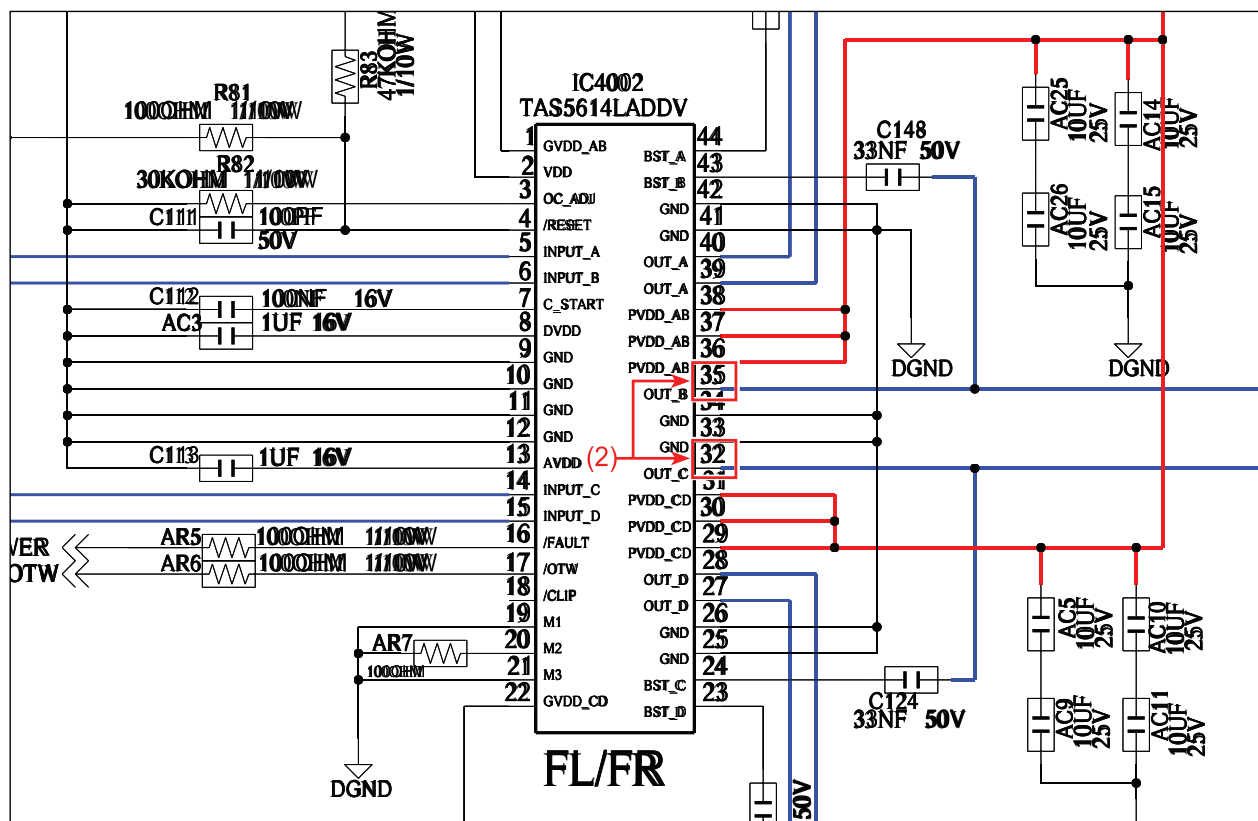
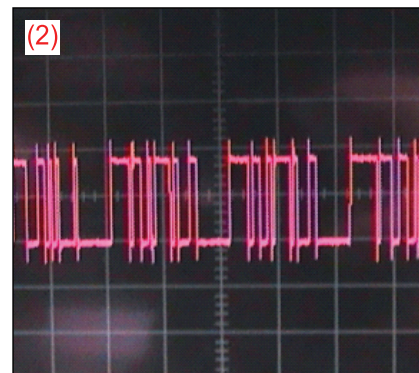
<Fig. 4-1>



* 6.4. MAIN-3

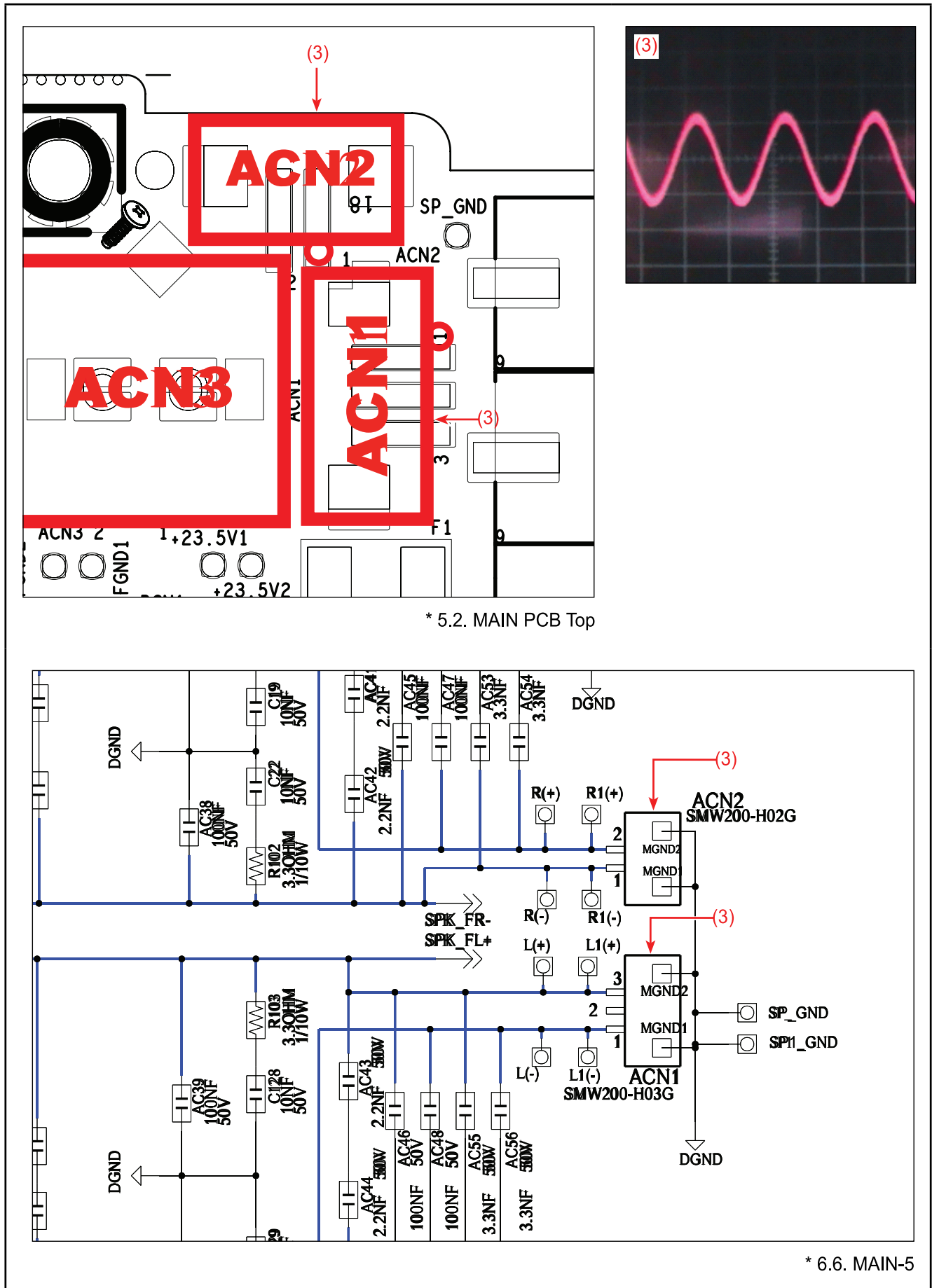


* 5.3. MAIN PCB Bottom



* 6.6. MAIN-5

<Fig. 4-2>



<Fig. 4-3>

4.2. Measures to be taken when the Protection Circuit operates

4.2.1. AMP Pre-Inspection relating to Power Protection

If you think there are problems at the AMP PCB, you can check the PCB without disassembling the set by following the test below.

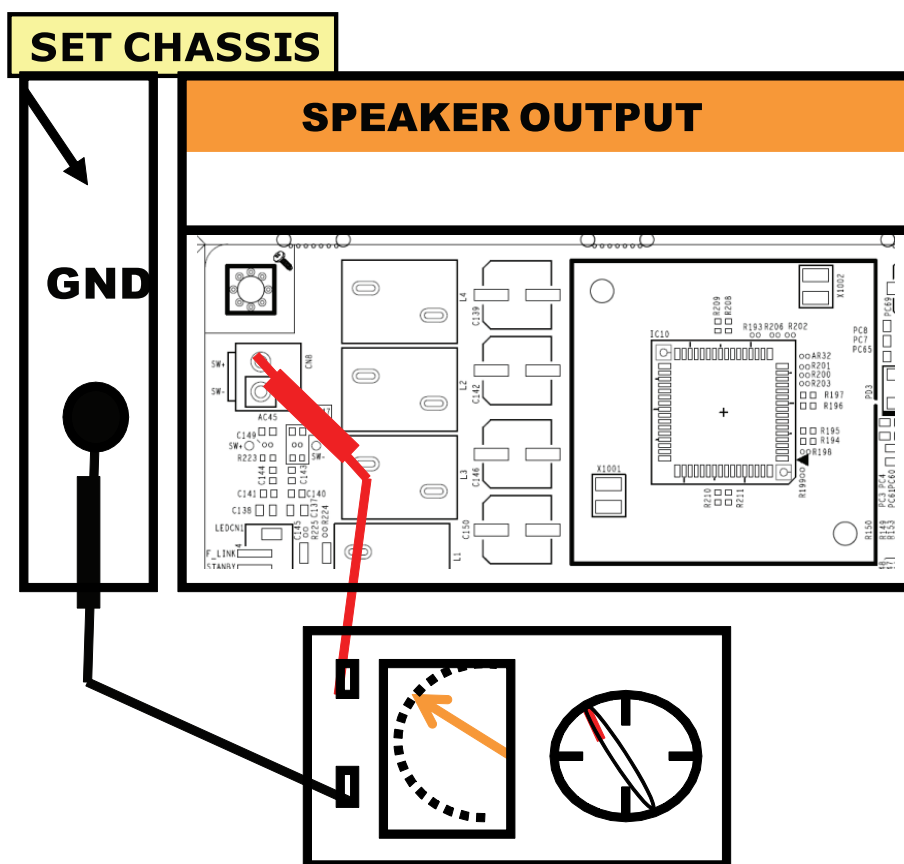


CAUTION

Do not connect the power cord during the test!

Resistance using Tester	
F/R CH	137K ohm

- If there is a large difference than the value listed above then the AMP PCB has a problem.



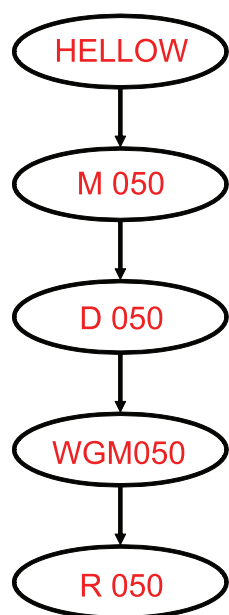
4.3. Initialization & Update

4.3.1. Initialization method

- **Initialization method**
 - Sound Bar (Remote control use)
 - 1) Prepare the remote control.
 - 2) Turn the unit off.
 - 3) Press the “MUTE” button for 5 seconds in the remote control.
 - 4) OLFD display “ID SET”
 - 5) After the sound bar turns on, the initialization is ends.
 - Sub-woofe
 - 1) You can see the ID-set button the rear side of Sub-woofer.
 - 2) When Sub-woofer is turned on, press the ID-set button for 5 seconds.
 - 3) The STANDBY indicator is turned off and the LINK indicator (Blue LED) blinks quickly.
 - 4) The main unit and the sub-woofer will pair automatically.

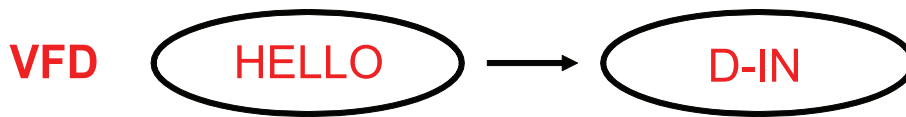
4.3.2. How to check the Firmware version

- **Software check method**
 - Sound Bar (Remote control use)
 - 1) Prepare the remote control.
 - 2) Turn the unit off.
 - 3) Press the “Sound Effect1” button for 5 seconds in the remote control.
 - 4) OLED display a version like below. (Micom → DSP → HDMI → Tx → Rx → Touch)

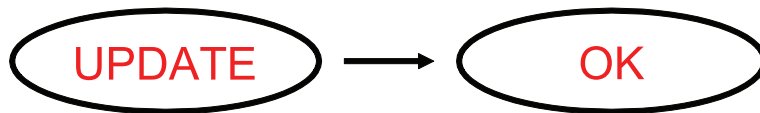


4.3.3. USB Update procedure

- 1) Power on the device, You can see the following OLED display.



- 2) Prepare the disk with update files then plug-in to the USB port. You can see the following VFD display.



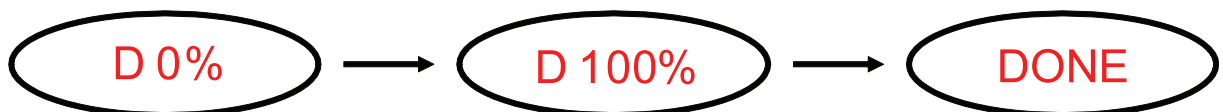
- 3) Progressing update.

in case **Micom, DSP, HDMI** and Wireless update, you can see the following OLED display.

Case 1 : Micom Update.



Case 2 : DSP Update.

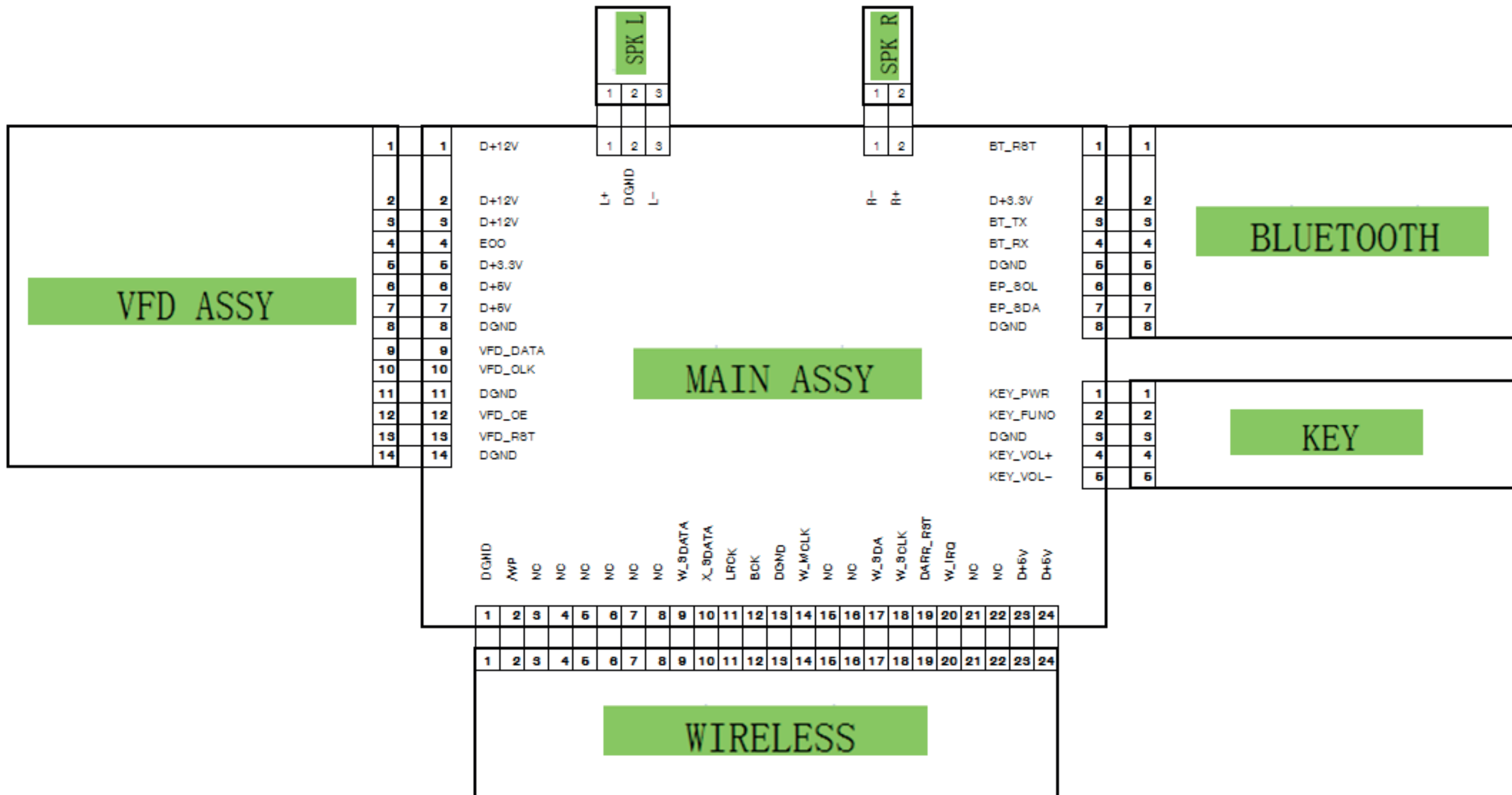


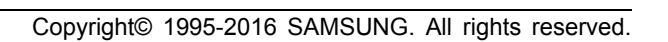
Case 3 : Wireless Update.



5. PCB Diagram

5.1. Wiring Diagram





5.2.1. Pin Connection

1) CN201
VFD CONTROL

Pin No.	Signal
1	D+12V
2	D+12V
3	D+12V
4	ECO
5	D+3.3V
6	D+5V
7	D+5V
8	DGND
9	VFD_DATA
10	VFD_CLK
11	DGND
12	VFD_CE
13	VFD_RST
14	DGND

4) CN14
KEY CONTROL

Pin No.	Signal
1	KEY_PWR
2	KEY_FUNC
3	GND
4	KEY_VOL+
5	KEY_VOL-

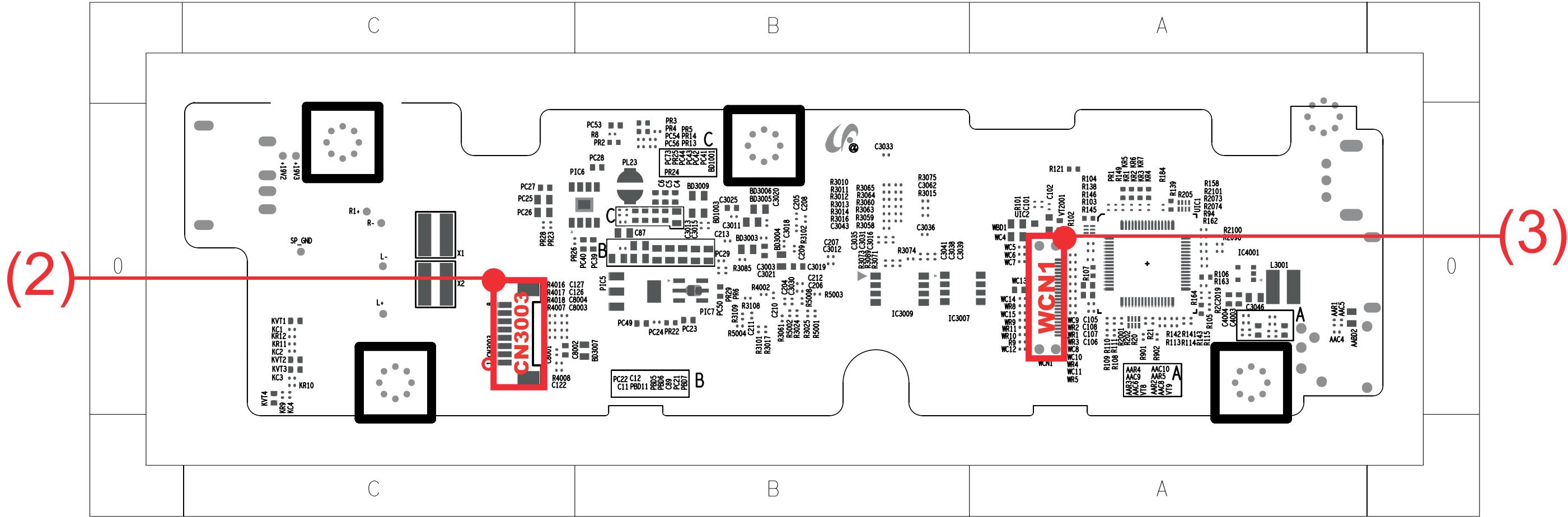
5) ACN1
SPEAKER L

Pin No.	Signal
1	FULL RANGE L+
2	FULL RANGE L-

6) ACN2
SPEAKER R

Pin No.	Signal
1	FULL RANGE R+
2	FULL RANGE R-

5.3. MAIN PCB Bottom



5.3.1. Pin Connection

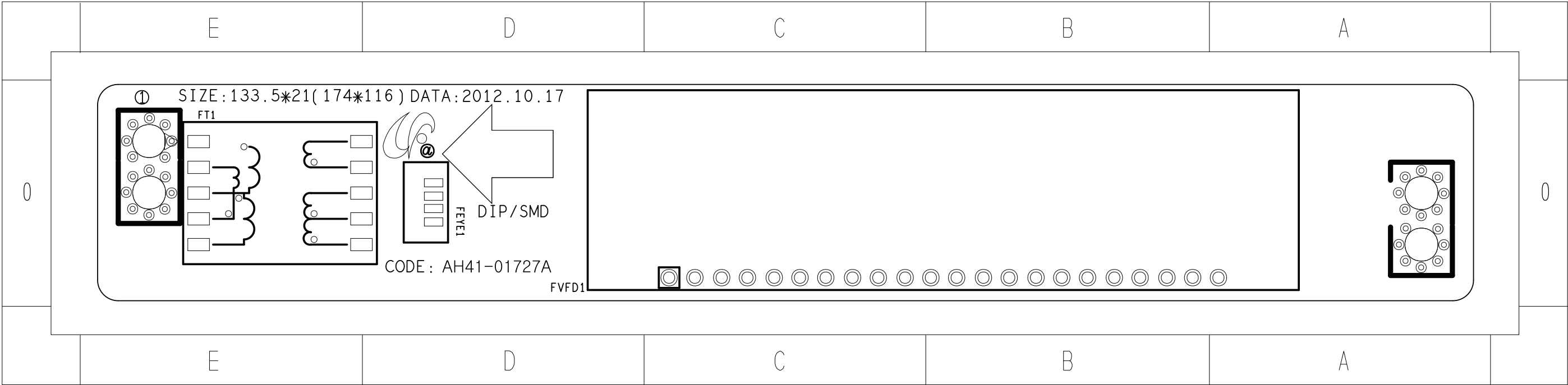
2) CN3003
BT Module Control

Pin No.	Signal
1	BT_RST
2	D3.3V
3	BT_TX
4	BT_RX
5	DGND
6	EP_SCL
7	EP_SDA
8	DGND

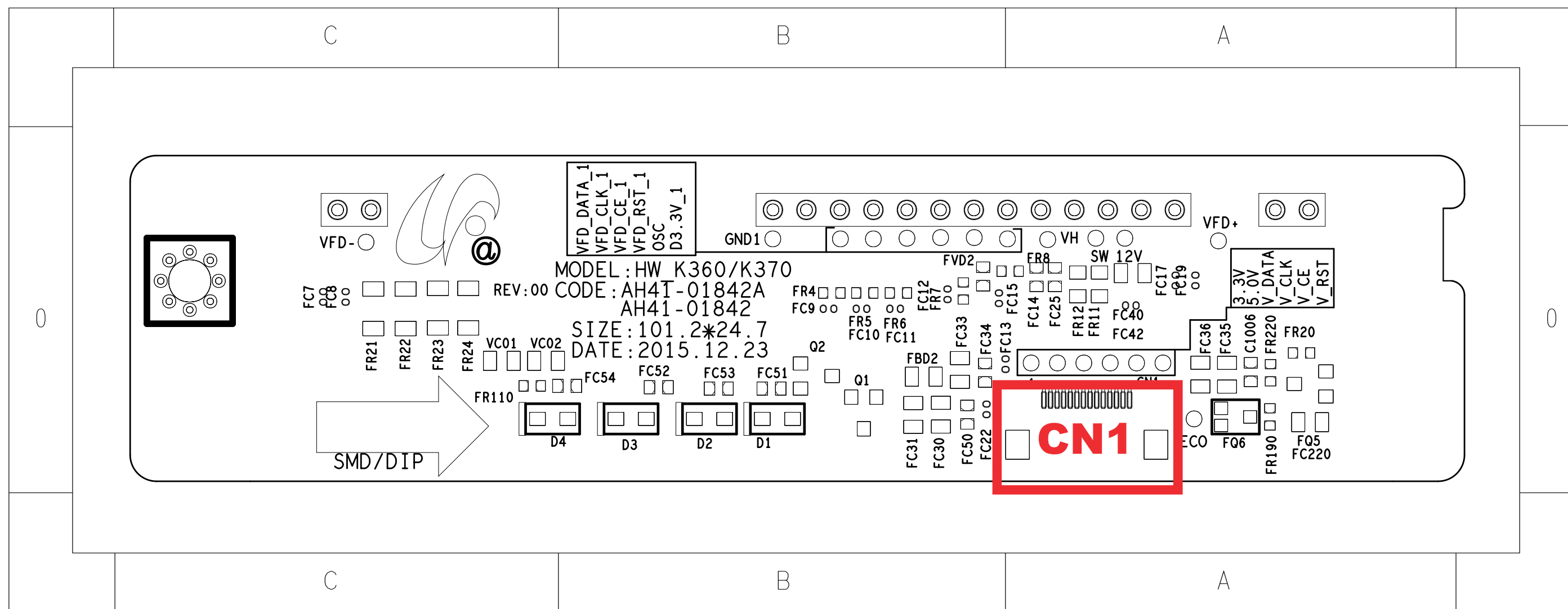
3) WCN1
Wireless Module Control

Pin No.	Signal
1	GND
2	WP
3	NC
4	NC
5	NC
6	NC
7	NC
8	NC
9	W_SDATA
10	X_SDATA
11	LRCK
12	BCK
13	GND
14	GND
15	NC
16	NC
17	W_SDA
18	W_CLK
19	DARR_RST
20	NC
21	NC
22	NC
23	D+5V_PW
24	D+5V_PW

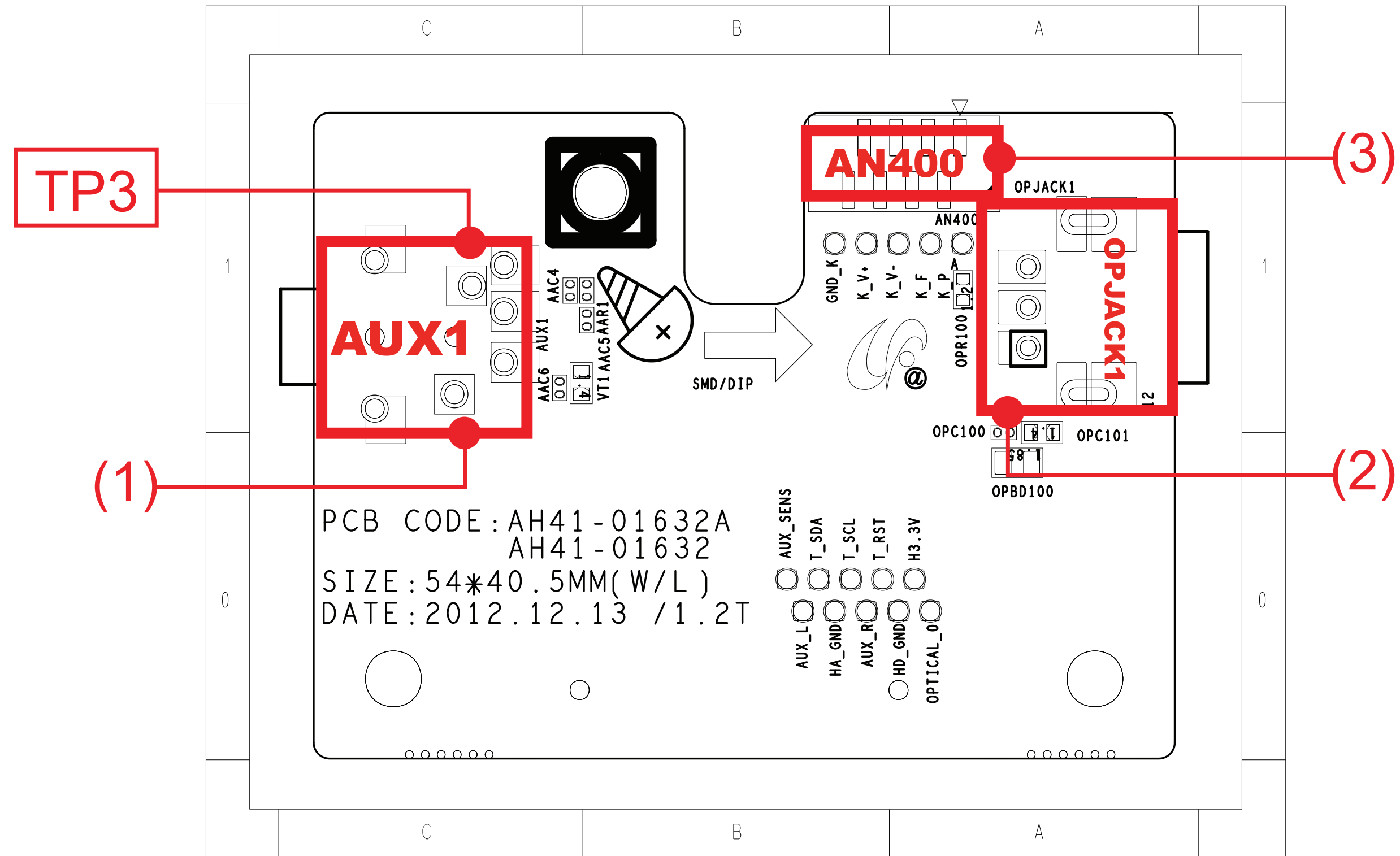
5.4. VFD PCB Top



5.5. VFD PCB Bottom



5.6. JACK PCB Top



5.6.1. Pin Connection

1) AUX1
AUX Signal

Pin No.	Signal
1	DGND
2	AUX_L
3	NC
4	AUX_R
5	DGND
6	AUX_SENS_H
7	DGND

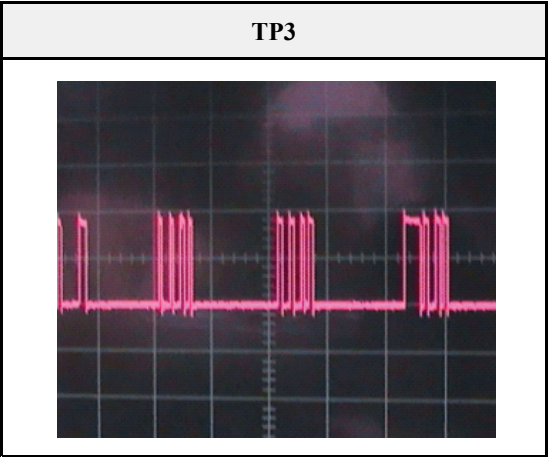
2) OPJACK1
Optical Signal

Pin No.	Signal
1	HM3.3V
2	HDGND
3	OPTICAL_0_H

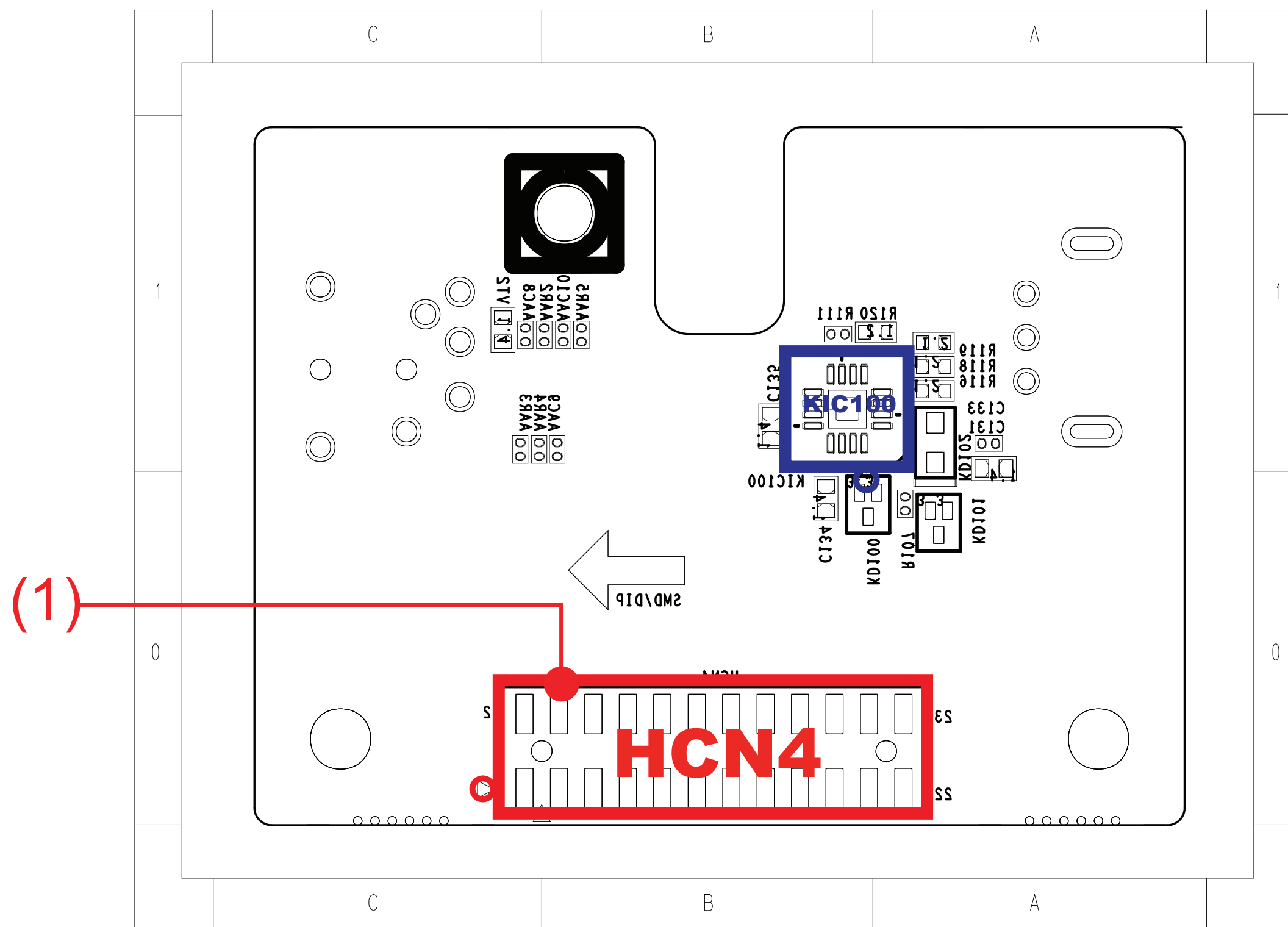
3) AN400
Touch CON

Pin No.	Signal
1	HDGND
2	HDGND
3	K_PWR
4	K_FUNC
5	K_VOL-
6	K_VOL+
7	HDGND
8	HDGND

5.6.2. Test Point Wave Form



5.7. JACK PCB Bottom



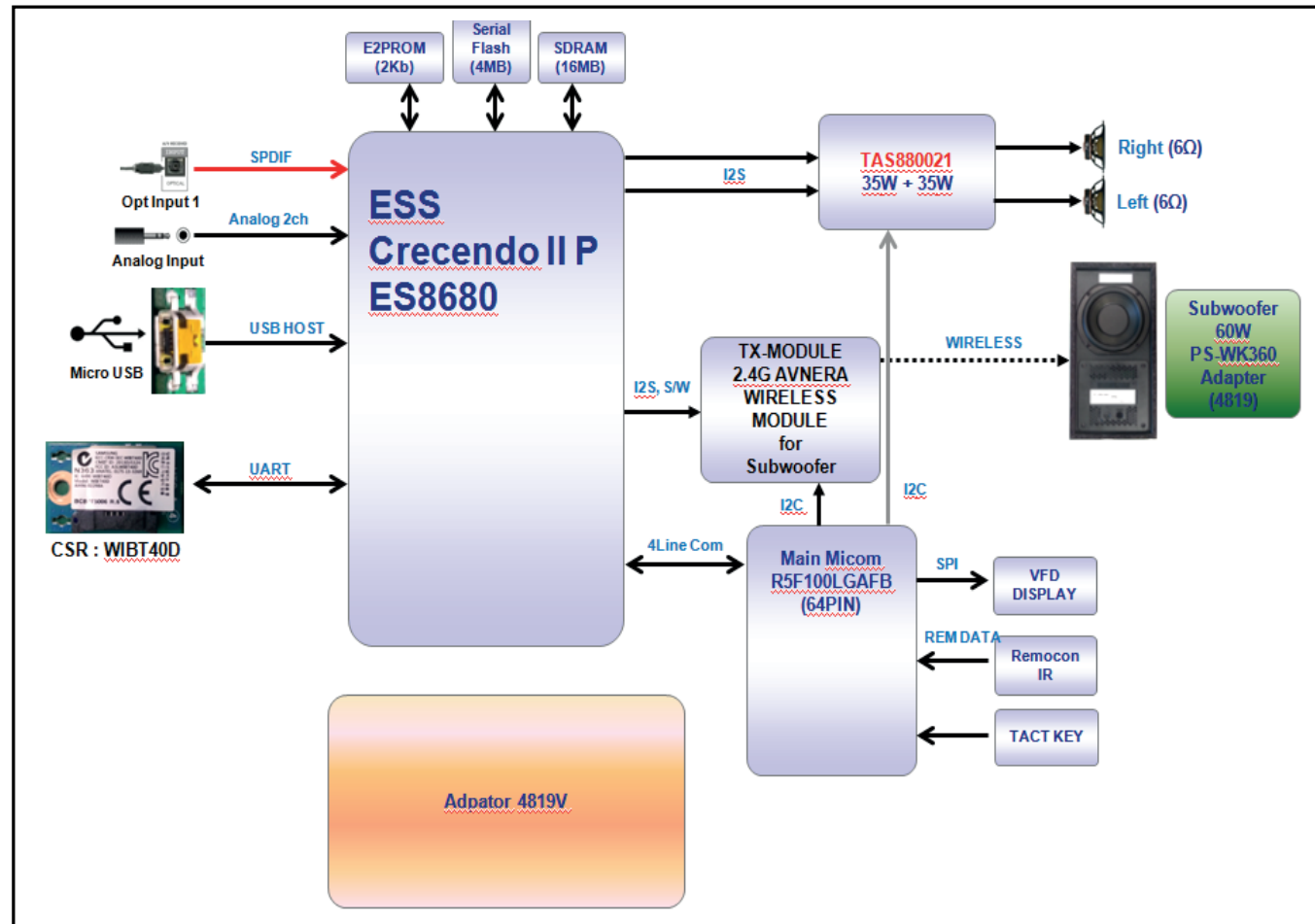
5.7.1. Pin Connection

1) HCN4
MAIN ASSY

Pin No.	Signal
1	DGND
2	DGND
3	DGND
4	DGND
5	DGND
6	DGND
7	DGND
8	DGND
9	DGND
10	DGND
11	DGND
12	DGND
13	DGND
14	AUX_L
15	AUX_SENS
16	DGND
17	T_SDA
18	AUX_R
19	T_SCL
20	DGND
21	T_RST
22	SPDIF_IN1
23	M3.3V

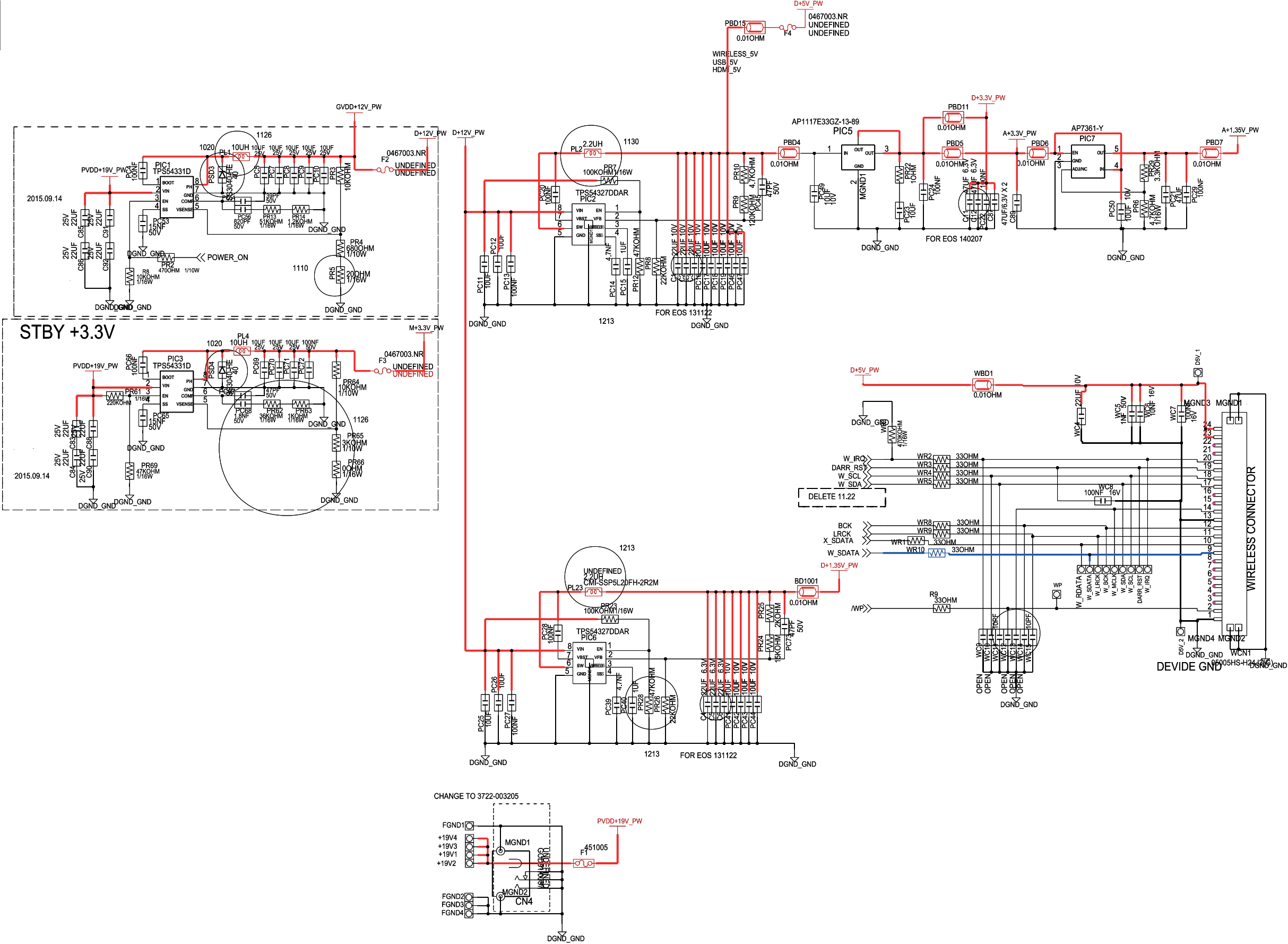
6. Schematic Diagram

6.1. Overall Block Diagram



- Main System Digital Signal Processor which is ESS (ES8680D).
- All display is registered by VFD.
- Serial Interface between I2C is operated with various protocol over the whole system.
- DSP(SDP1207) implement DSP AUDIO DECODING function by I2S.
- Power On/Off by Micom port is possible.
- Function and sound field can be controlled by remote controller and keys.
- The active subwoofer operate with wireless system.

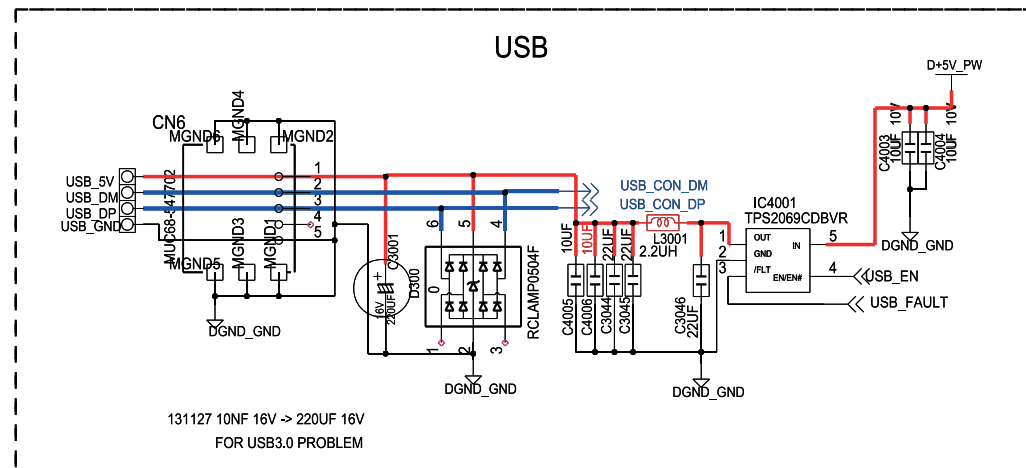
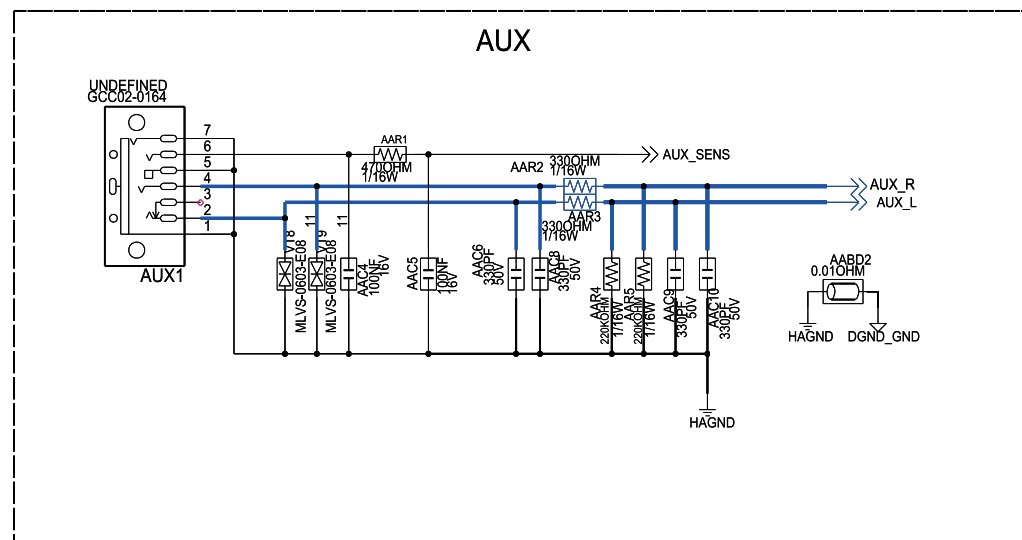
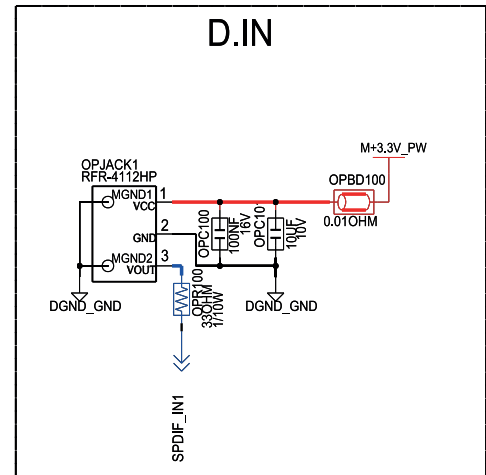
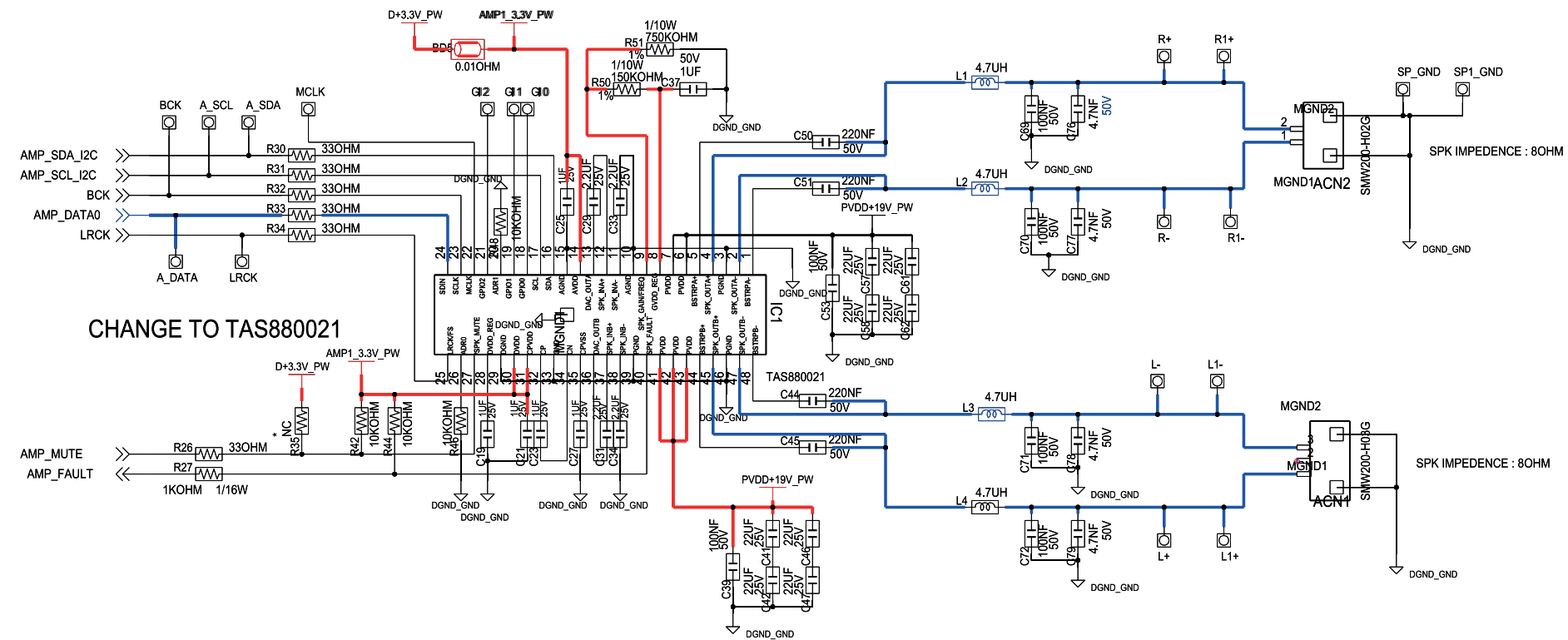
6.2. MAIN-1

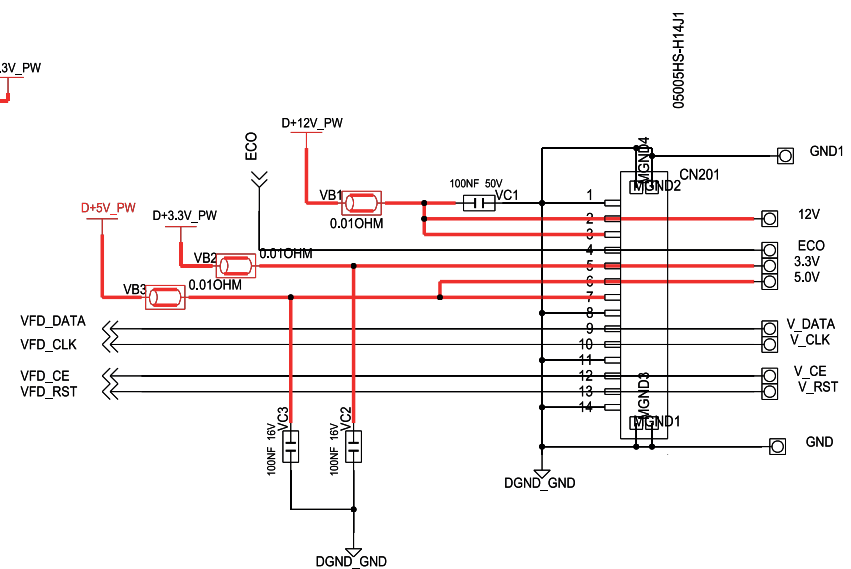
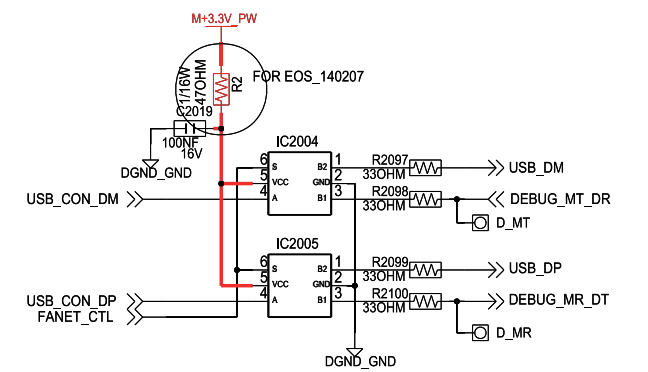
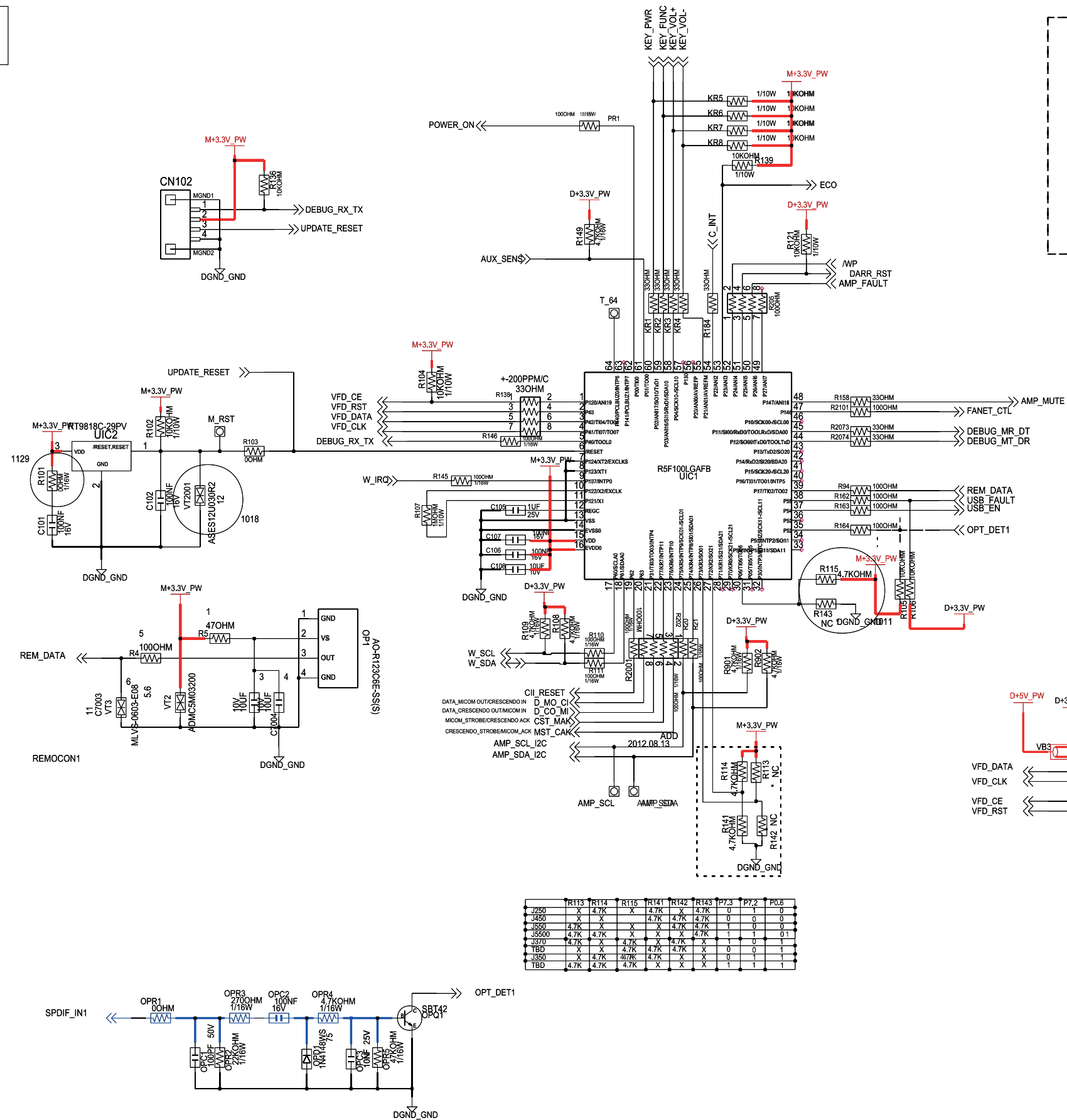


6.3. MAIN-2



AMP AUX & DIN

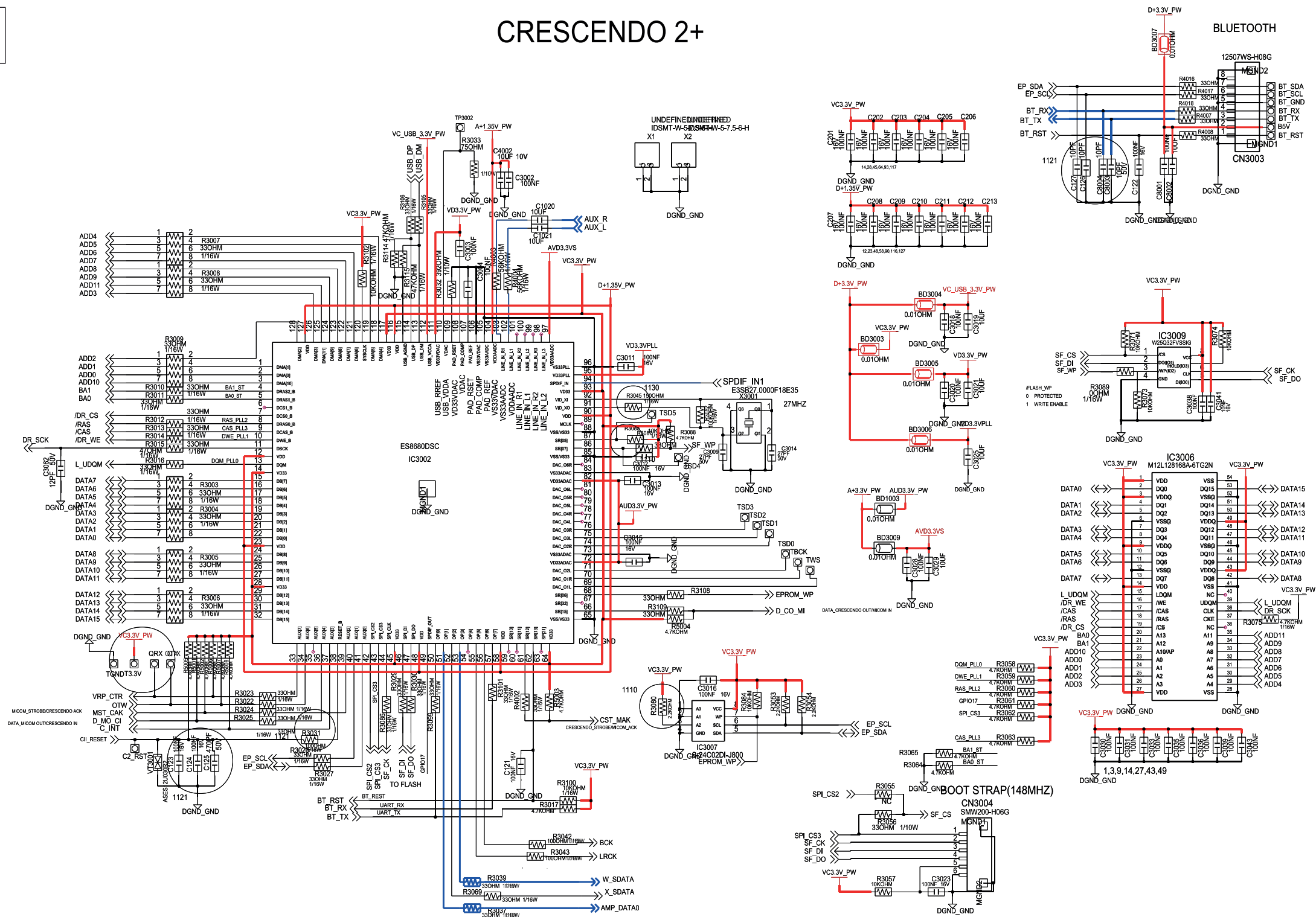




6.5. MAIN-4

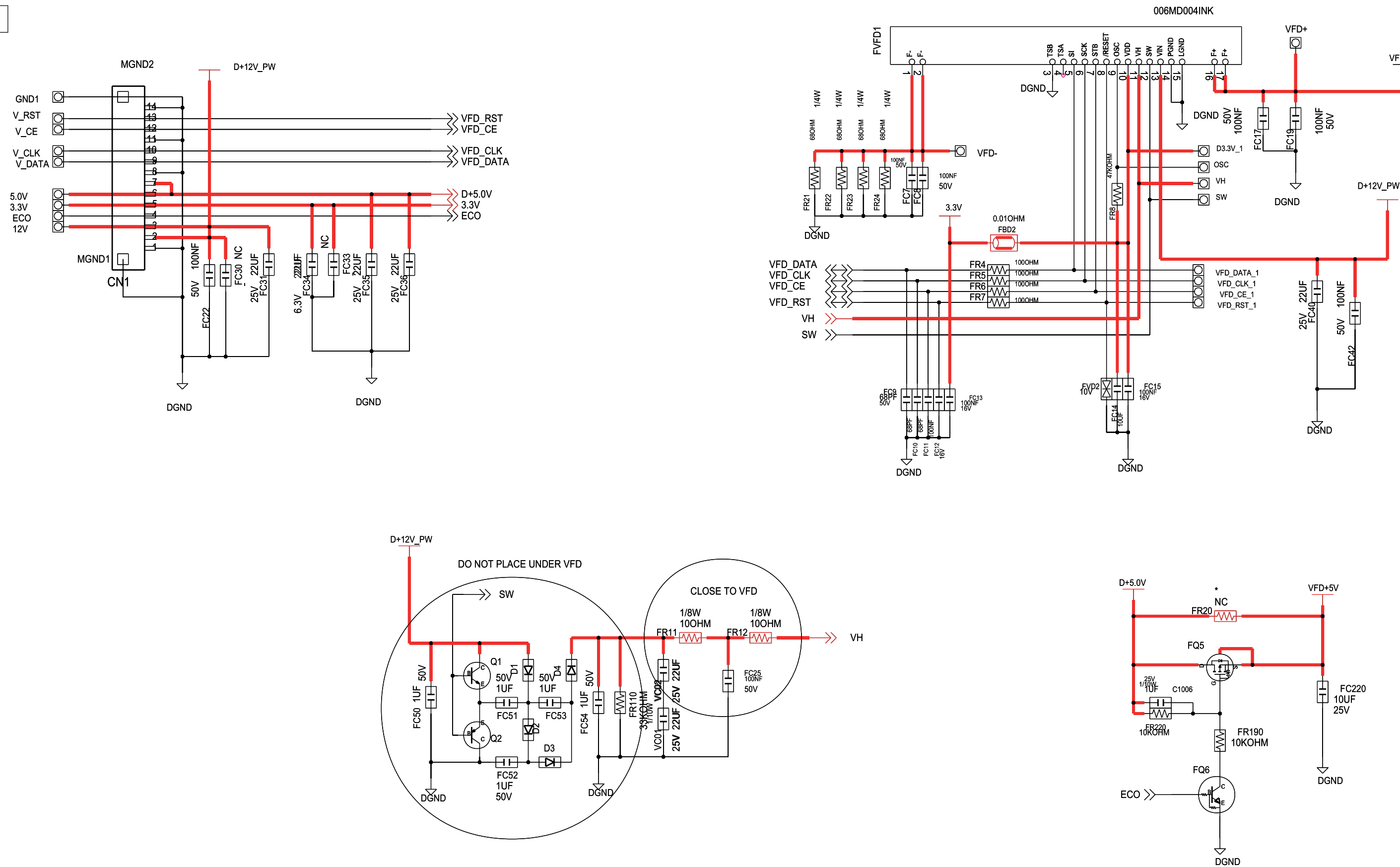


CRESCENDO 2+



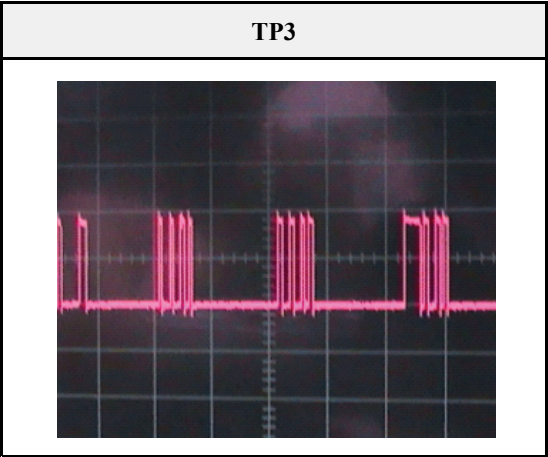
6.6. VFD

POWER





6.7.1. Test Point Wave Form





GSPN (GLOBAL SERVICE PARTNER NETWORK)

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