



5.1CH Blu-ray™ Home Entertainment System

Model Name

HT-F4550

Model Code

HT-F4550/EN

SERVICE MANUAL

5.1CH Blu-ray™ Home Entertainment System

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HT-F4550

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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.

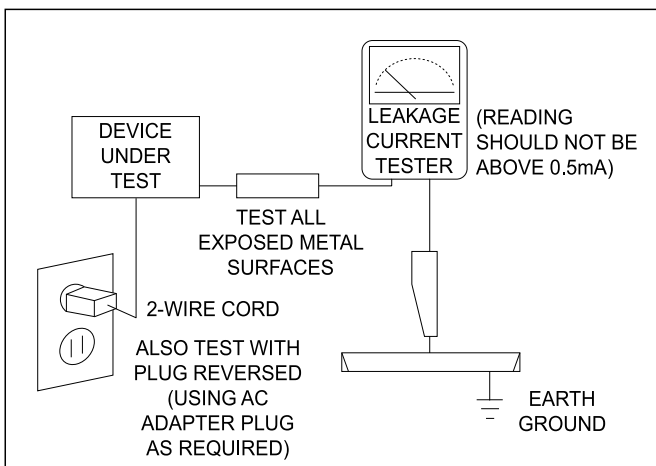


Figure 1.1 AC Leakage Test

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](#)

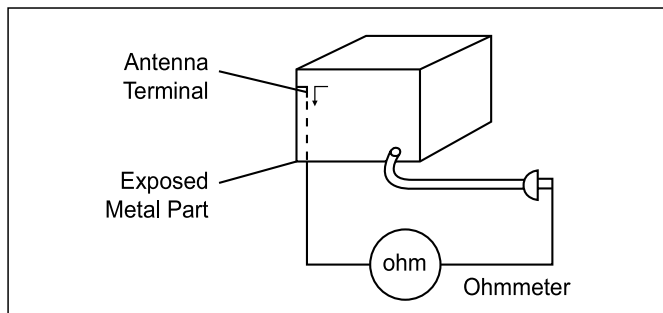


Figure 1.2 Insulation Resistance Test

- 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.

2. Product Specification

2.1. Product Feature

■ Features for 2013 model BD HTS

- BD-LIVE from the beginning of the Mass Production.
- DTS-HD Master Audio decoding from the beginning of the Mass Production.
- MP3, MKV, MP4, WMA, WMV
- Support 11 CP (Netflix, Pandora, CinemaNow, Vudu., etc)
- 1 USB port (Front)
- Support 3D Disc
- HDMI 1.4 with ARC
- DLNA

2.2. Specifications



■ Basic Specification

| | | | | |
|-----------------------------|---|--|------------------------|--|
| General | Power Requirements | AC 110 - 220 V, 50/60 Hz | | |
| | Power Consumption | 67.5 W | | |
| | Weight | 5.5 lbs | | |
| | Dimensions | 16.9 (W) x 2.0 (H) x 9.8 (D) inches | | |
| | Operating Temperature Range | +41 °F to +95 °F | | |
| | Operating Humidity Range | 10 % to 75 % | | |
| FM Tuner | Signal/noise ratio | 55 dB | | |
| | Usable sensitivity | 12 dB | | |
| | Total harmonic distortion | 0.5 % | | |
| Disc | BD (Blu-ray Disc) | Reading Speed : 9.834 m/sec | | |
| | DVD (Digital Versatile Disc) | Reading Speed : 6.98 ~ 7.68 m/sec. | | |
| | | Approx. Play Time (Single Sided, Single Layer Disc) : 135 min. | | |
| | CD : 5 inches (COMPACT DISC) | Reading Speed : 4.8 ~ 5.6 m/sec. | | |
| | | Maximum Play Time : 74 min. | | |
| | CD : 3 1/2 inches (COMPACT DISC) | Reading Speed : 4.8 ~ 5.6 m/sec. | | |
| Maximum Play Time : 20 min. | | | | |
| HDMI | Video | 1080p, 1080i, 720p, 480p | | |
| | Audio | PCM multichannel audio, Bitstream audio, PCM audio | | |
| Amplifier | Front speaker output | 80 W x 2 (3 Ω) | | |
| | Center speaker output | 80 W (3 Ω) | | |
| | Surround speaker output | 165 W x 2 (3 Ω) | | |
| | Subwoofer speaker output | 100 W (3 Ω) | | |
| | Frequency response | Analog input | 20 Hz ~ 20 kHz (±3 dB) | |
| | | Digital input | 20 Hz ~ 40 kHz (±4 dB) | |
| | S/N Ratio | 70 dB | | |
| | Channel separation | 60 dB | | |
| Input sensitivity | (AUX) 500 mV | | | |

■ Speaker Specifications

| Speaker | Speaker system | 5.1ch speaker system | | | |
|---------|---------------------------------|----------------------|--------------------|--------------------|----------------------|
| | | Front | Surround | Center | Subwoofer |
| | Impedance | 3 Ω | 3 Ω | 3 Ω | 3 Ω |
| | Frequency range | 140 Hz ~ 20 kHz | 140 Hz ~ 20 kHz | 140 Hz ~ 20 kHz | 40 Hz ~ 160 Hz |
| | Output sound pressure level | 87dB / W / M | 87dB / W / M | 87 dB / W / M | 88 dB / W / M |
| | Rated input | 80 W | 80 W | 80 W | 100 W |
| | Maximum input | 160 W | 160 W | 160 W | 200 W |
| | Dimensions (W x H x D) (inches) | 3.03 x 4.25 x 2.75 | 3.03 x 4.25 x 2.75 | 8.97 x 3.03 x 2.75 | 6.10 x 11.81 x 11.22 |
| | Weights (lbs) | 0.78 | 0.84 | 1.08 | 6.36 |

2.3. Specifications Analysis

| Model Name | HT-FM45 / HT-F4500 | HT-E4500 |
|-----------------------|---|---|
| Photo |  |  |
| Profile | Blu-ray 5.0 from the beginning | Blu-ray 2.0 from the beginning |
| DVD, CD | O | O |
| MP3, JPG | O (MP4, MKV, WMA, WMV) | O (MP4, MKV, WMA, WMV) |
| USB HOST | O | O |
| iPod / iPhone | X | O (Only Digital USB AUDIO support) |
| Wireless LAN | X | X |
| Wireless Rear Speaker | X | X |
| Memory Slot | Internal Storage Support | Internal Storage Support |
| DLNA, Widget | support 11 CP | Support 5 CP |
| Energy-Star | Under 0.5 W | Under 0.5 W |
| VACCUM TUBE | X | X |
| 2D / 3D | 2D / 3D | 2D |
| SMPS | 2 trans Stand-By Power Consumption 0.2 W | 1 trans Stand-By Power Consumption 0.7 W Dual Free Voltage |
| DECK | Draw type | Draw type Plastic Cover |
| Pick Up | 7G Pickup | 6G VE Pickup |
| Front Micom | RENESAS | SANYO |
| MAIN Chip | MTK | BROADCOM |
| Wi-Fi LAN Dongle | X | X |
| HDMI IN | X | X |
| Main ↔ Loader | BACKEND MTK (Loader : included MTK) | BACKEND BROADCOM (Loader : included BROADCOM) |




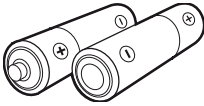

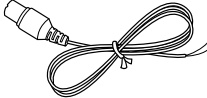
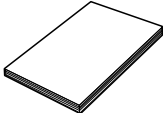
TIP

O : Feature Included

X : Not Included

2.4. Accessories

2.4.1. Supplied Accessories




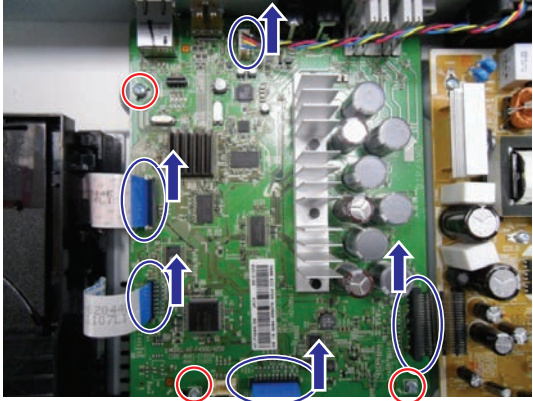

| Accessories | Item | Item code |
|---|----------------------|----------------------------|
|  | Remote Control | AH59-02530A |
|  | Batteries (AAA size) | 4301-000116 |
|  | Power Cable | 3903-000525 |
|  | FM Antenna | AH42-00021A |
|  | User's Manual | AH68-02574M AH68-02574N |

3. Disassembly and Reassembly


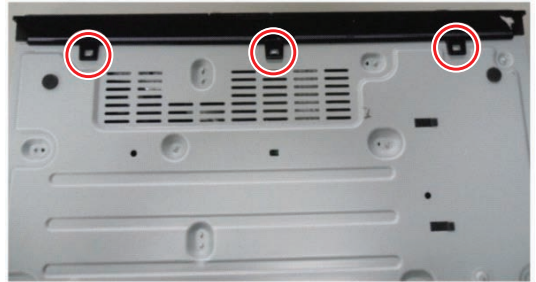
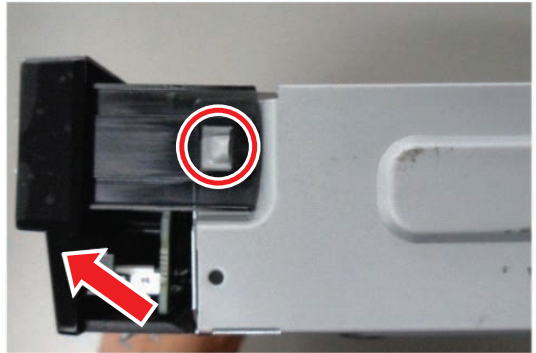
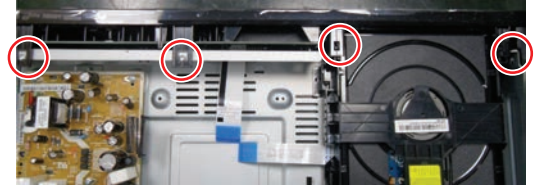
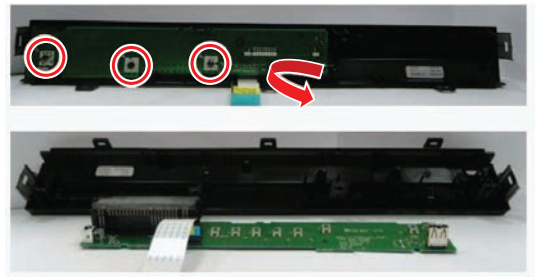
3.1. Overall Disassembly and Reassembly

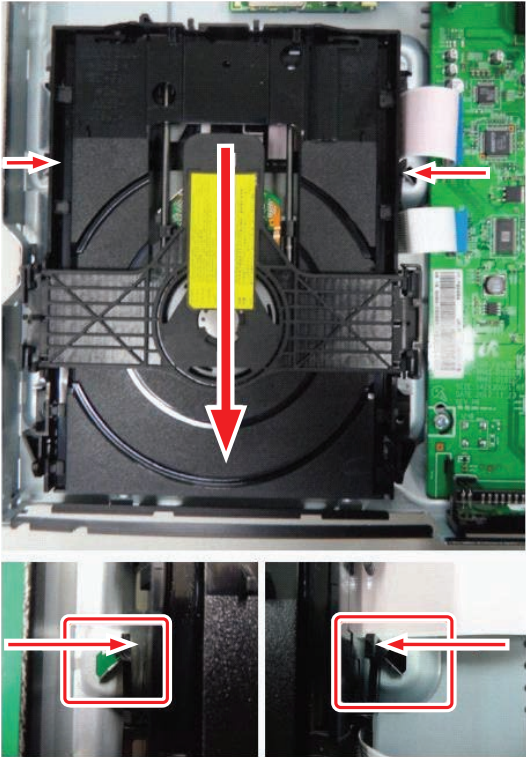
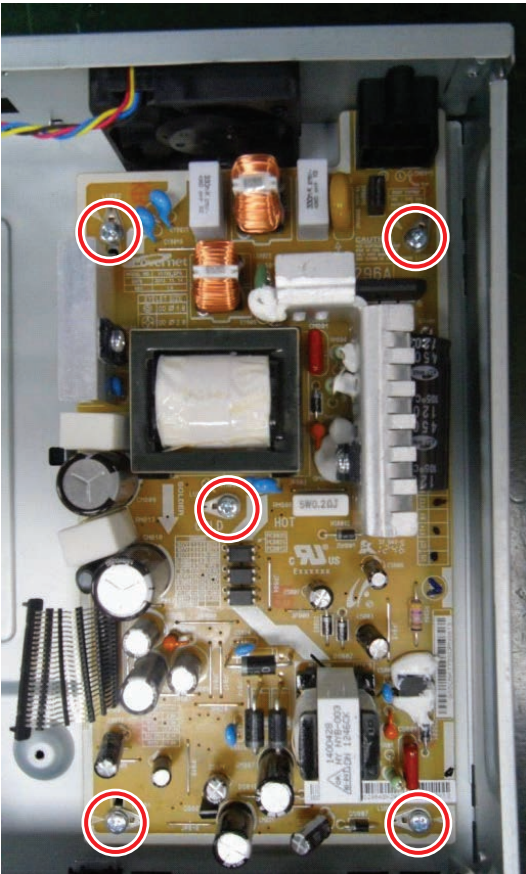
CAUTION

- 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.

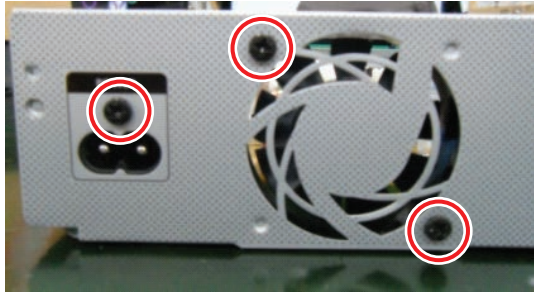
| Description | Description Photo |
|--|--|
| <p>1. Unfasten 3 screws on the back and 2 on the sides. Back : BH,+,B,M3,L10,ZPC(BLK),SWRCH18A Side : BH,+,B,M3,L8,ZPC(BLK),SWRCH18A</p> <p> CAUTION Be careful not to make any scratches as you remove them.</p> |  |
| <p>2. Lift the top cover.</p> |  |
| <p>3. Disconnect 2 FFC cables from deck and SMPS wire and fan wire and FFC cable from front Assy. Unfasten 3 screws on the Main PCB. : BH,+,B,M3,L6,ZPC(WHT),SWRCH18A</p> |  |
| <p>4. 3 screws on the back side. : BH,+,B,M3,L10,ZPC(BLK),SWRCH18A</p> |  |

3. Disassembly and Reassembly

| Description | Description Photo |
|---|---|
| <p>5. Disassemble and lift Main PCB.</p> |  <p>A photograph showing the main printed circuit board (PCB) being lifted out of the device's chassis. A red curved arrow indicates the upward and outward movement of the board.</p> |
| <p>6. Lift up on the 3 hooks connecting the COVER-FRONT to the COVER-BOTTOM.</p> |  <p>A photograph of the front cover with three small black hooks circled in red. These hooks are used to connect the front cover to the bottom cover.</p> |
| <p>7. Lift the 2 hooks on the side of the COVER-FRONT To remove the FRONT-COVER all hooks must be disconnect at the same time and you should lift from the bottom and pull Up and away from the device.</p> |  <p>A close-up photograph of a side hook on the front cover. A red arrow points to the hook, and another red arrow points to the bottom edge of the cover, indicating the direction of movement for removal.</p> |
| <p>8. The 4 hooks on the top will be loosened as you lift the FRONT-COVER from the bottom.</p> |  <p>A photograph showing the top edge of the front cover with four hooks circled in red. These hooks are located where the front cover meets the top of the device's frame.</p> |
| <p>9. Unfasten 3 screws on the Front PCB. : BH+,B,M3,L10,ZPC(BLK),SWRCH18A</p> |  <p>Two photographs showing the front PCB. The top photo shows three screws circled in red on the PCB. A red arrow points to the right, indicating the direction to move the PCB. The bottom photo shows the PCB being lifted out of the front cover.</p> |

| Description | Description Photo |
|--|--|
| <p>10. Unfasten the Assy-Deck by pushing the locking points on the side.</p> |  <p style="text-align: center;"><Locking Point></p> |
| <p>11. Unfasten 5 screws on the SMPS.</p> |  |

3. Disassembly and Reassembly

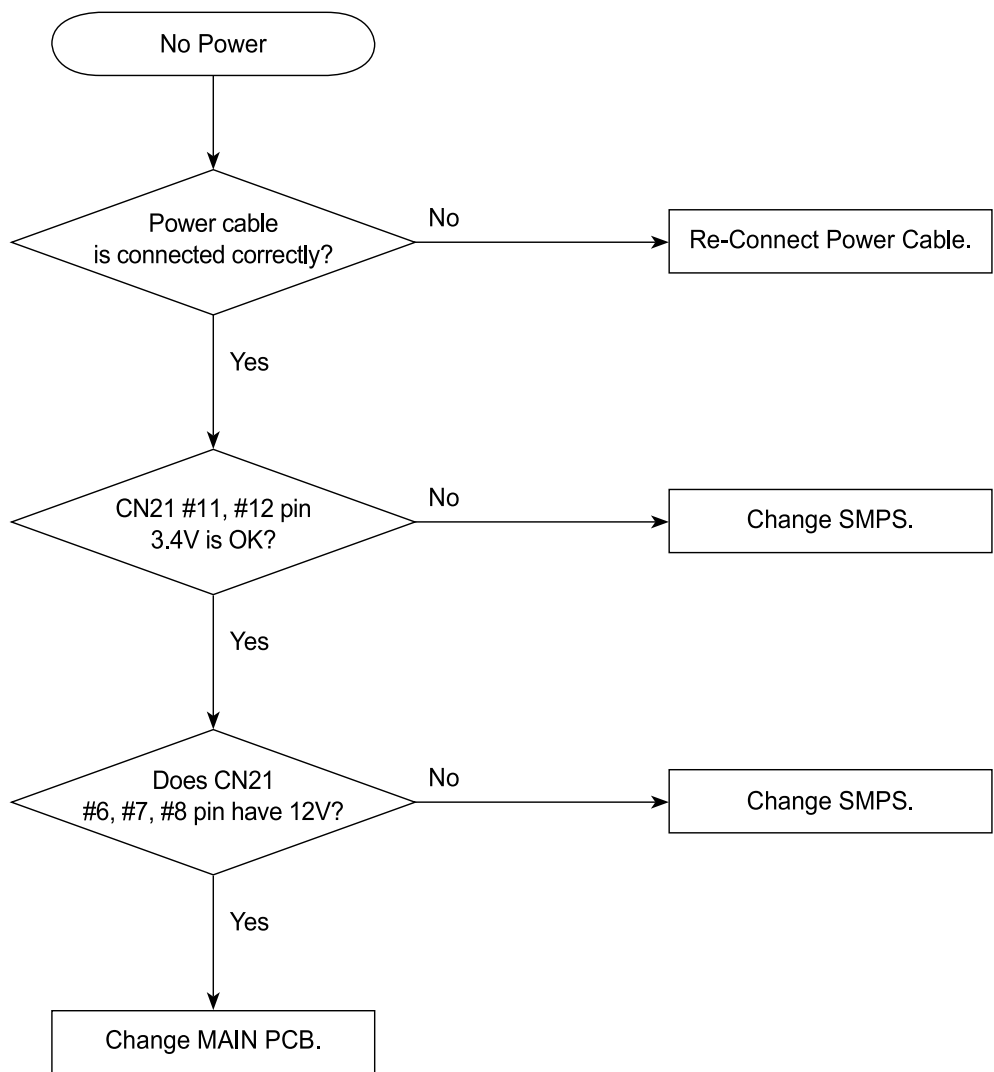
| Description | Description Photo |
|---|--|
| <p>12. Unfasten 3 screws on the back side. : BH,+ ,B,M3,L10,ZPC(BLK),SWRCH18A) Remove the SMPS and Fan.</p> |  A photograph of the back panel of a device, showing a fan and a power jack. Three screws are circled in red, indicating they are to be removed. |

4. Troubleshooting

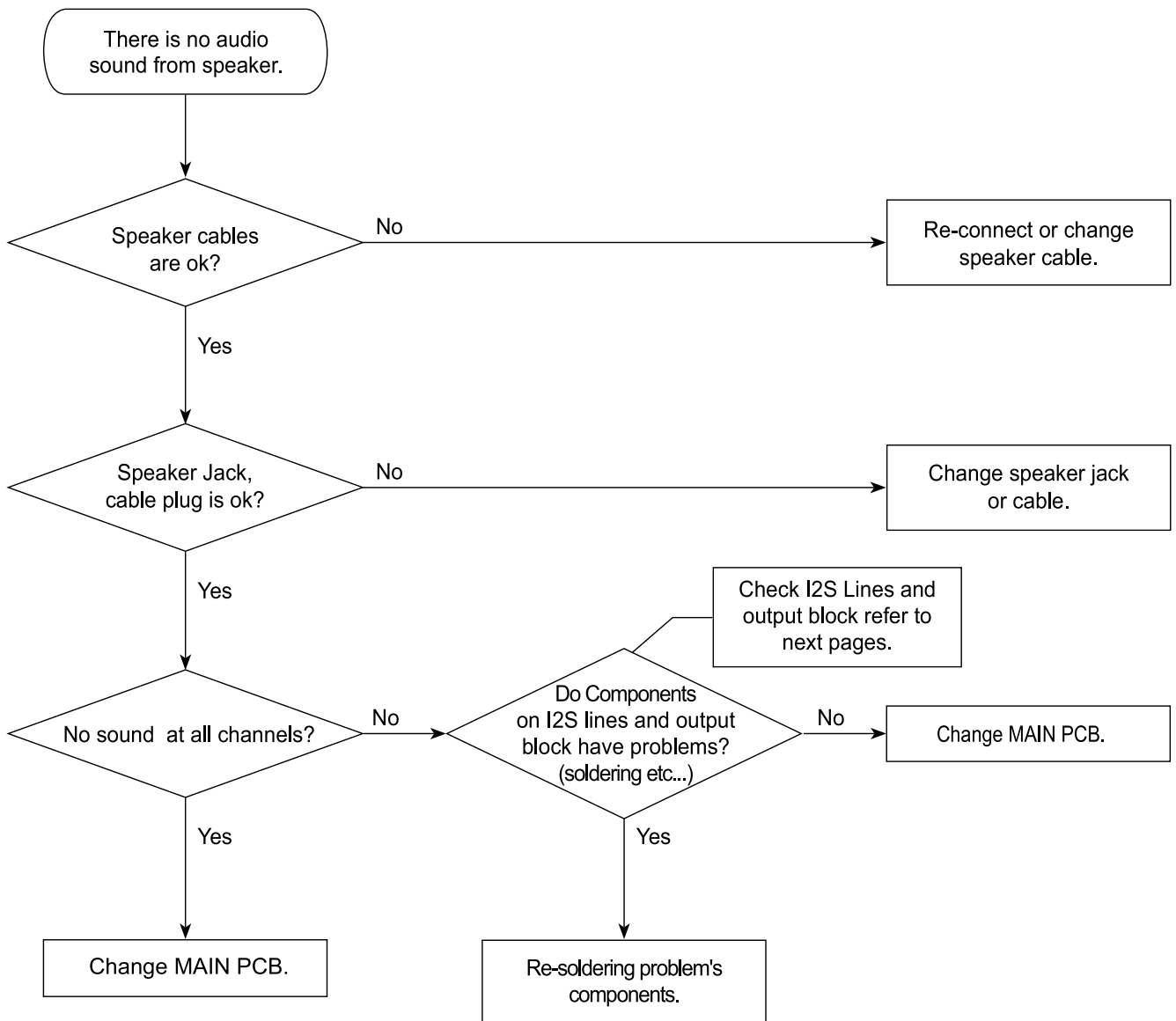
4.1. Checkpoints by Error Mode

| Oscilloscope Setting Values | Normal Voltage | 24 MHz | 32.768 KHz |
|-----------------------------|----------------|------------|------------|
| Voltage/DIV | 1 V/div | 200 mV/div | 500 mV/div |
| TIME/DIV | 100 ms/div | 100 ns/div | 100 us/div |

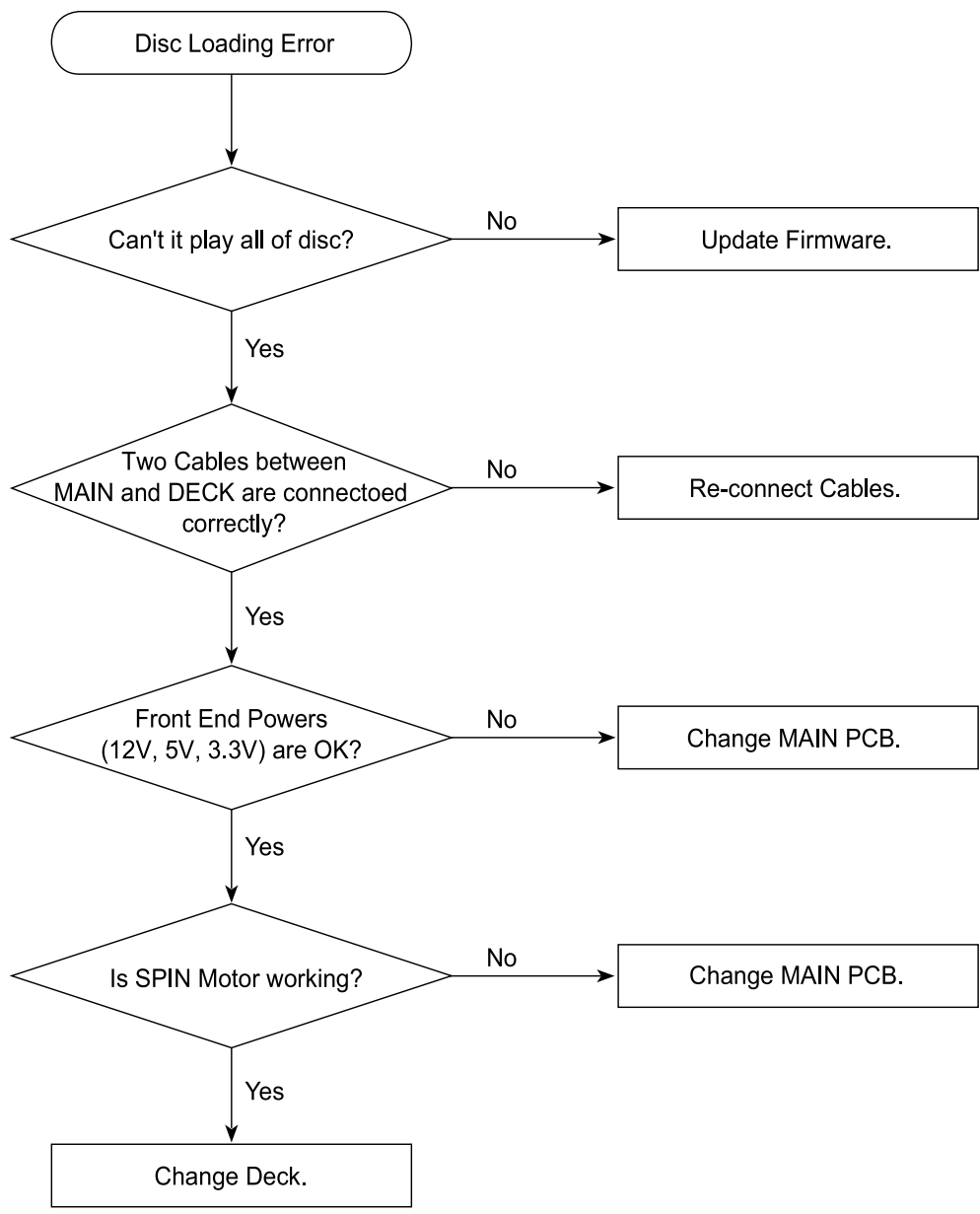
4.1.1. No Power



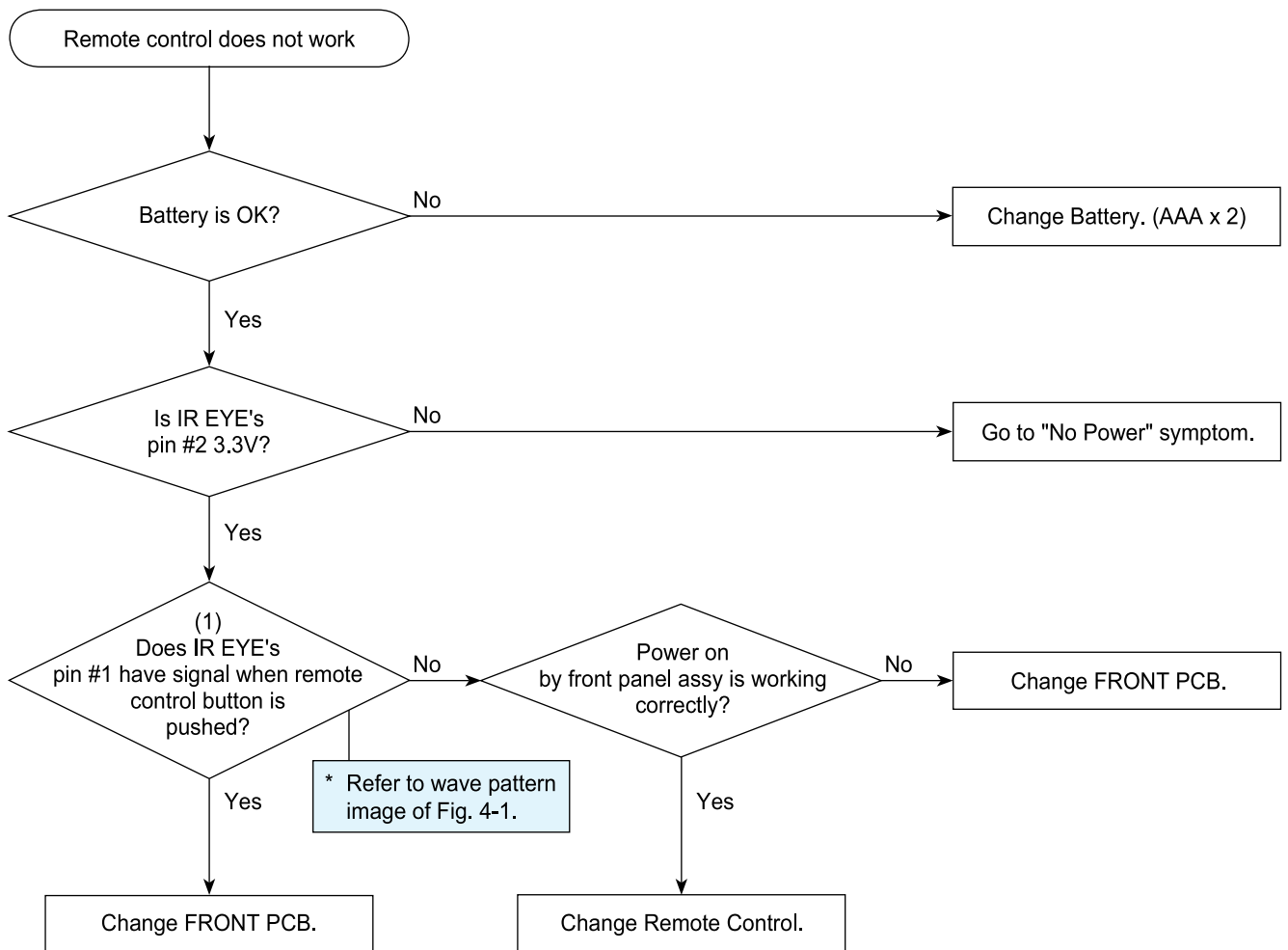
4.1.2. No Audio

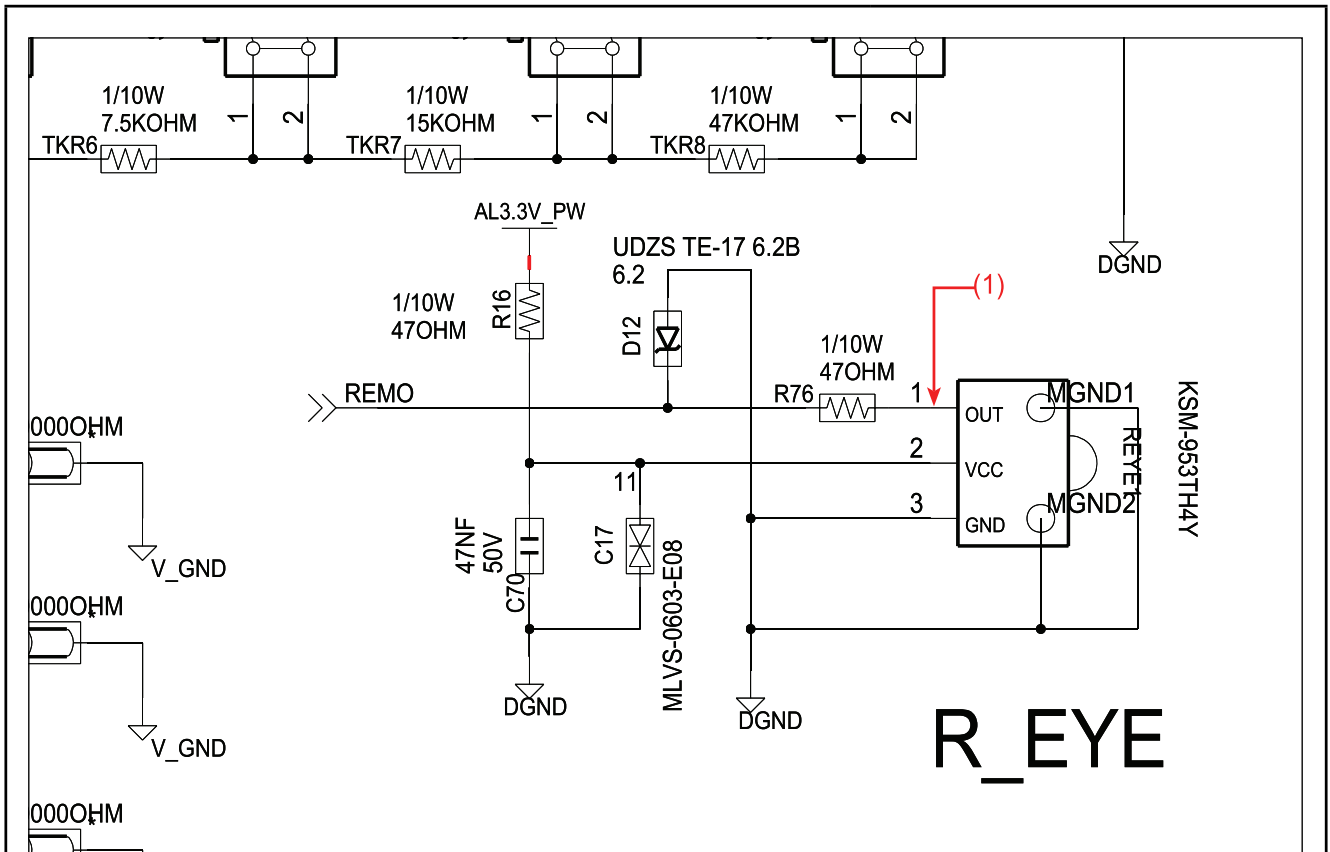


4.1.3. Disc Loading Error

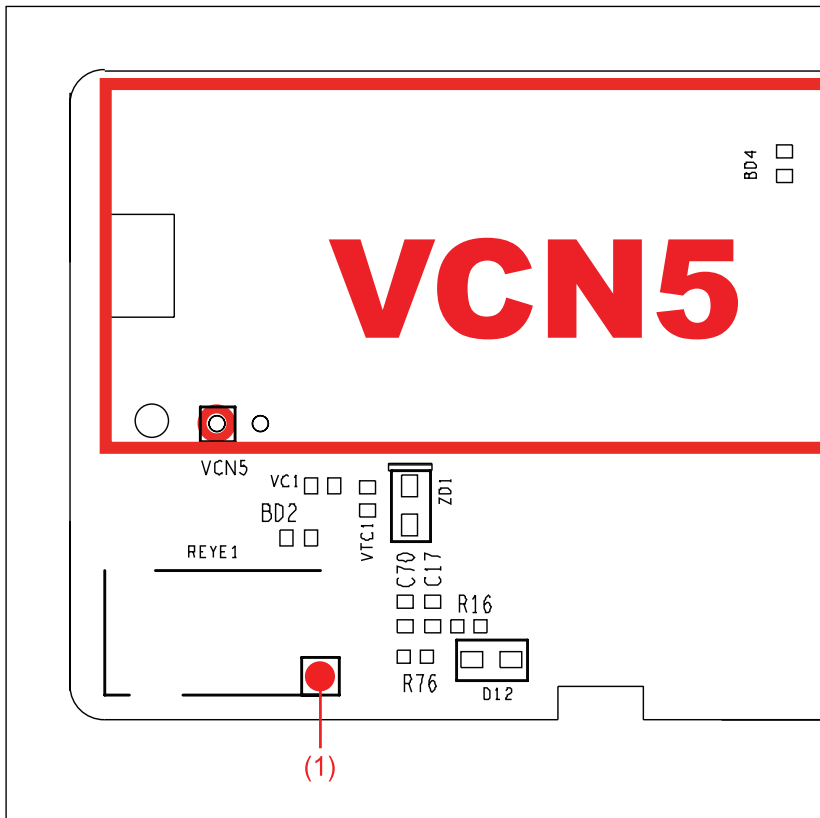


4.1.4. Remote doesn't work

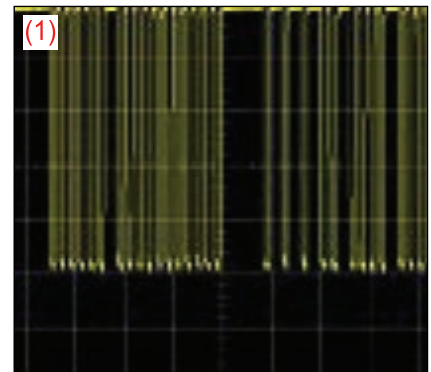




* 6.2. FRONT



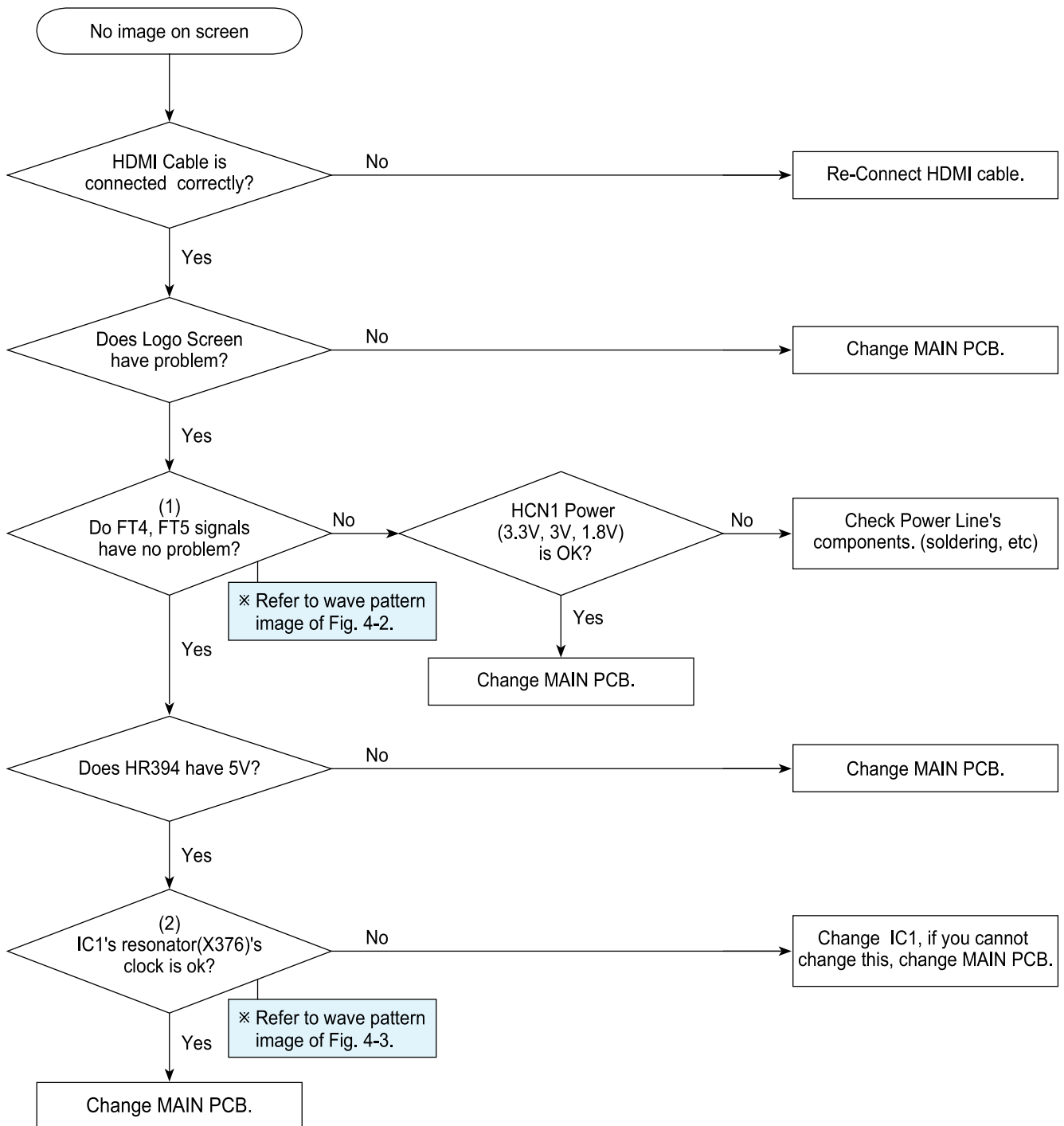
* 5.2. FRONT PCB Top

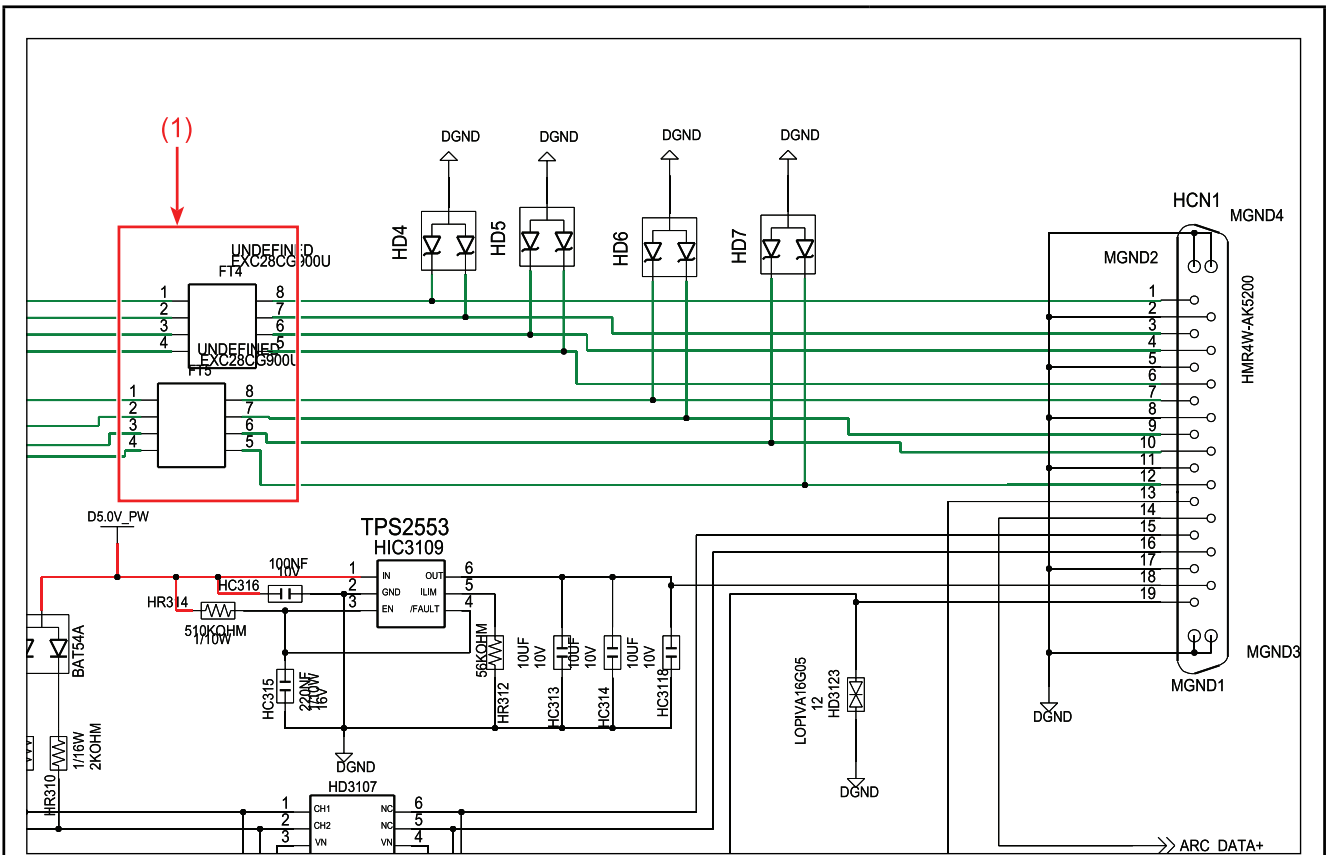


<Remote Eye Data>

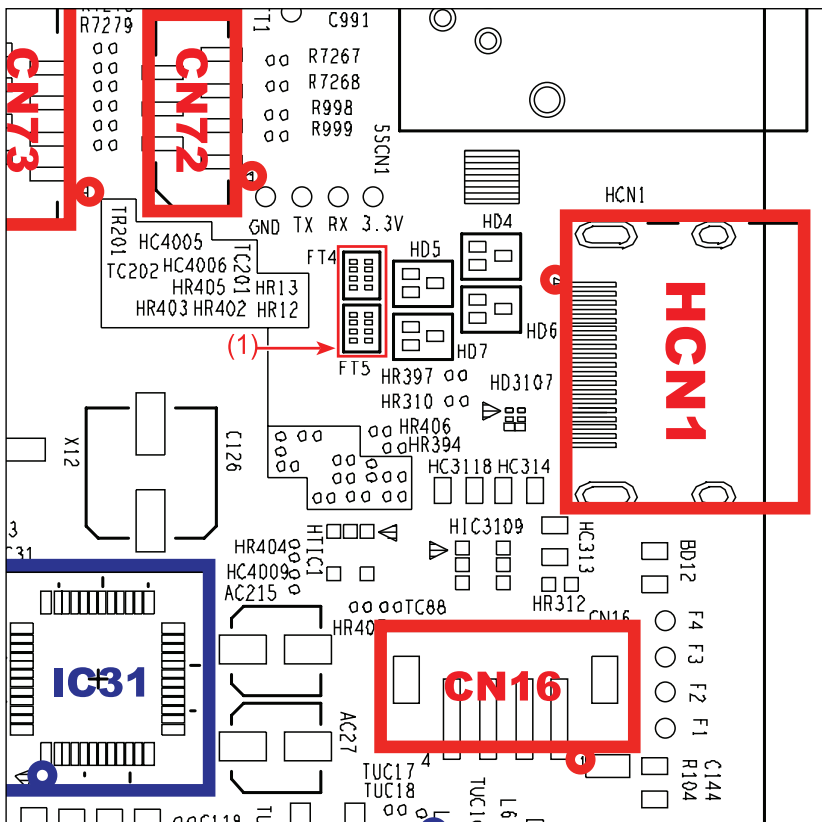
<Fig. 4-1>

4.1.5. No image on screen

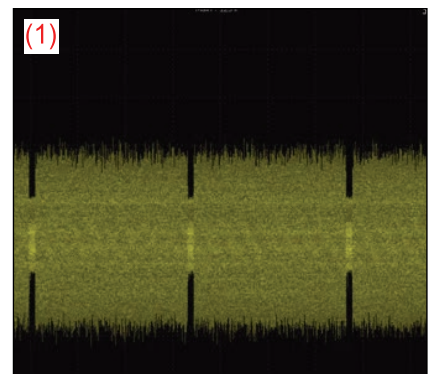




* 6.4. HDMI/ARC

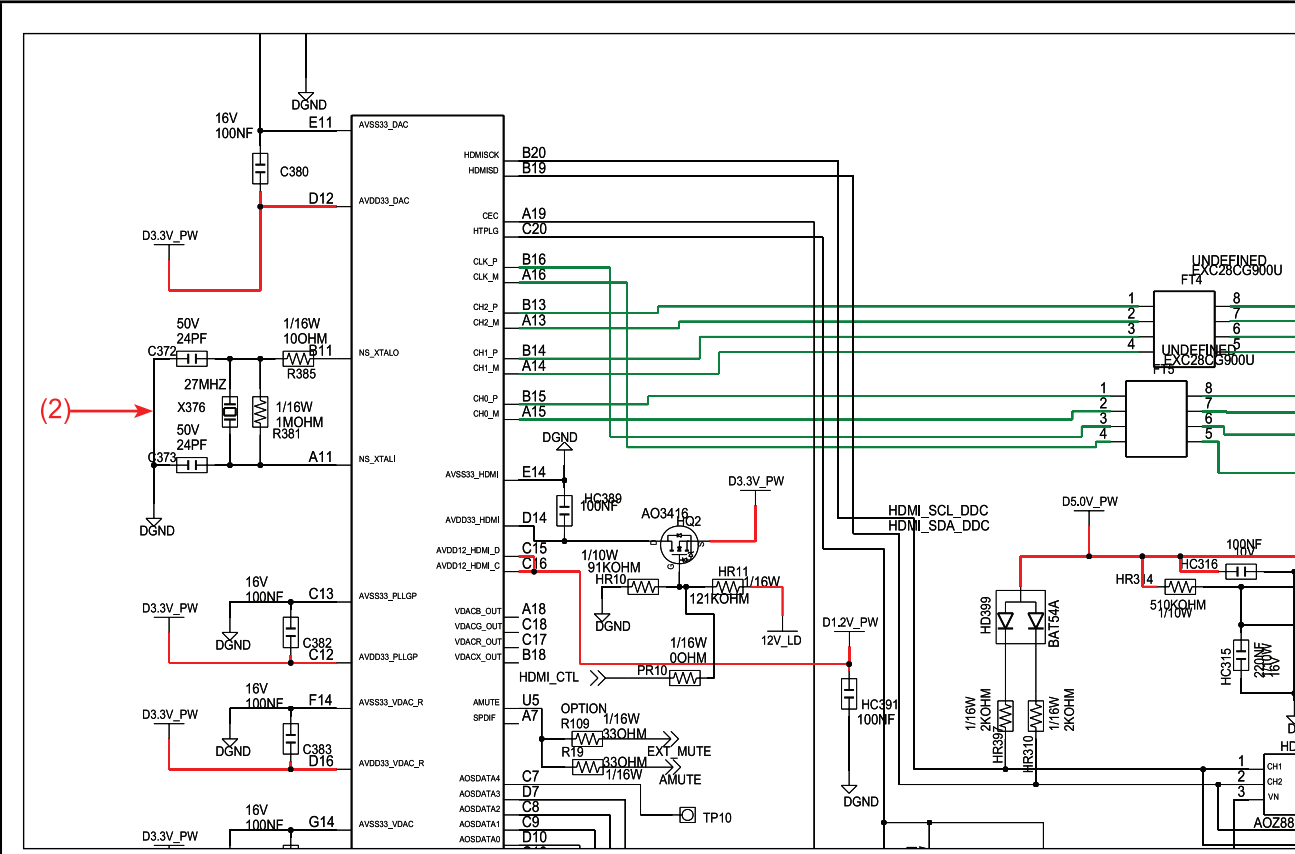


* 5.4. MAIN PCB Top

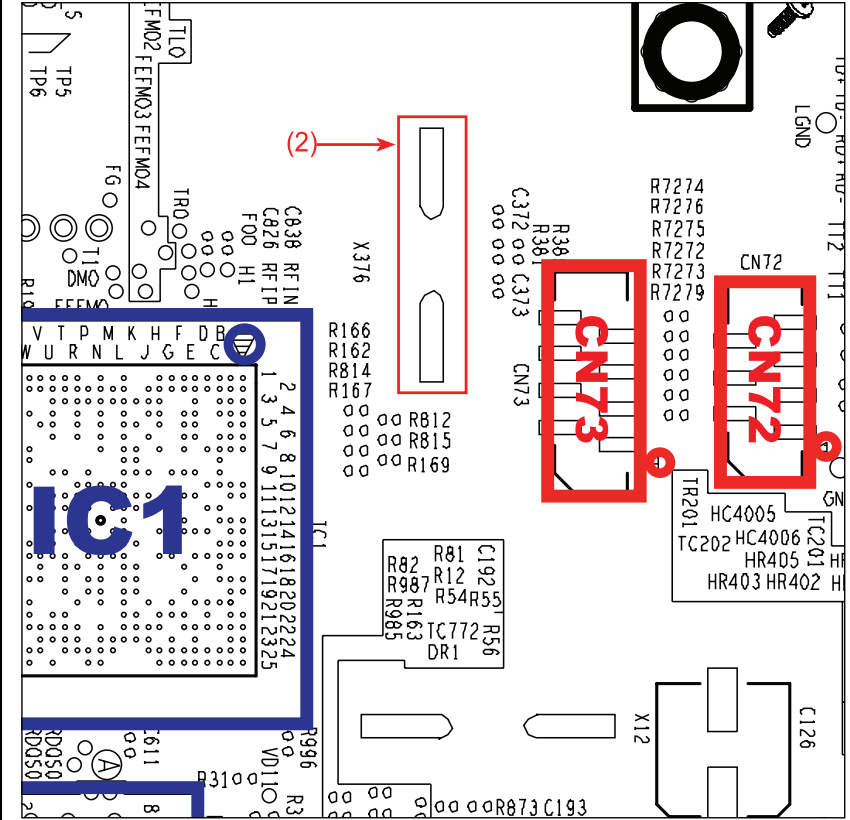


<HDMI EYE SIGNAL>

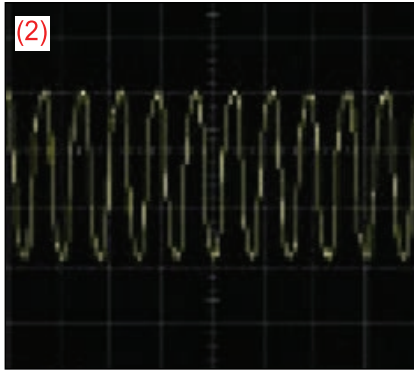
<Fig. 4-2>



* 6.4. HDMI/ARC



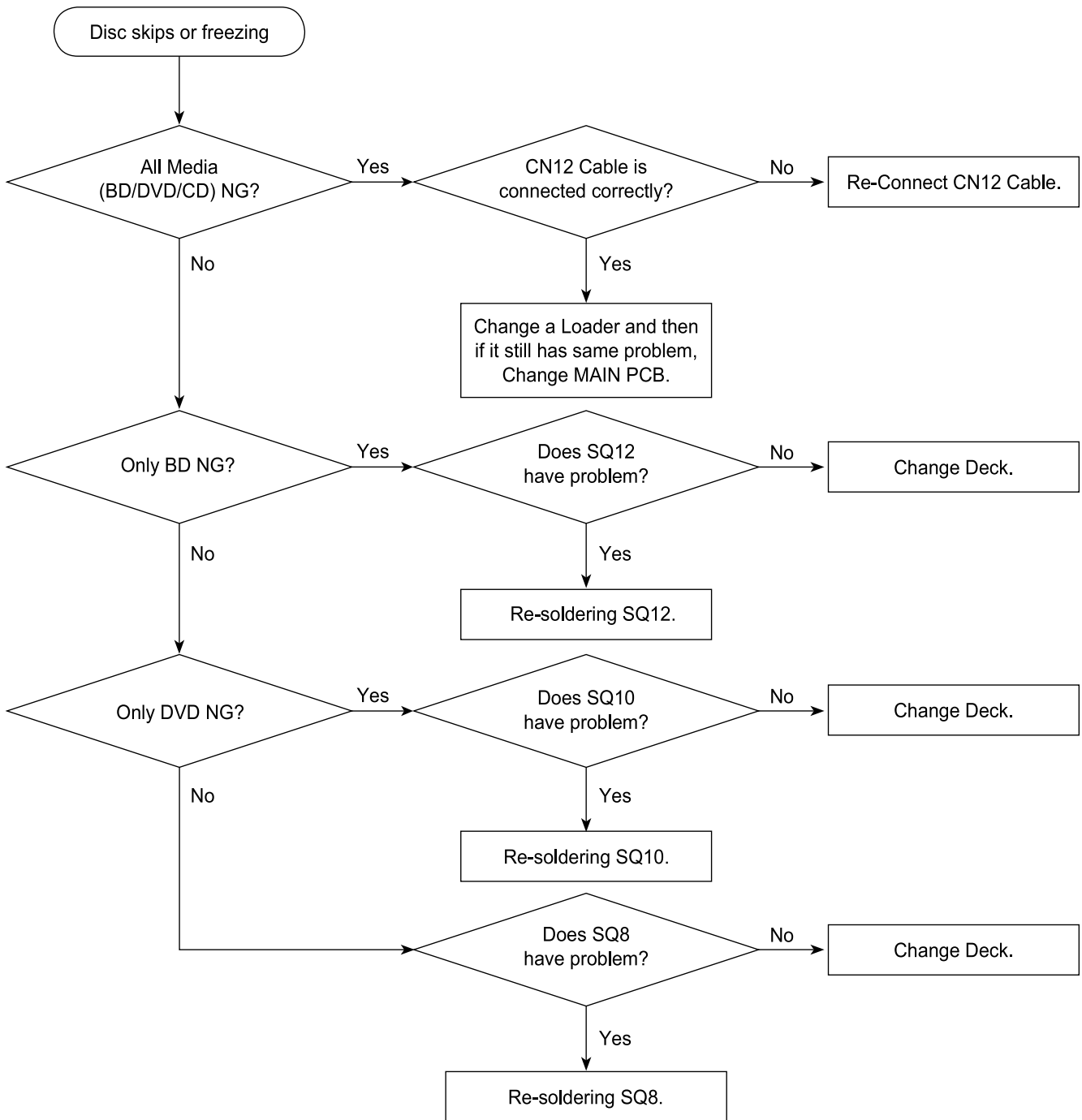
* 5.4. MAIN PCB Top



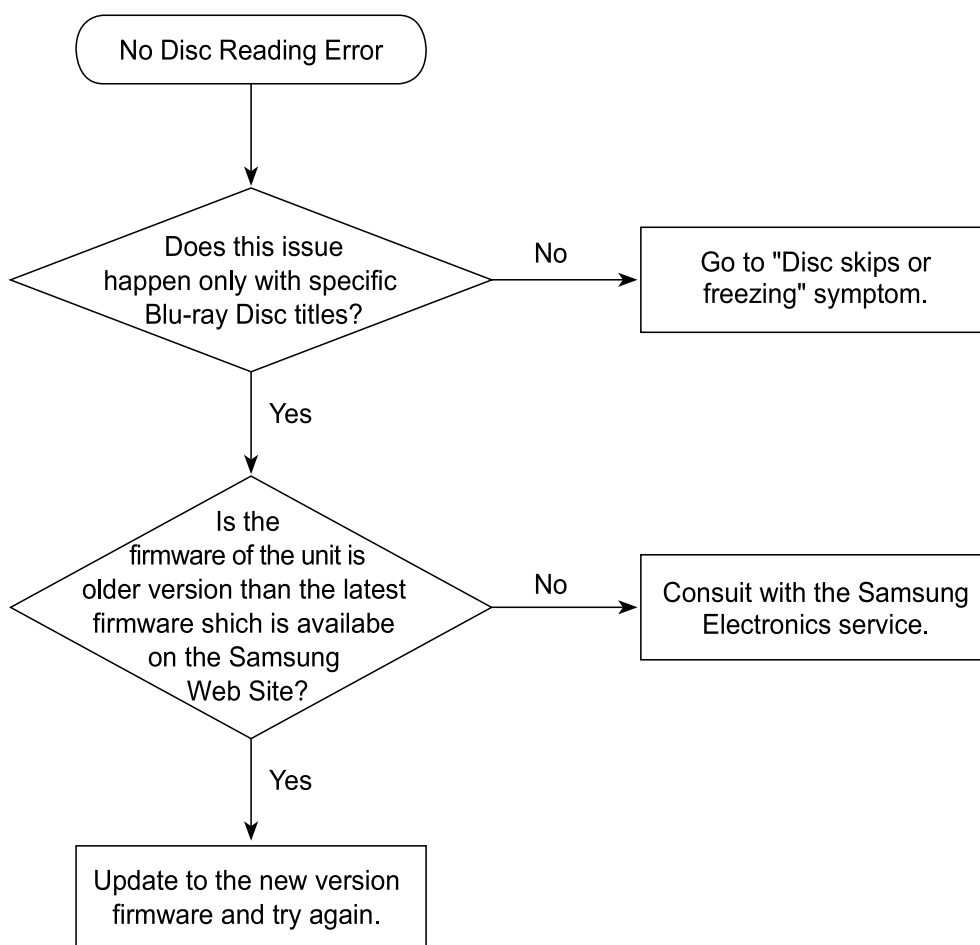
<X3 Must be 27MHz>

<Fig. 4-3>

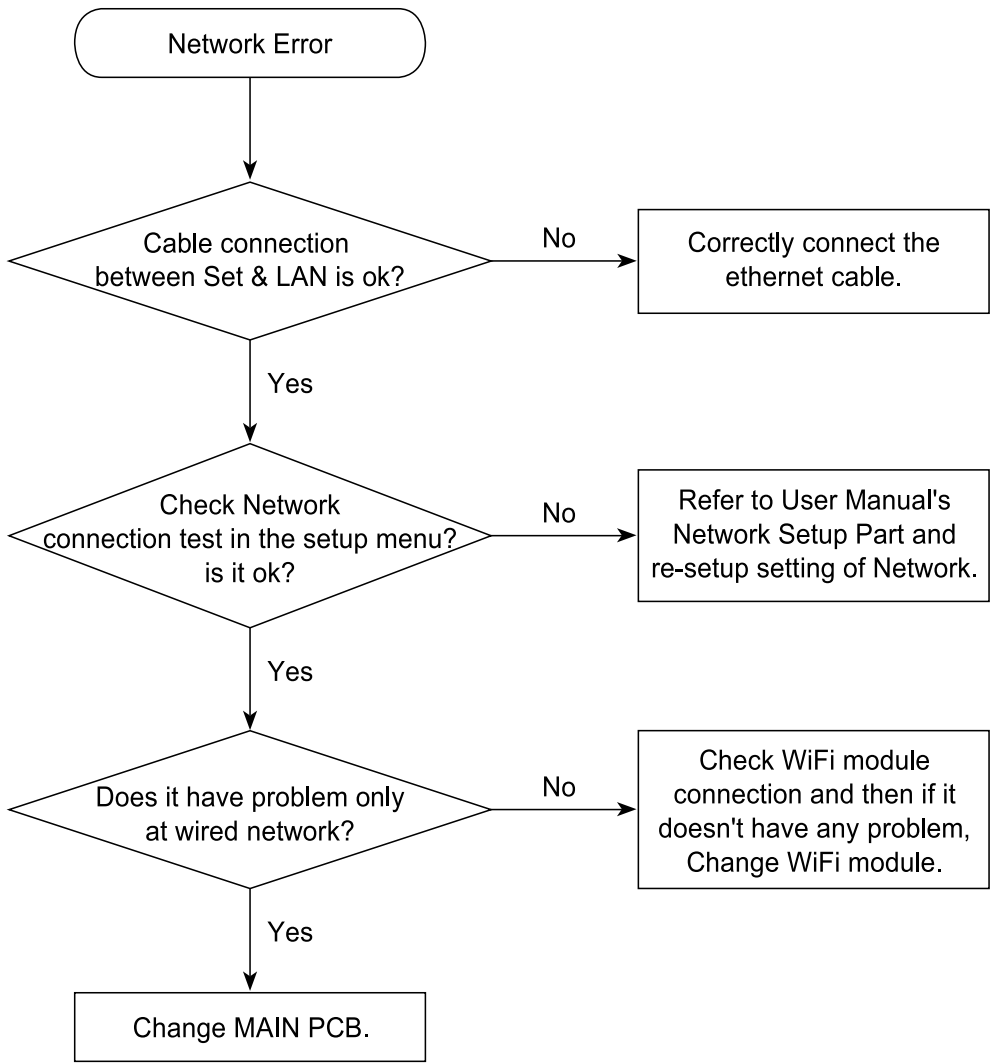
4.1.6. Disc skips or freezing



4.1.7. No Disc Reading Error



4.1.8. Network Error



 **NOTE**

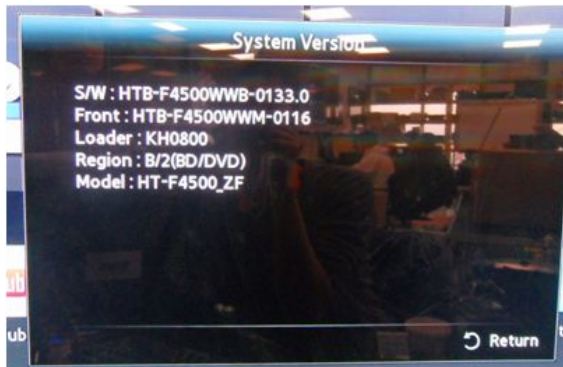
The connection between LAN and SET is direct. So there is no need to check H/W if there is network problem. If it is, the problem is MAIN CHIP (IC1)'s BGA soldering problem. It must be changed to a new board.

4.2. Initialization & Upgrade Methods

4.2.1. How to check F/W version

- **Method 1**

- Step 1: Open the tray.
- Step 2: Press and hold “INFO” button on the remote for 5 seconds.
- Then, you will see below screen.



- **Method 2 (For only Back End version)**

- Select Settings from the Home Screen.
- **Support** → **Contact Samsung**

- **Description for the meaning**

- Front : System micom
- S/W : BACKEND Firmware
- Loader : Loader Firmware
- Region : BD region code / DVD region code
- Model : Model name

4.2.2. How to update firmware

The Software Upgrade menu allows you to upgrade the product's software for performance improvements or additional services.

- Never turn the product off or back on manually during the update process.

- 1) In the Home menu, select Settings, and then press the **ENTER** button.
- 2) Select **Support**, and then press the **ENTER** button.
- 3) Select **Software Upgrade**, and then press the **ENTER** button.
- 4) Select one of the following methods:
 - **By Online**
 - **By USB**
 - **Auto Upgrade Notification**
- 5) Press the **ENTER** button. Directions for each method begin below.



NOTE

- The update is complete when the product turns off after restarting. Press the **POWER** button to turn on the updated product for your use. Never turn the product on or off manually during the update process.
- Samsung Electronics takes no legal responsibility for product malfunction caused by an unstable Internet connection or consumer negligence during a software upgrade.
- If you want to cancel the upgrade while the upgrade software is downloading, press the **ENTER** button.

■ By Online

Your product must be connected to the Internet to use the By Online function. Remove all discs before you begin.

- 1) Select **By Online**, and then press the **ENTER** button. The Connecting to Server message appears.
- 2) If an update is available, a popup message appears asking if you want to upgrade. If you select Yes, the product turns off automatically, turns on, and then begins the upgrade.

※ IMPORTANT

- Never turn the home theater on or off manually during a software upgrade.

- 3) The update progress popup appears. When the update is completed, the product turns off automatically again.
- 4) Press the **POWER** button to turn on the product.



NOTE

- The update is complete when the product turns off after restarting. Press the **POWER** button to turn on the updated product for your use.
- Never turn the product off or on manually during the update process.
- Samsung Electronics takes no legal responsibility for a product malfunction caused by an unstable internet connection or consumer negligence during software upgrade.

■ By USB

- 1) Visit www.samsung.com.
- 2) Click **SUPPORT** on the top right of the page.
- 3) Enter the product's model number into the search field, and then click **Find Product**.
- 4) Click **Get downloads** in the center of the page below the Downloads header.
- 5) Click **Firmware** in the center of the page.
- 6) Click the **ZIP** icon in the File column on the right side of the page.
- 7) Click **OK** in the pop-up that appears to download and save the firmware file to your PC.
- 8) Unzip the zip archive to your computer. You should have a single folder with the same name as the zip file.
- 9) Copy the folder to a USB flash drive.
- 10) Make sure no disc is inserted in the product, and then insert the USB flash drive into the USB port of the product.
- 11) In the product's menu, go to **Settings > Support > Software Upgrade**.
- 12) Select **By USB**.



NOTE

- There should be no disc in the product when you upgrade the software using the USB Host jack.
- Never turn the product off or on manually during the update process.
- When the software upgrade is done, check the software details in the **Software Upgrade** menu.

■ Auto Upgrade Notification

If your product is connected to the network and you set Auto Upgrade Notification on, the product will notify you if a new software version is available with a pop-up message.

- 1) Turn on the product.
- 2) Press the **▲ ▼** buttons to move **Settings > Support > Software update**.
- 3) In the Software Upgrade menu, set Auto Upgrade Notification to On.
If there is a new software version available, the product will notify you with a pop-up message.
- 4) To upgrade the firmware, select Yes. The product turns off automatically, turns on, and then begins the upgrade.
- 5) The update progress popup will appear. When the update is complete, the product will turn off automatically again.
- 6) Press the **POWER** button to turn on the product.



NOTE

- The update is complete when the product turns off after restarting. Press the POWER button to turn on the updated product for your use. Never turn the product on or off manually during the update process.
- Samsung Electronics shall take no legal responsibility for product malfunction caused by unstable of internet connection or consumer negligence during software upgrade.

4.2.3. Cold Start Method (Initialize Setup)

- 1) This is useful for forgotten Parental Lock password.
- 2) It is possible to initialize B/END and System Micom at same time.

※ Method

- 1) Press “■” button on the front panel for over 5 seconds while ‘no disc’ status.
- 2) Then, VFD sign : “INIT” → Power will be turned off automatically.

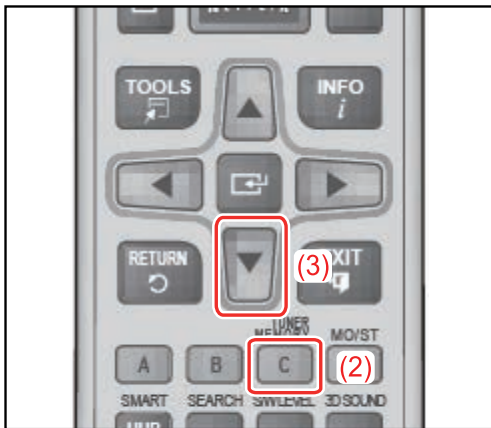
4.3. Buyer-Region Code Setting Method

4.3.1. Inserting the Region Code after replacing the Main PCB

NOTE

- When replacing the MAIN PCB Ass'y, system micom IC(UIC1) should have proper region code.
- The Set is not working properly if you don't insert Region code.
- The region code can be inserted by the remote control.

- 1) Change function mode to "AUX".
- 2) Press and hold "Tuner Memory" on the remote control for 4-5 seconds.



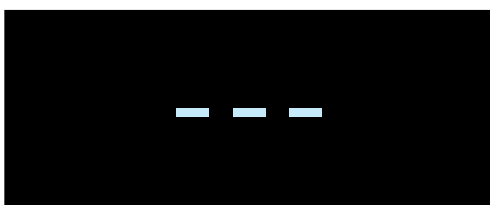
- 3) The VFD will now say "T-MODE", you must quickly press the "▼" button during T-Mode status.



- 4) The VFD will now say TEST -- , now insert 46.



- 5) The VFD will now read ---. Insert the correct Region code based on the table below.
Ex: For USA Buyers you will type in 0 2 0.



4. Troubleshooting

Table 4.1 HT-F45** 5.1CH DECK Option Table

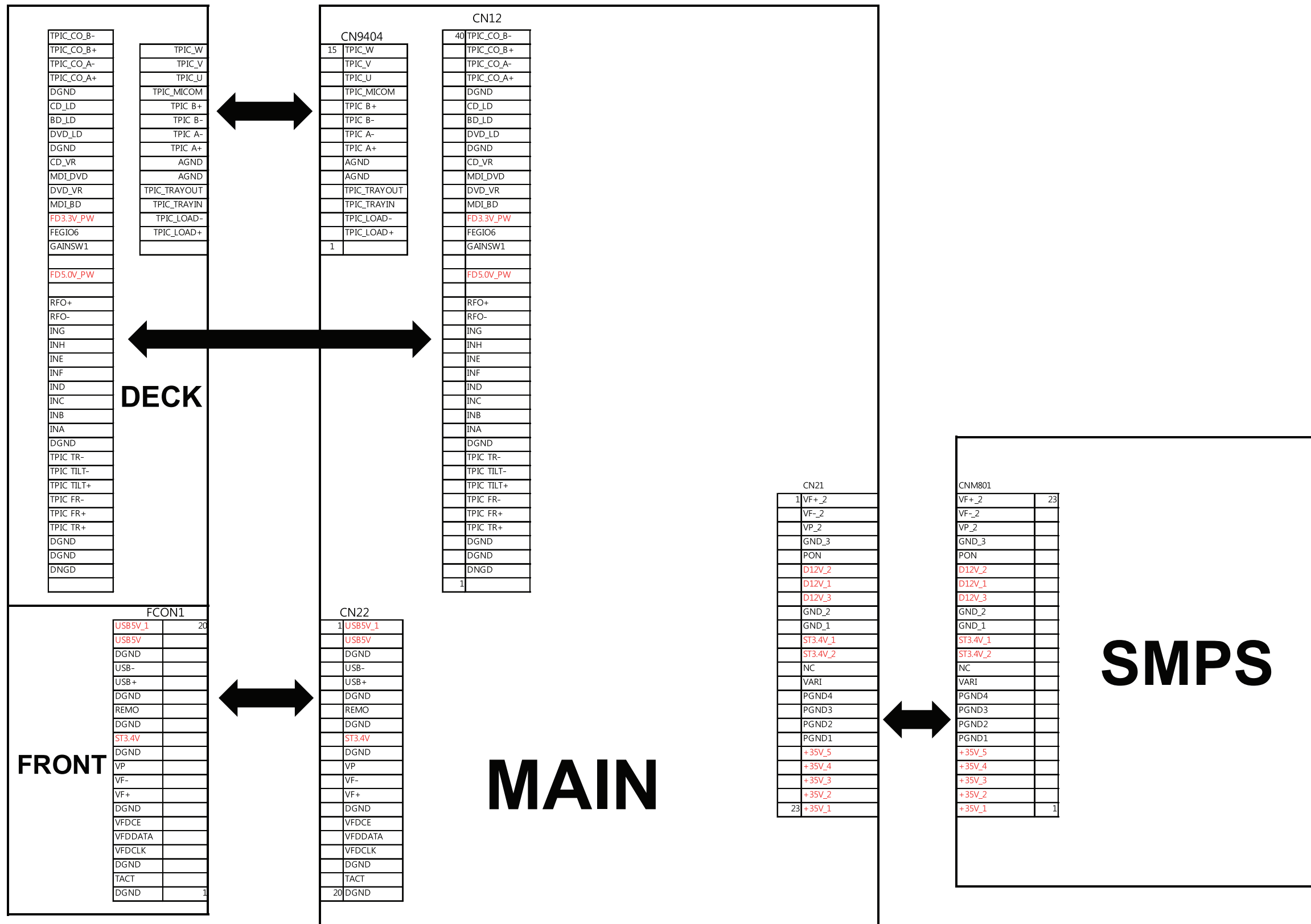
| Region Code | Area |
|-------------|---|
| 20 | USA (ZA) |
| 21 | CANADA (ZC) |
| 22 | MEXICO (ZX), PANAMA (ZP), COLOMBIA (ZL), Peru (PE), Chile (ZS), Paraguay, Uruguay, Argentina, BRAZIL (ZD) |
| 23 | France, Italy, Spain, Portugal, Netherlands, UK, Sweden, Turkey, Germany, Austria, Greece, Poland, Hungary, Rumania, Baltic |
| 024 | Russia, Ukraine |
| 025 | AUSTRALIA, NEWZILAND (XY) |
| 026 | SINGAPORE, VIETNAM (XS), INDONESIA (XD), MALAYSIA (XM), THAILAND (XT), Philippine (XP) |
| 027 | CHINA (XZ) |
| 028 | HONGKONG (ZK), TAIWAN (ZW) |
| 029 | KOREA (KR) |
| 030 | IRAN (HC), Arab-Emirate (D), Jordan (J), Tunis (H), Egypt, Iraq, Syria, Lebanon, Israel, Algeria, Saudi Arabia |
| 031 | Ethiopia, South Africa, Nigeria, Kenya, Sudan |

Table 4.2 HT-F42** 2.1CH DECK Option Table

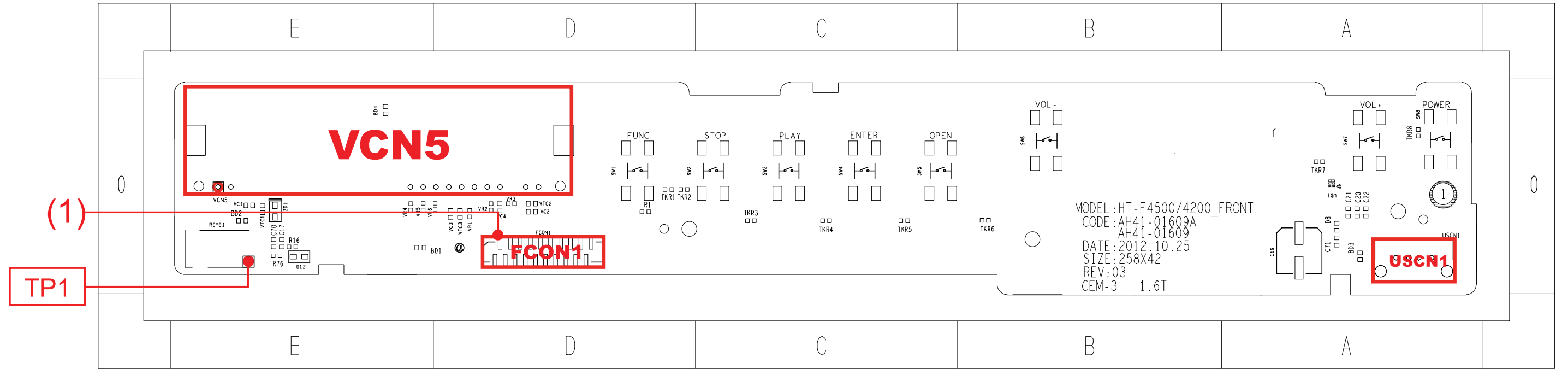
| Region Code | Area |
|-------------|---|
| 040 | USA (ZA) |
| 041 | CANADA (ZC) |
| 042 | MEXICO (ZX), PANAMA (ZP), COLOMBIA (ZL), Peru (PE), Chile (ZS), Paraguay, Uruguay, Argentina, BRAZIL (ZD) |
| 043 | France, Italy, Spain, Portugal, Netherlands, UK, Sweden, Turkey, Germany, Austria, Greece, Poland, Hungary, Rumania, Baltic |
| 044 | Russia, Ukraine |
| 045 | AUSTRALIA, NEWZILAND (XY) |
| 046 | SINGAPORE, VIETNAM (XS), INDONESIA (XD), MALAYSIA (XM), THAILAND (XT), Philippine (XP) |
| 047 | CHINA (XZ) |
| 048 | HONGKONG (ZK), TAIWAN (ZW) |
| 049 | KOREA (KR) |
| 050 | IRAN (HC), Arab-Emirate (D), Jordan (J), Tunis (H), Egypt, Iraq, Syria, Lebanon, Israel, Algeria, Saudi Arabia |
| 051 | Ethiopia, South Africa, Nigeria, Kenya, Sudan |

5. PCB Diagram

5.1. Wiring Diagram



5.2. FRONT PCB Top



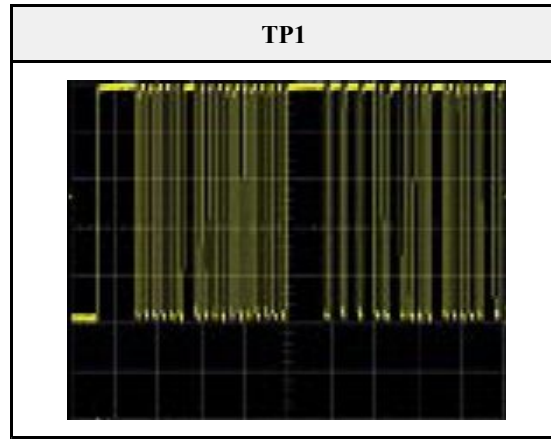
5.2.1. Pin Connection

1) FCON1

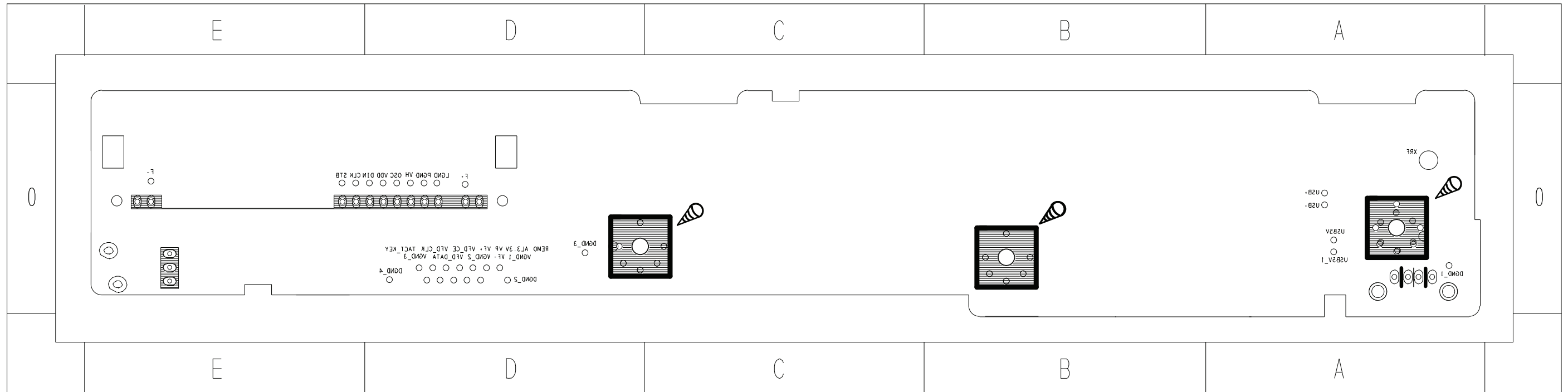
VFD/REMOTE Control IR

| Pin No. | Signal |
|---------|---------|
| 1 | USB5V_1 |
| 2 | USB5V |
| 3 | DGND |
| 4 | USB- |
| 5 | USB+ |
| 6 | DGND |
| 7 | REMO |
| 8 | DGND |
| 9 | ST3.4V |
| 10 | DGND |
| 11 | VP |
| 12 | VF- |
| 13 | VF+ |
| 14 | DGND |
| 15 | VFDCE |
| 16 | VFDATA |
| 17 | VFDCLK |
| 18 | DGND |
| 19 | TACT |
| 20 | DGND |

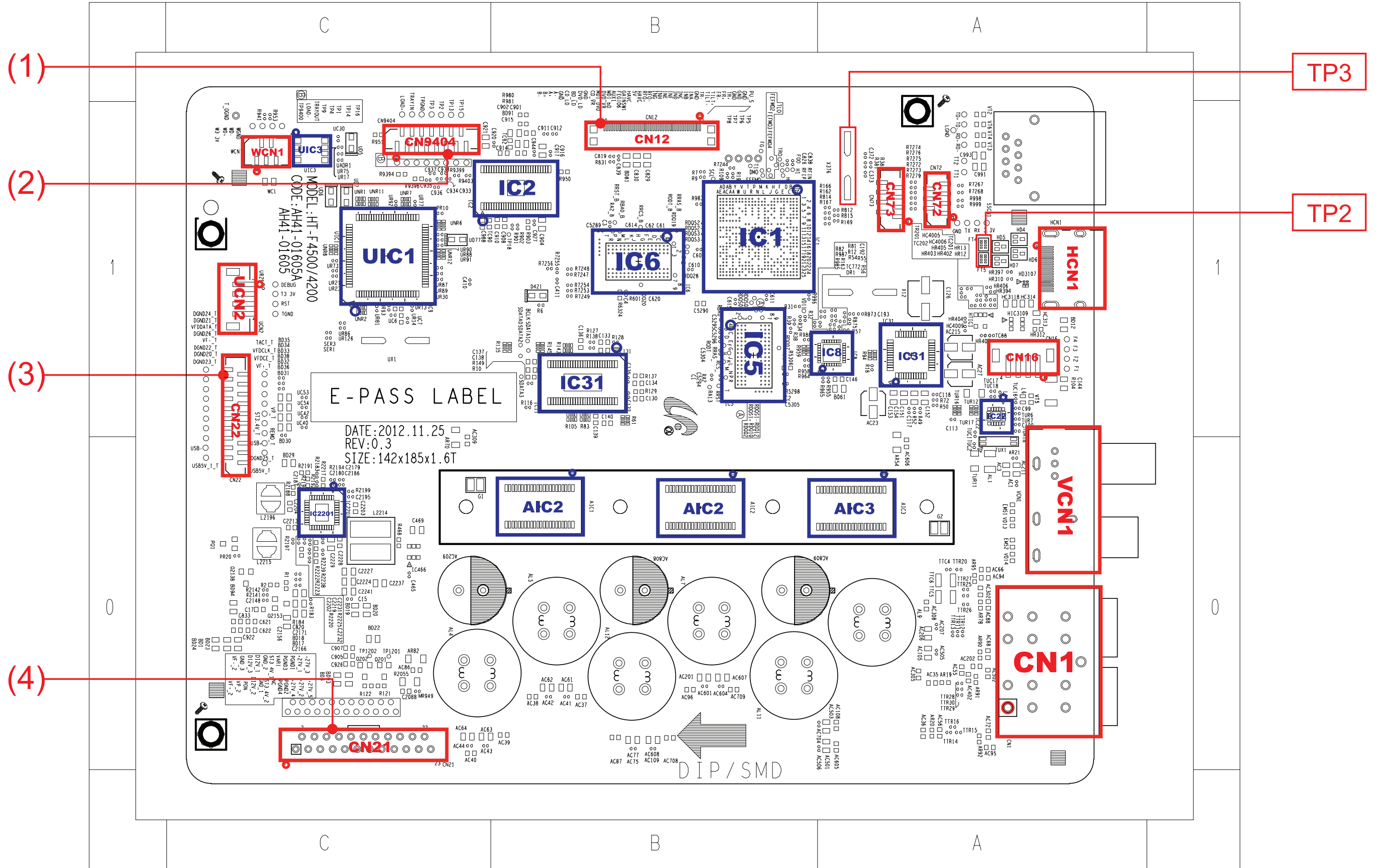
5.2.2. Test Point Wave Form



5.3. FRONT PCB Bottom



5.4. MAIN PCB Top



5.4.1. Pin Connection

1) CN12

Deck Pickup Connector

| Pin No. | Signal |
|---------|------------|
| 1 | |
| 2 | DNGD |
| 3 | DGND |
| 4 | DGND |
| 5 | TPIC TR+ |
| 6 | TPIC FR+ |
| 7 | TPIC FR- |
| 8 | TPIC TILT+ |
| 9 | TPIC TILT- |
| 10 | TPIC TR- |
| 11 | DGND |
| 12 | INA |
| 13 | INB |
| 14 | INC |
| 15 | IND |
| 16 | INF |
| 17 | INE |
| 18 | INH |
| 19 | ING |
| 20 | RFO- |
| 21 | RFO+ |
| 22 | |
| 23 | FD5.0V_PW |
| 24 | |
| 25 | GAINSW1 |

| Pin No. | Signal |
|---------|------------|
| 26 | FEGIO6 |
| 27 | FD3.3V_PW |
| 28 | MDI_BD |
| 29 | DVD_VR |
| 30 | MDI_DVD |
| 31 | CD_VR |
| 32 | DGND |
| 33 | DVD_LD |
| 34 | BD_LD |
| 35 | CD_LD |
| 36 | DGND |
| 37 | TPIC_CO_A+ |
| 38 | TPIC_CO_A- |
| 39 | TPIC_CO_B+ |
| 40 | TPIC_CO_B- |

2) CN9404

Deck Motor Connector

| Pin No. | Signal |
|---------|--------------|
| 1 | |
| 2 | TPIC_LOAD+ |
| 3 | TPIC_LOAD- |
| 4 | TPIC_TRAYIN |
| 5 | TPIC_TRAYOUT |
| 6 | AGND |
| 7 | AGND |
| 8 | TPIC A+ |
| 9 | TPIC A- |
| 10 | TPIC B- |
| 11 | TPIC B+ |
| 12 | TPIC_MICOM |
| 13 | TPIC_U |
| 14 | TPIC_V |
| 15 | TPIC_W |

3) CN22

VFD/REMOTE Control IR

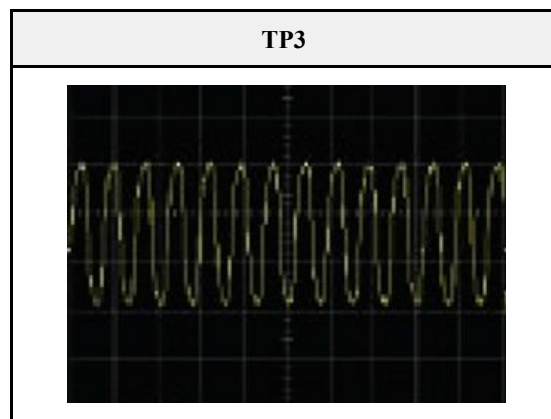
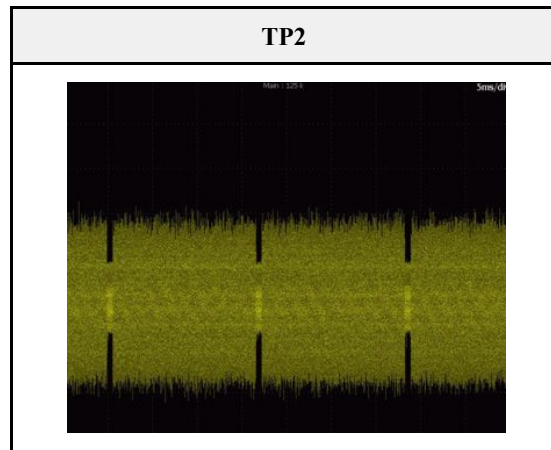
| Pin No. | Signal |
|---------|---------|
| 1 | USB5V_1 |
| 2 | USB5V |
| 3 | DGND |
| 4 | USB- |
| 5 | USB+ |
| 6 | DGND |
| 7 | REMO |
| 8 | DGND |
| 9 | ST3.4V |
| 10 | DGND |
| 11 | VP |
| 12 | VF- |
| 13 | VF+ |
| 14 | DGND |
| 15 | VFDCE |
| 16 | VFDATA |
| 17 | VFDCLK |
| 18 | DGND |
| 19 | TACT |
| 20 | DGND |

4) CN21

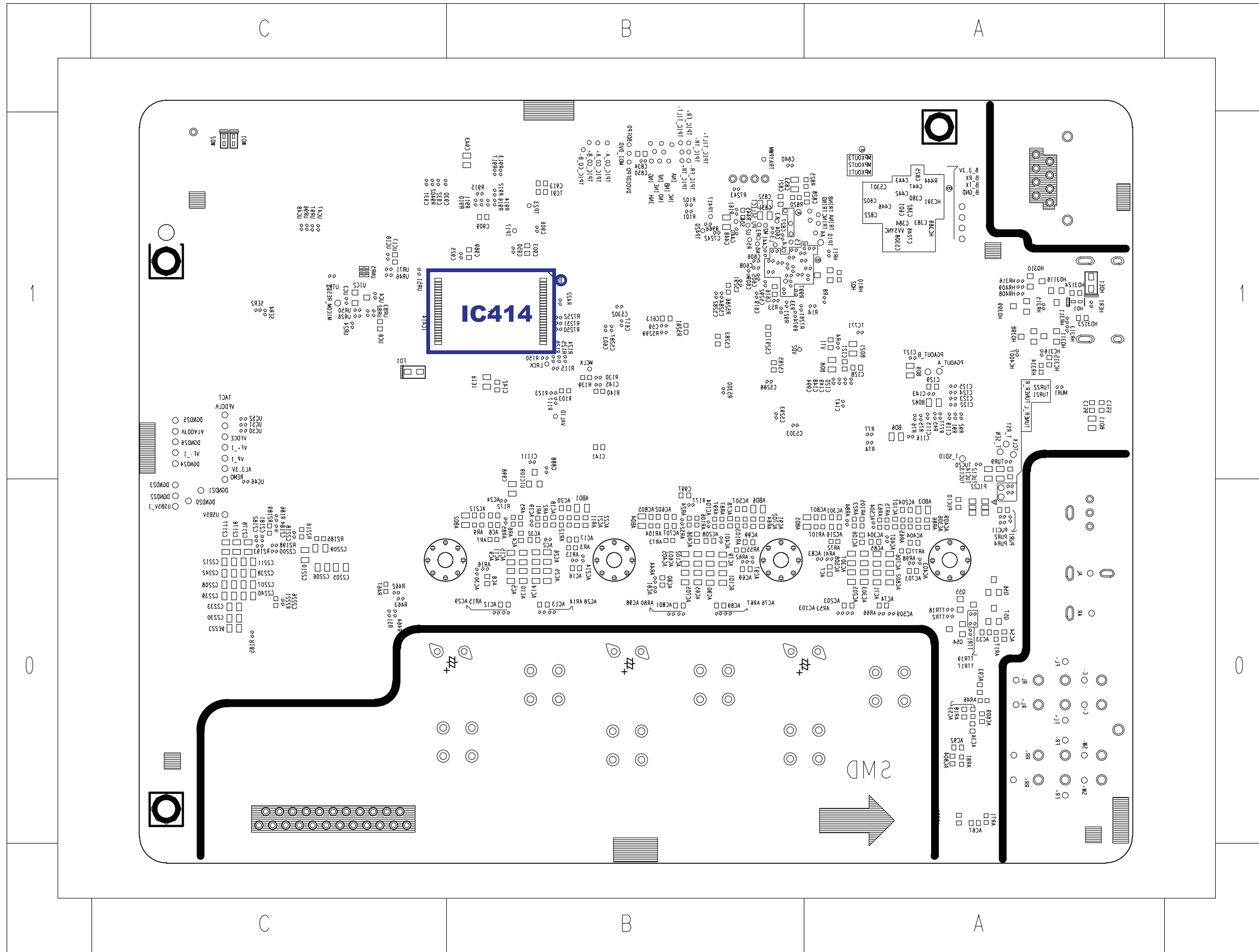
Power Connector

| Pin No. | Signal |
|---------|----------|
| 1 | VF+_2 |
| 2 | VF-_2 |
| 3 | VP_2 |
| 4 | GND_3 |
| 5 | PON |
| 6 | D12V_2 |
| 7 | D12V_1 |
| 8 | D12V_3 |
| 9 | GND_2 |
| 10 | GND_1 |
| 11 | ST3.4V_1 |
| 12 | ST3.4V_2 |
| 13 | NC |
| 14 | VARI |
| 15 | PGND4 |
| 16 | PGND3 |
| 17 | PGND2 |
| 18 | PGND1 |
| 19 | +35V_5 |
| 20 | +35V_4 |
| 21 | +35V_3 |
| 22 | +35V_2 |
| 23 | +35V_1 |

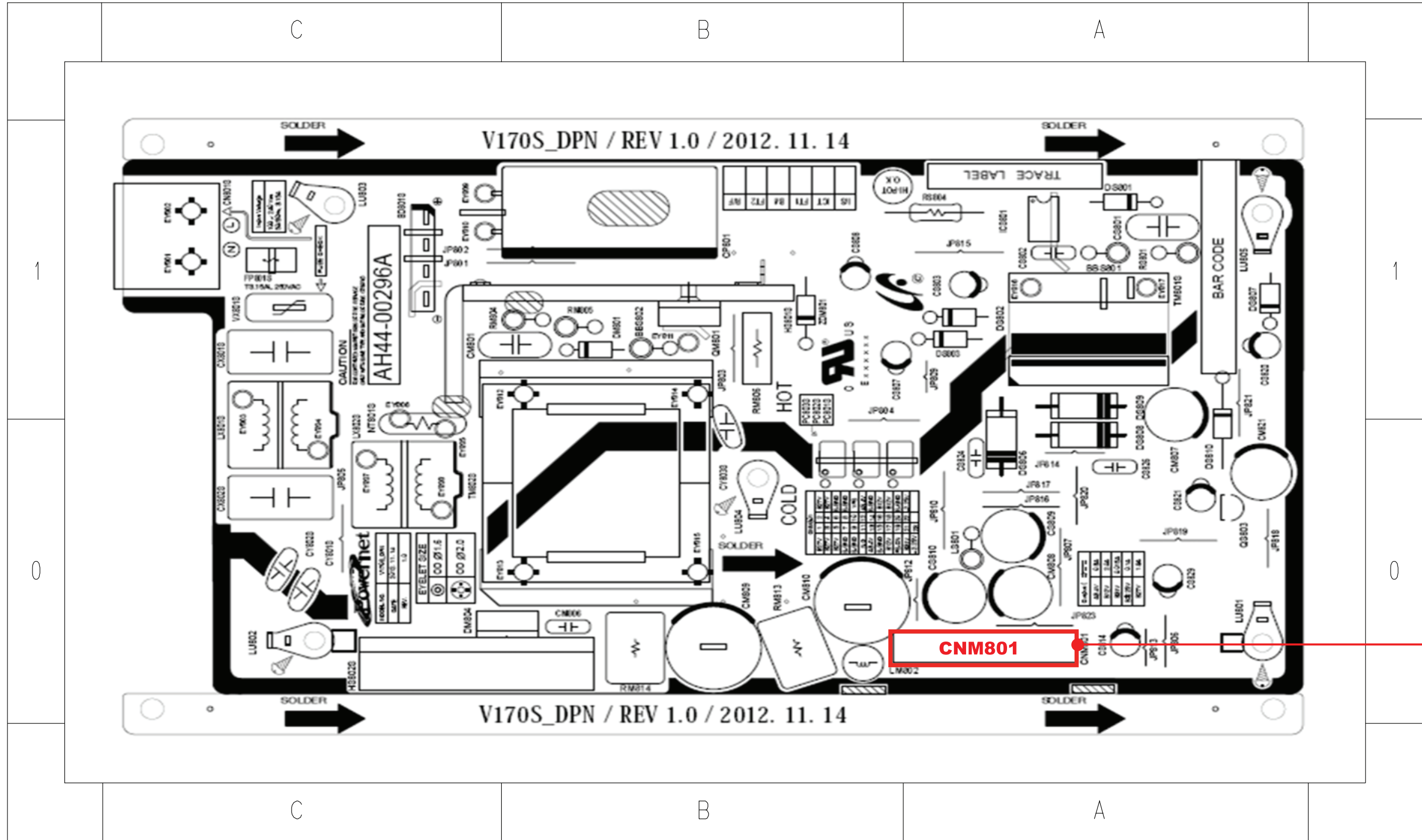
5.4.2. Test Point Wave Form



5.5. MAIN PCB Bottom



5.6. SMPS PCB Top



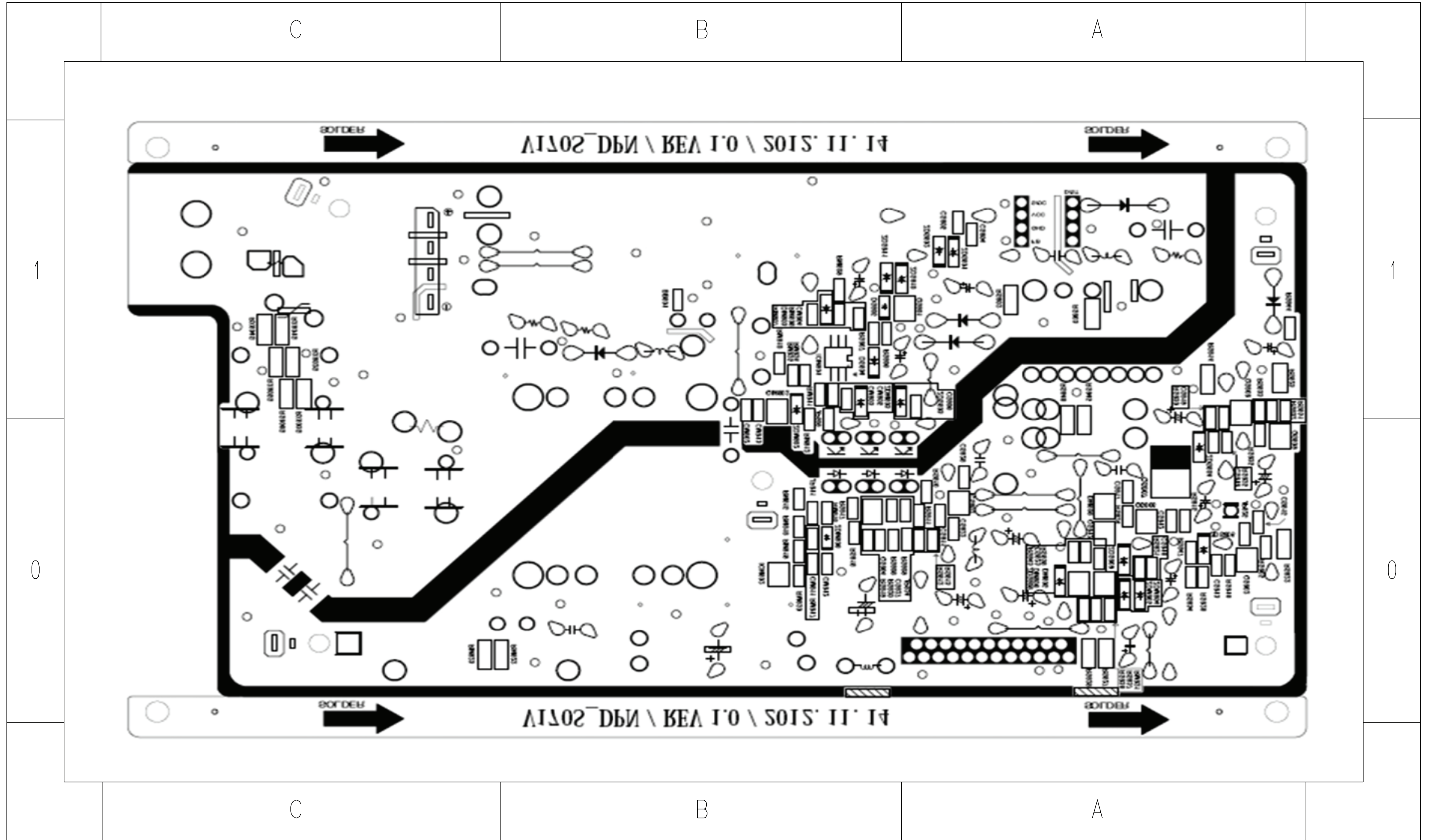
5.6.1. Pin Connection

1) CNM801

Power Connector

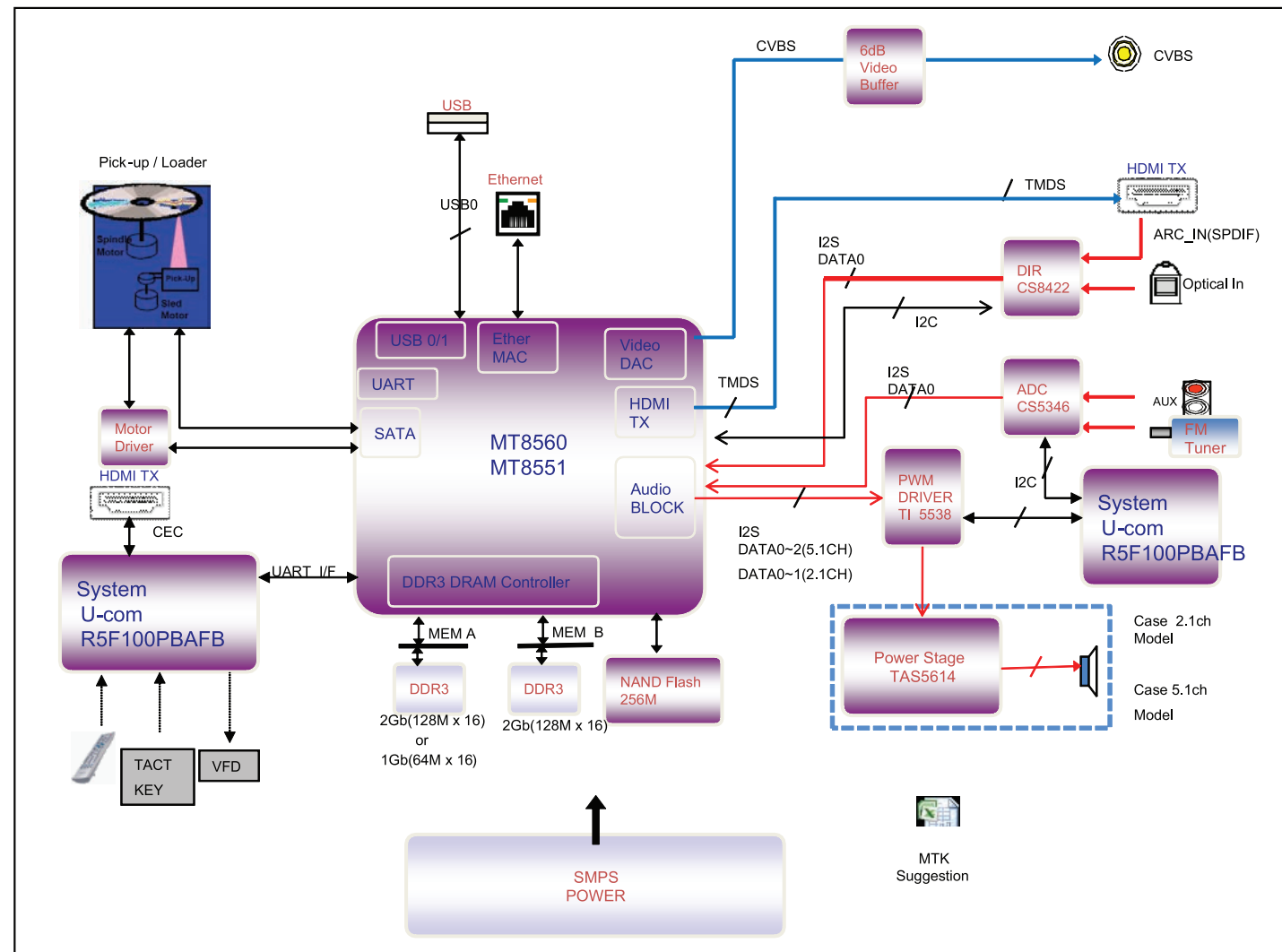
| Pin No. | Signal |
|---------|----------|
| 1 | VF+_2 |
| 2 | VF-_2 |
| 3 | VP_2 |
| 4 | GND_3 |
| 5 | PON |
| 6 | D12V_2 |
| 7 | D12V_1 |
| 8 | D12V_3 |
| 9 | GND_2 |
| 10 | GND_1 |
| 11 | ST3.4V_1 |
| 12 | ST3.4V_2 |
| 13 | NC |
| 14 | VARI |
| 15 | PGND4 |
| 16 | PGND3 |
| 17 | PGND2 |
| 18 | PGND1 |
| 19 | +35V_5 |
| 20 | +35V_4 |
| 21 | +35V_3 |
| 22 | +35V_2 |
| 23 | +35V_1 |

5.7. SMPS PCB Bottom



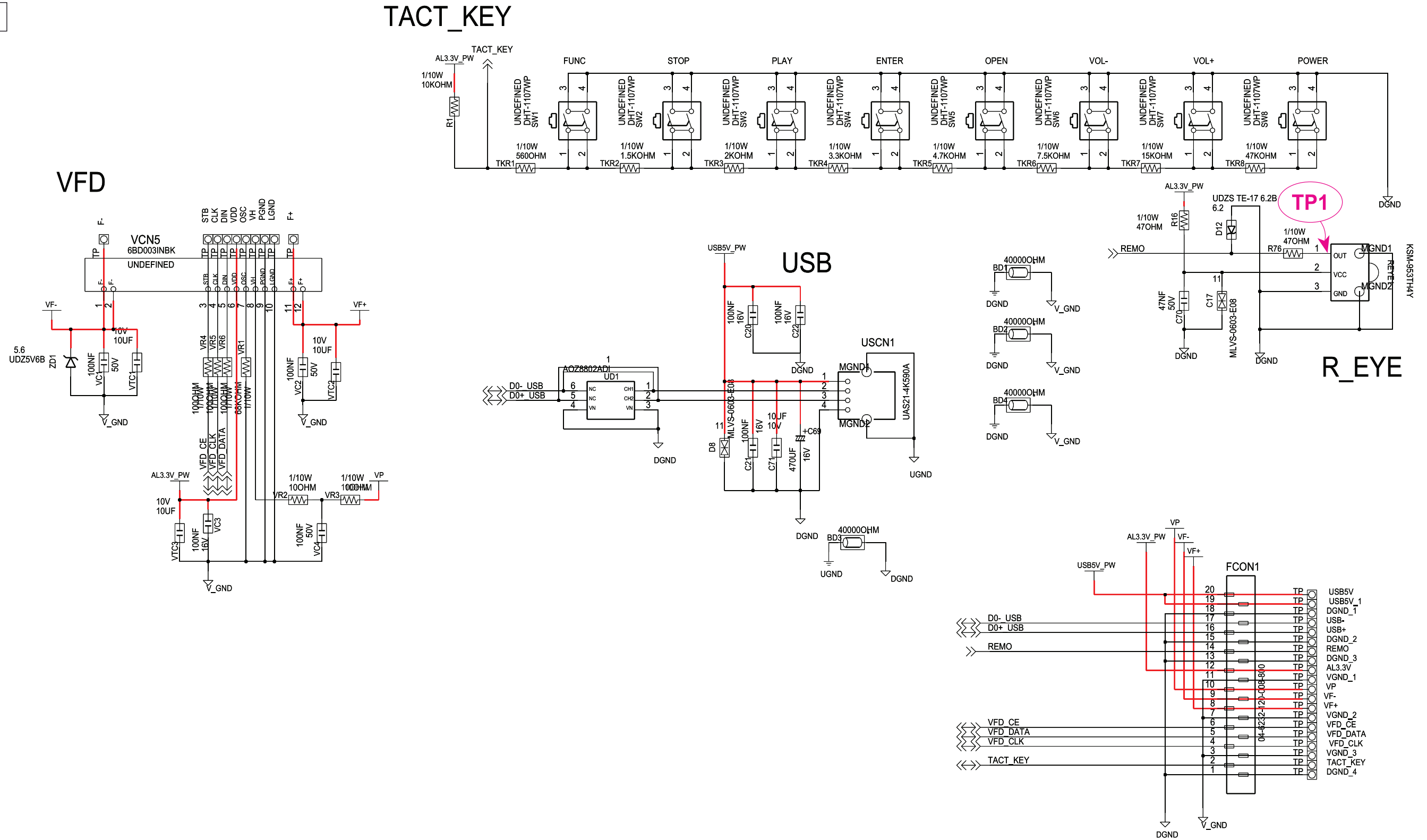
6. Schematic Diagram

6.1. Overall Block Diagram

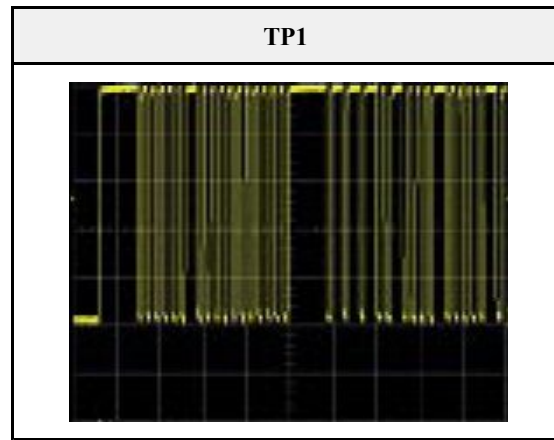


- From DISC, RF signal is transmitted to BACKEND MT8560. The decoder MT8560 decodes the RF signal to VIDEO and AUDIO data.
- HT-F4500 model supports 1 USB port. It is for USB file play like MP3, JPG and etc.
- About MT8560 Audio output, I2S datas go PWM IC(TAS5538) to convert PWM signals and then go to AMP IC (TAS5614). And then all of channel audio datas passed by AMP IC are amplified out to Speaker by passing through LPF.

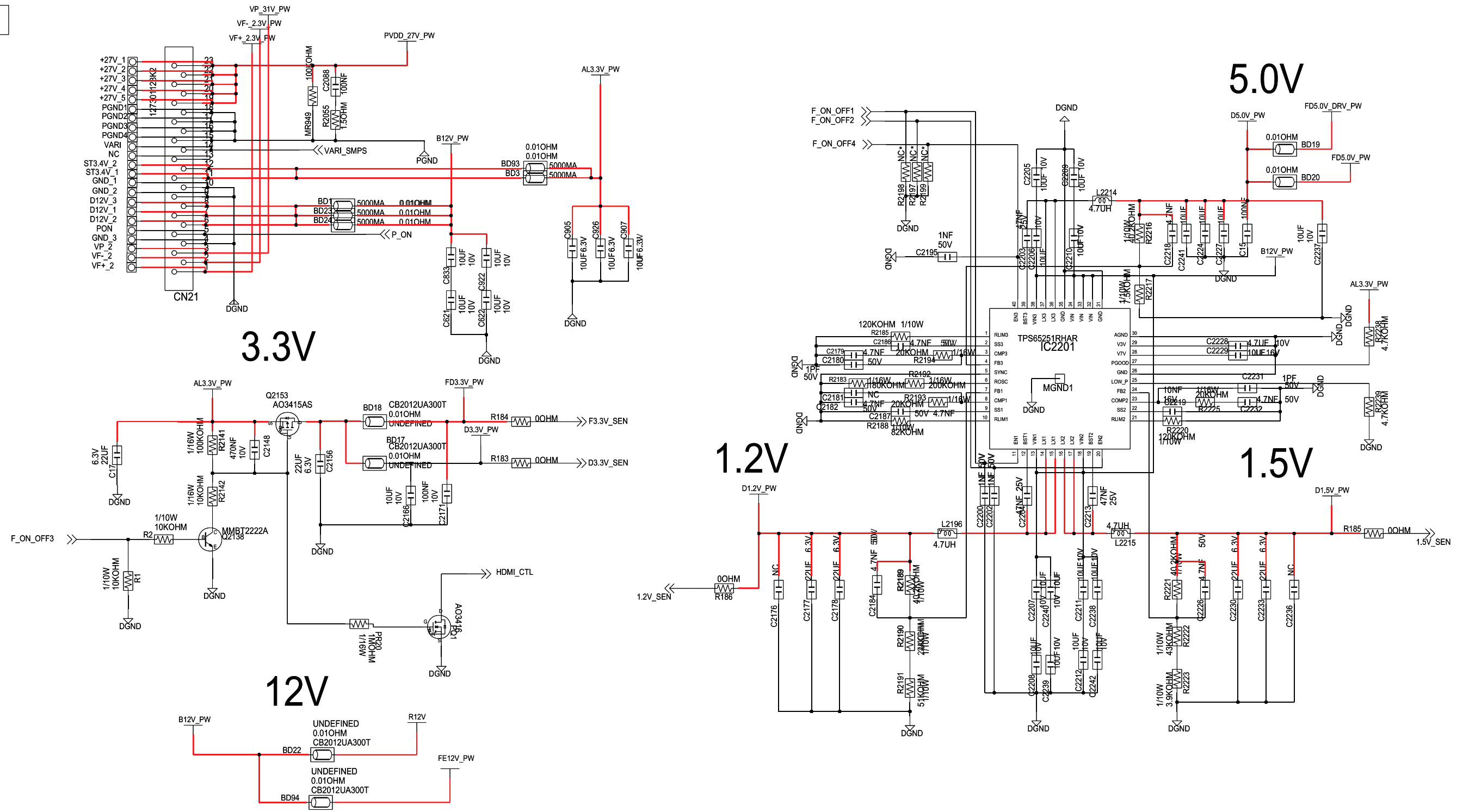
6.2. FRONT



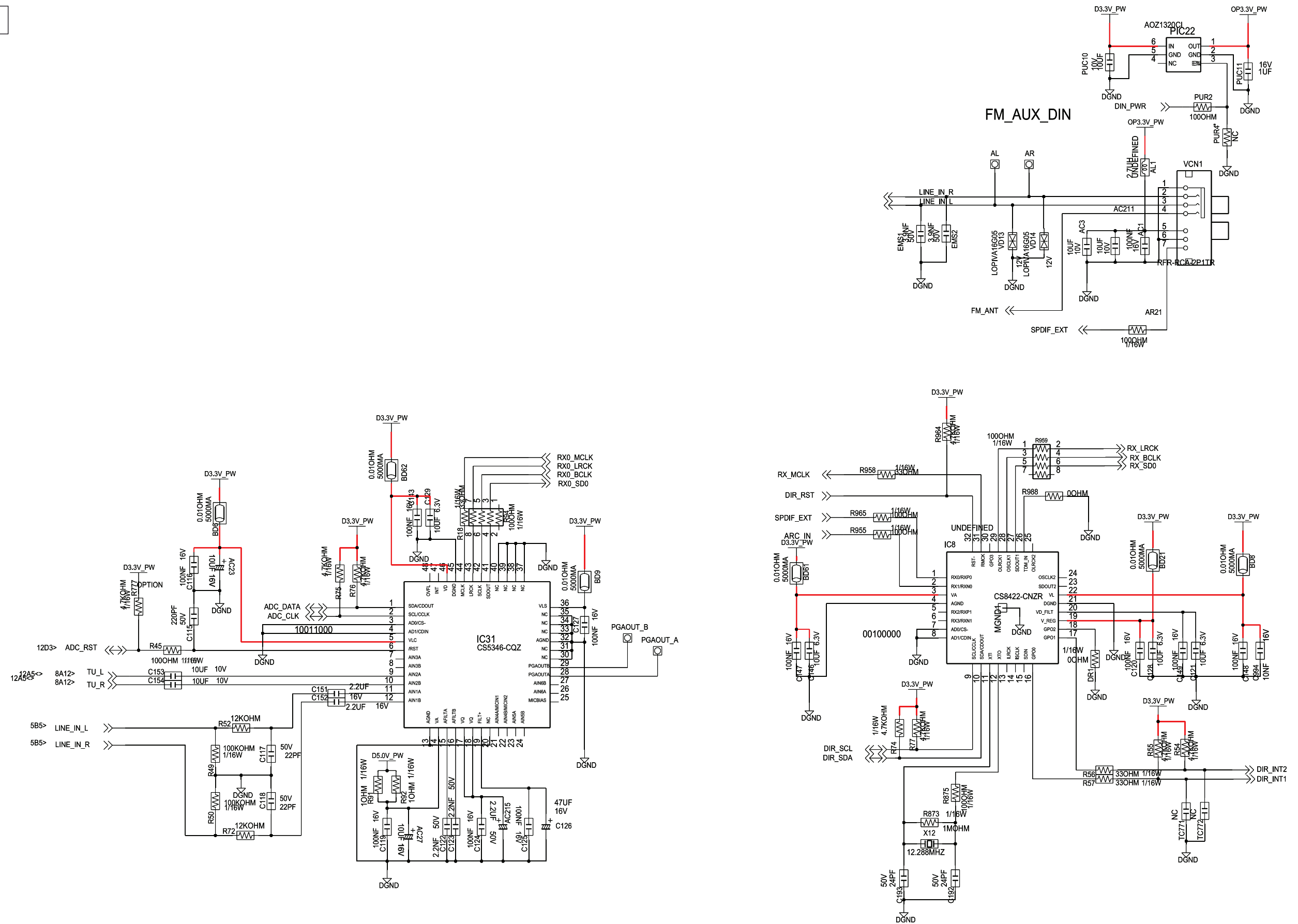
6.2.1. Test Point Wave Form



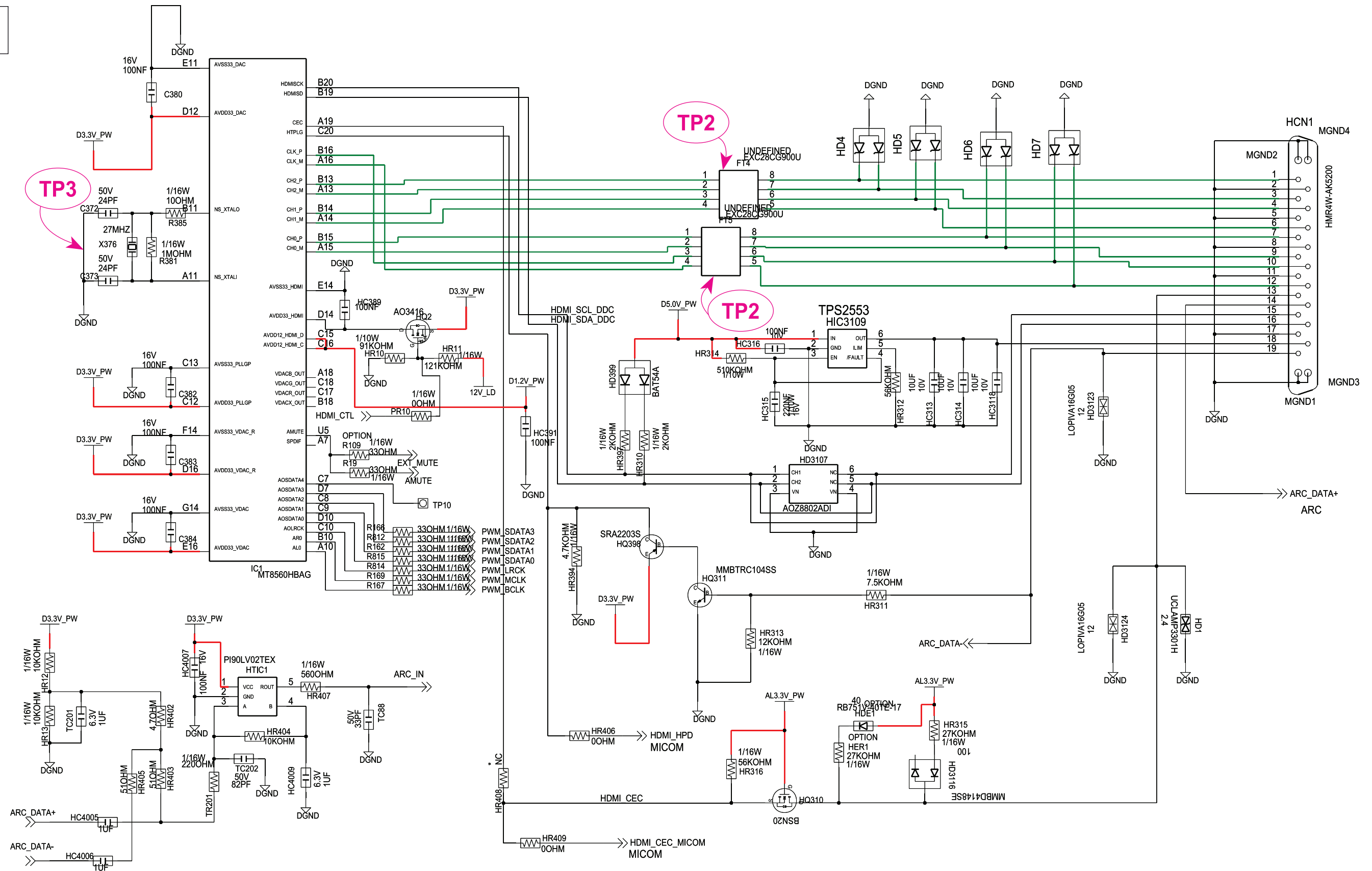
6.3. DC-DC POWER



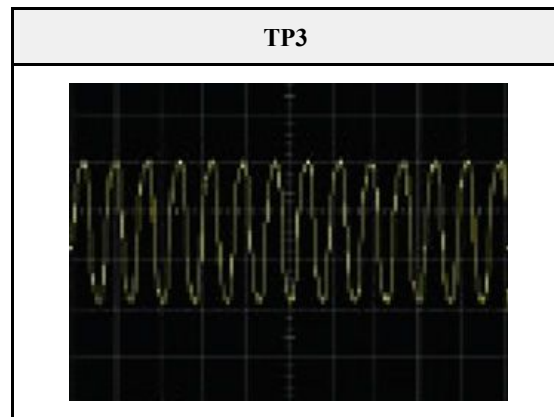
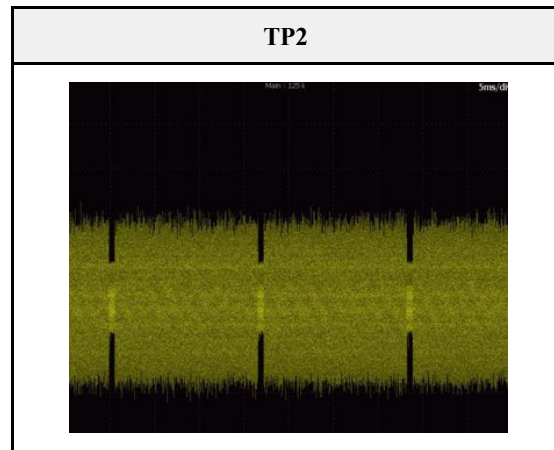
6.4. DIR/ADC/VIDEO



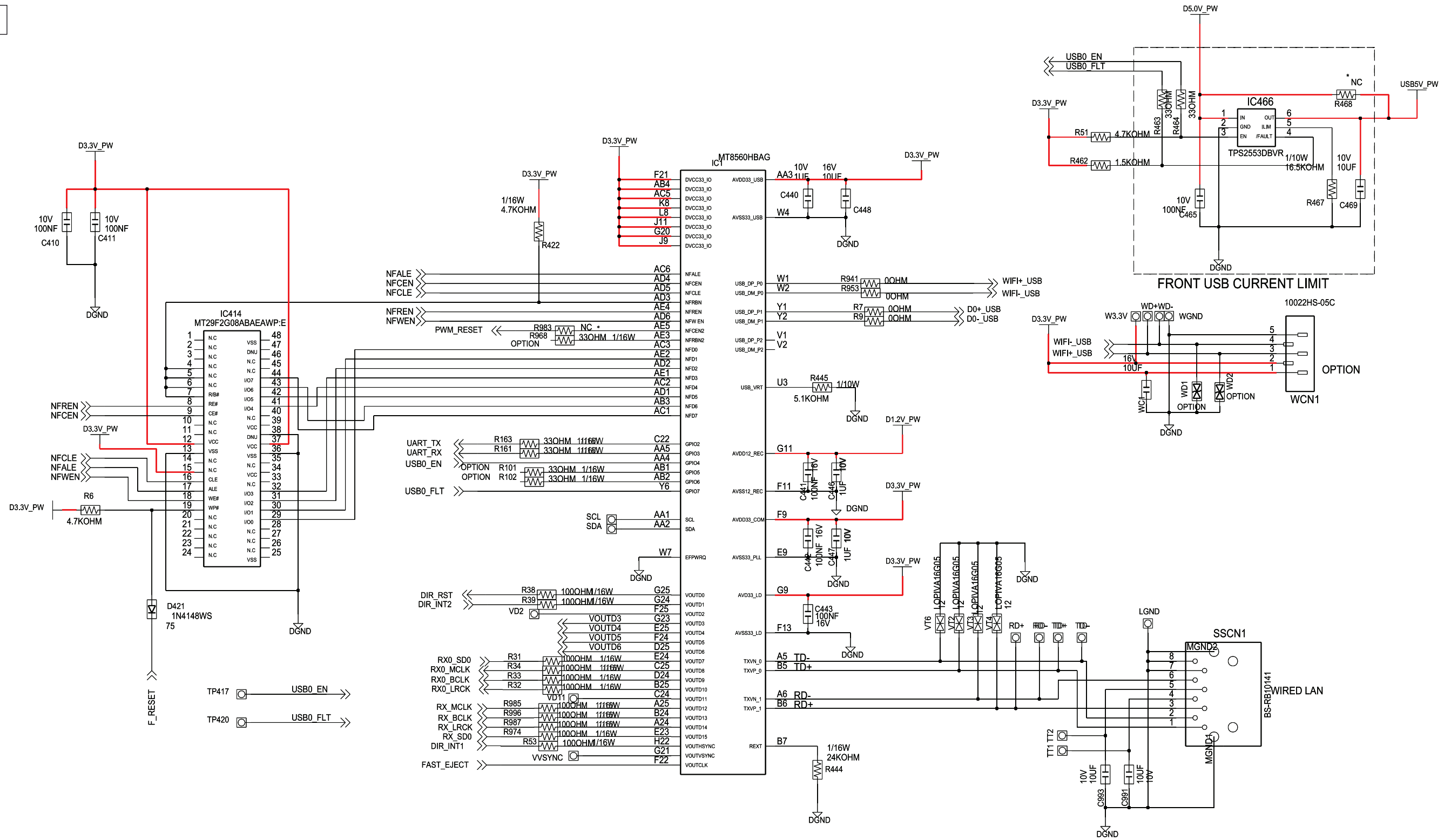
6.5. HDMI/ARC



6.5.1. Test Point Wave Form

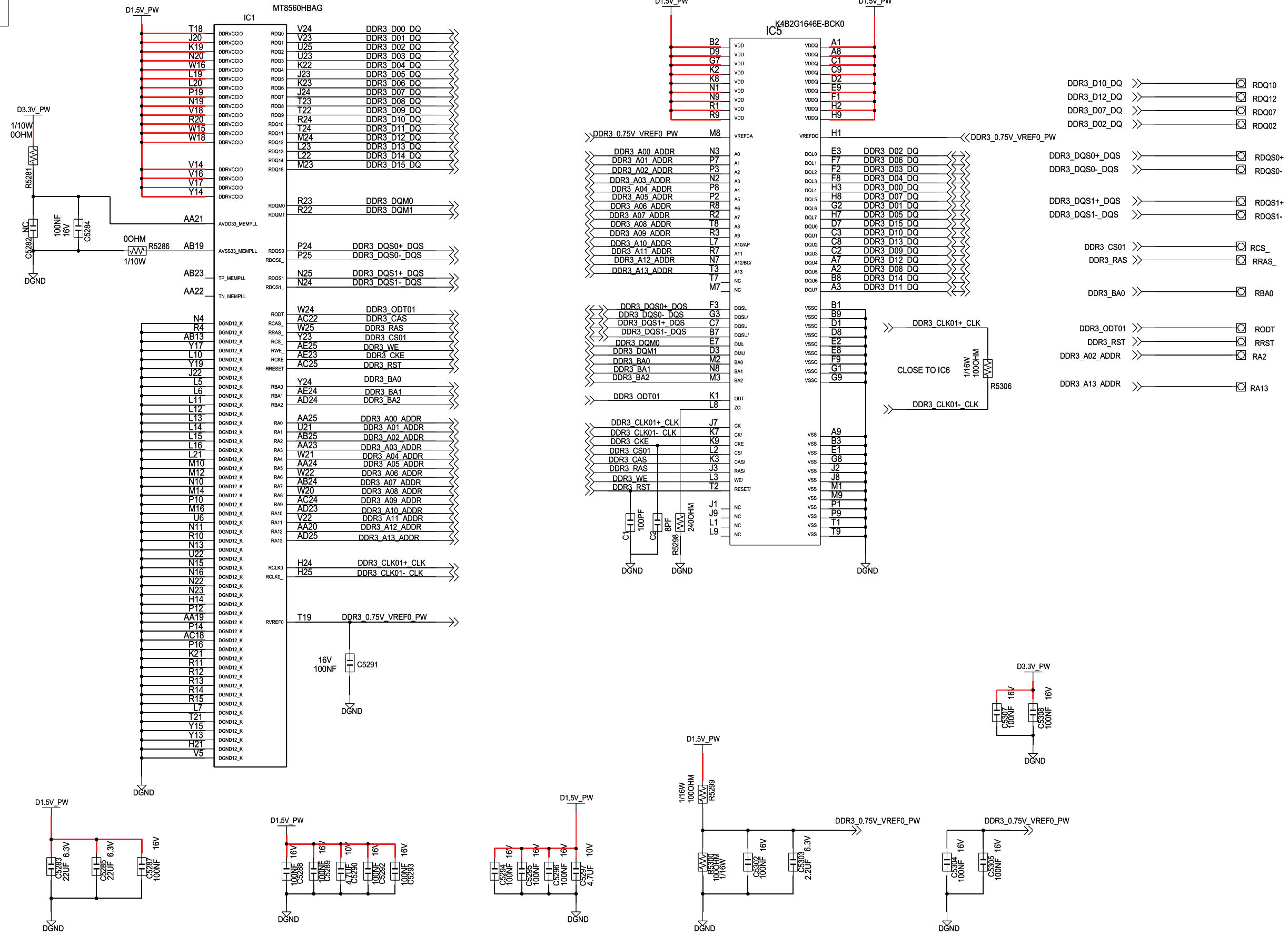


6.6. NAND/ETHERNET/USB



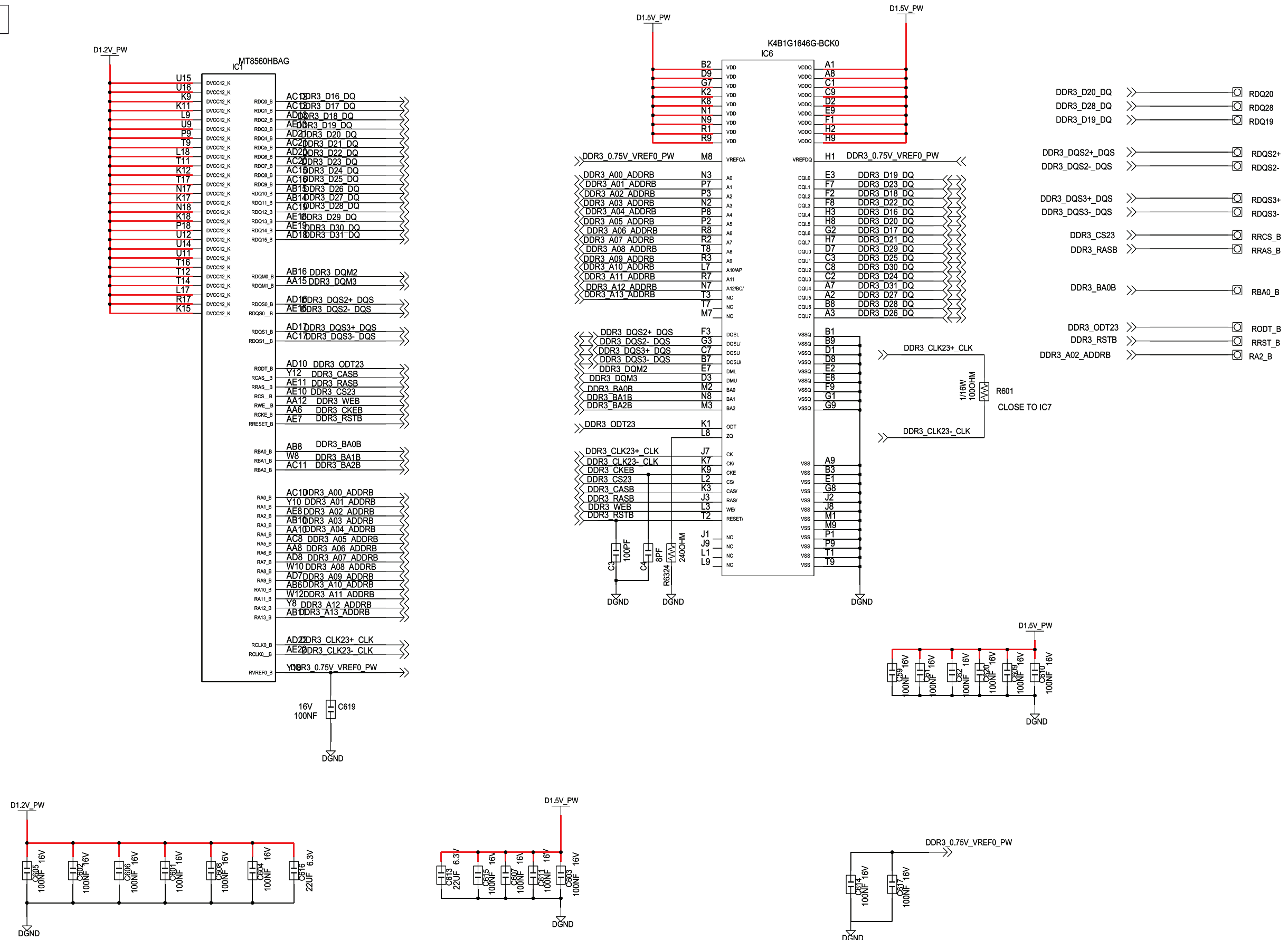
6.7. DDR3 BANK#0

POWER

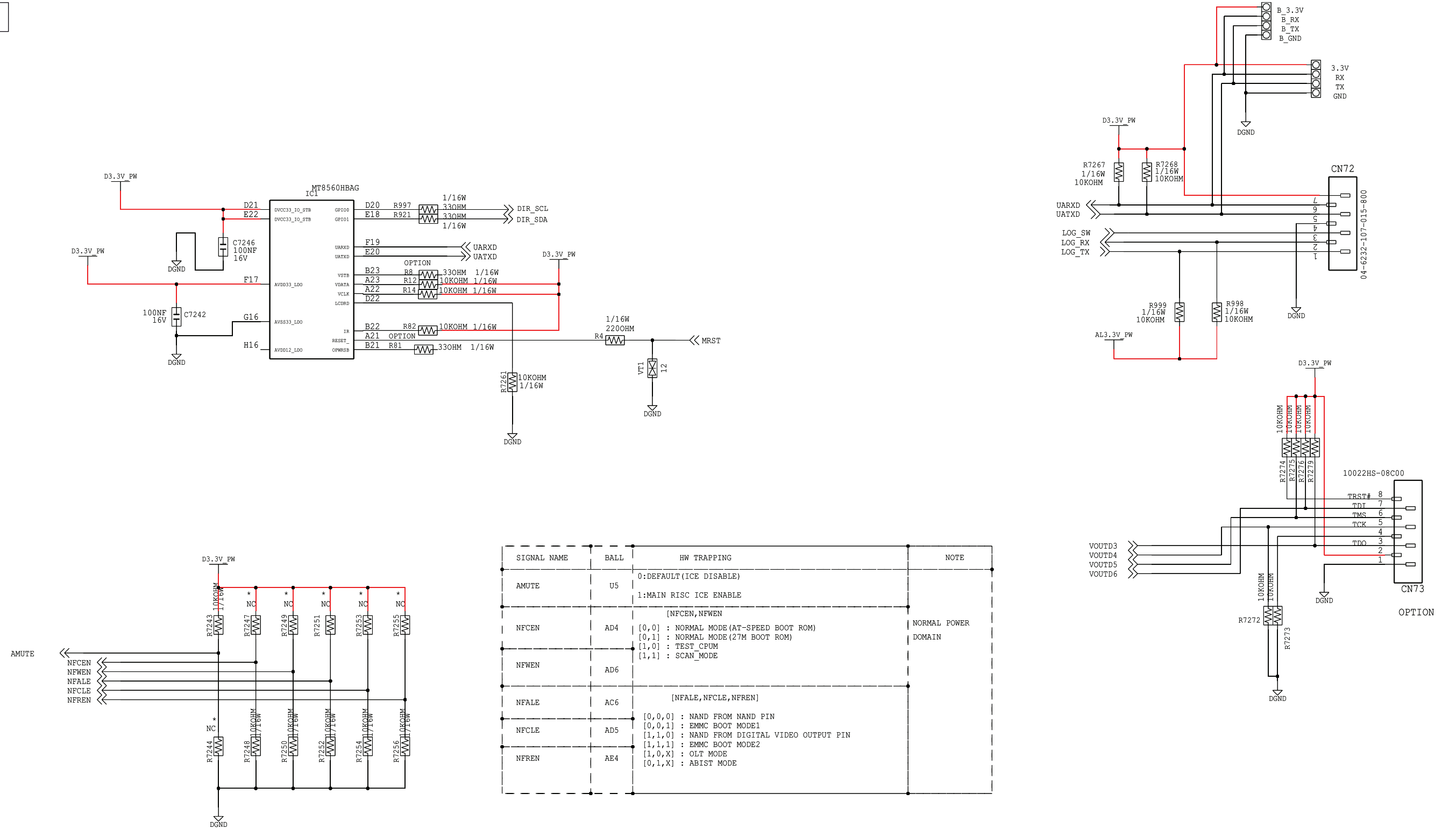


6.8. DDR3 BANK#1

POWER

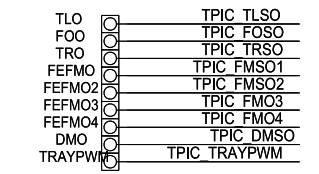
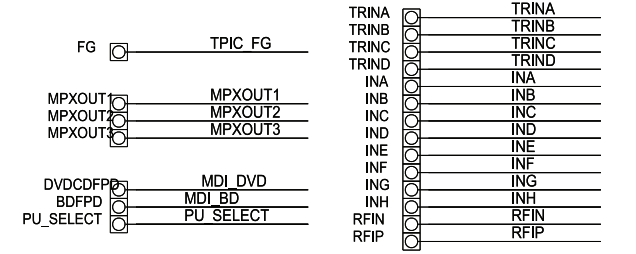
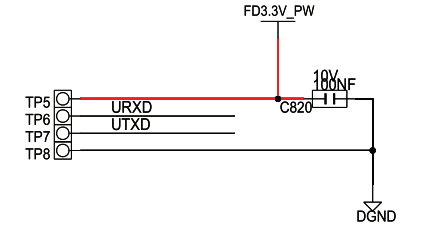
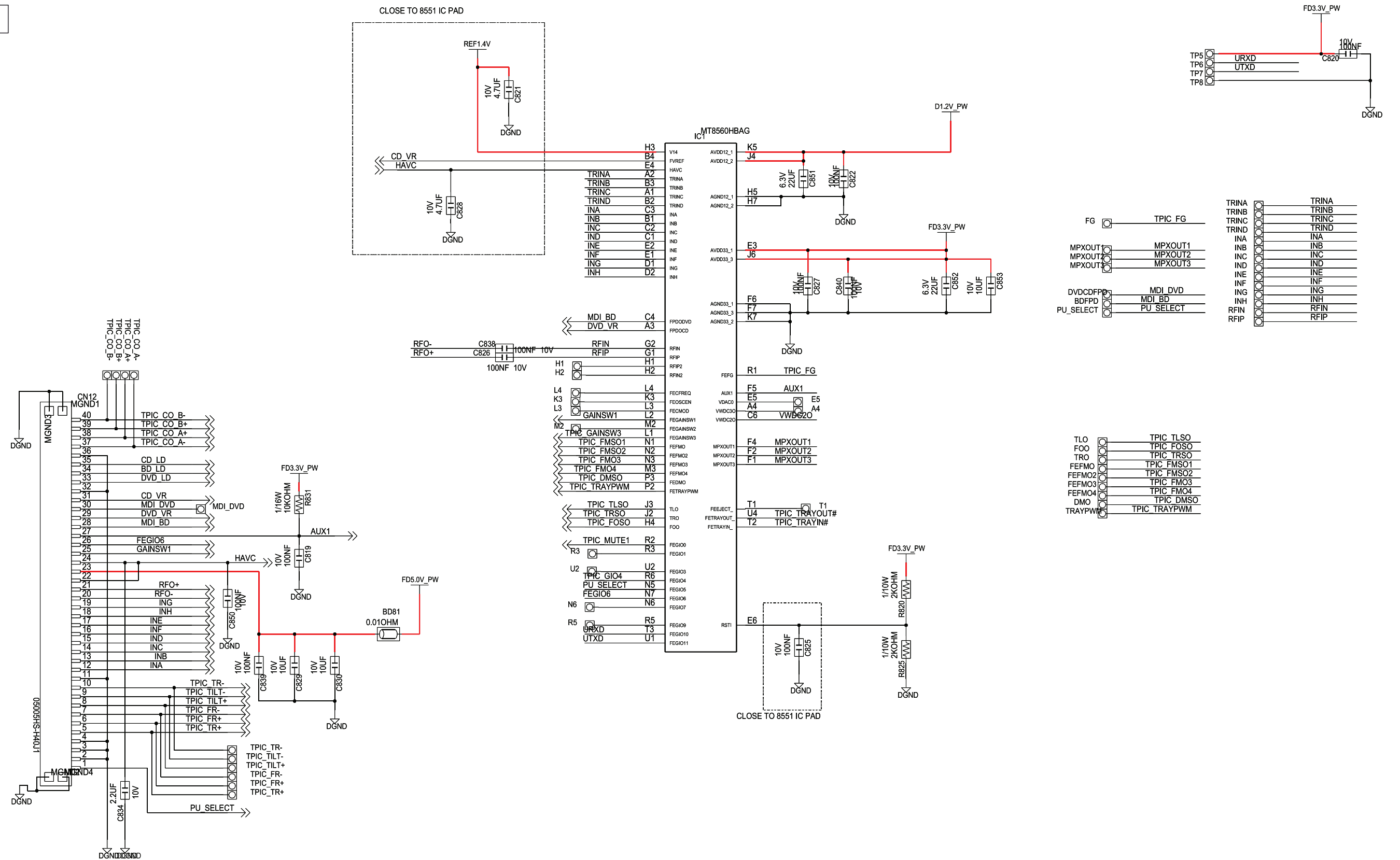


6.9. MISC/UART/STRAP

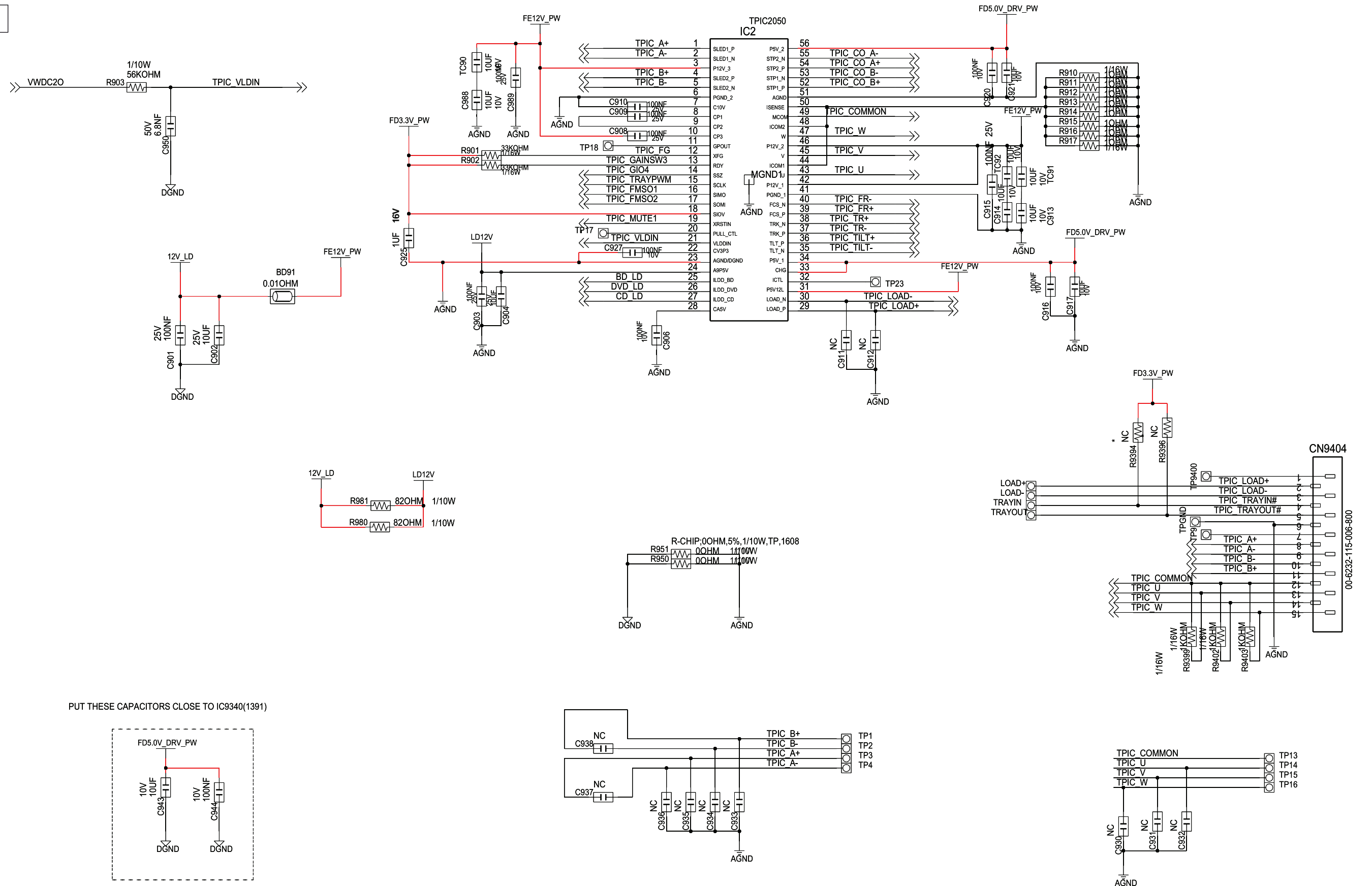


| SIGNAL NAME | BALL | HW TRAPPING | NOTE |
|-------------|------|---|---------------------|
| AMUTE | U5 | 0:DEFAULT (ICE DISABLE) 1:MAIN RISC ICE ENABLE | |
| NFCEN | AD4 | [NFCEN,NFWEN] [0,0] : NORMAL MODE (AT-SPEED BOOT ROM) [0,1] : NORMAL MODE (27M BOOT ROM) | NORMAL POWER DOMAIN |
| NFWEN | AD6 | [1,0] : TEST_CPUM [1,1] : SCAN_MODE | |
| NFALE | AC6 | [NFALE,NFCLE,NFREN] | |
| NFCLE | AD5 | [0,0,0] : NAND FROM NAND PIN [0,0,1] : EMMC BOOT MODE1 [1,1,0] : NAND FROM DIGITAL VIDEO OUTPUT PIN | |
| NFREN | AE4 | [1,1,1] : EMMC BOOT MODE2 [1,0,X] : OLT MODE [0,1,X] : ABIST MODE | |

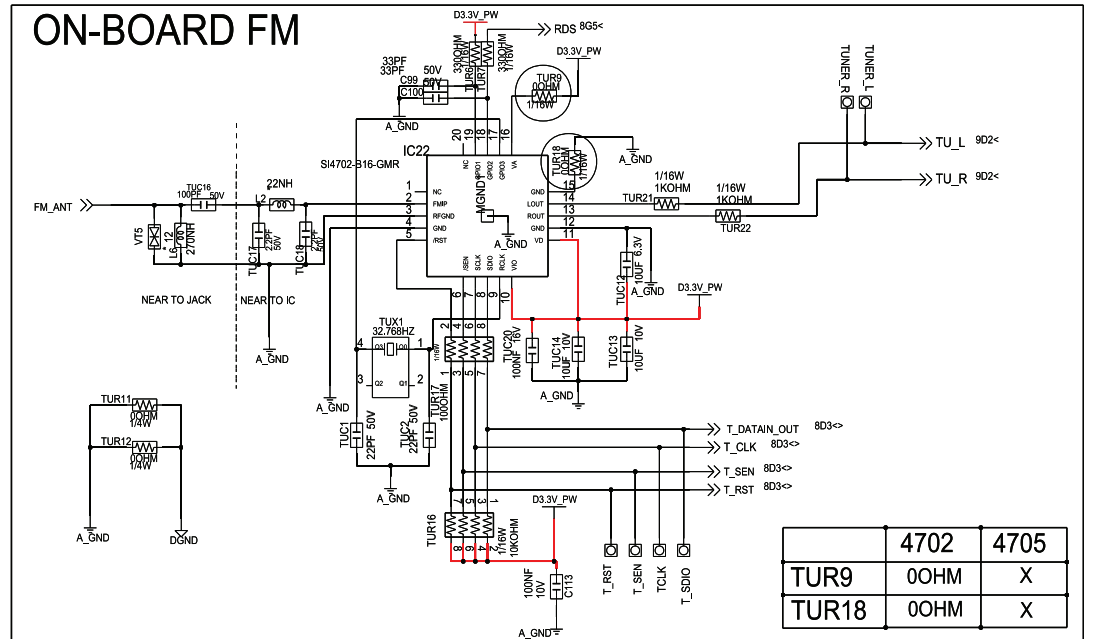
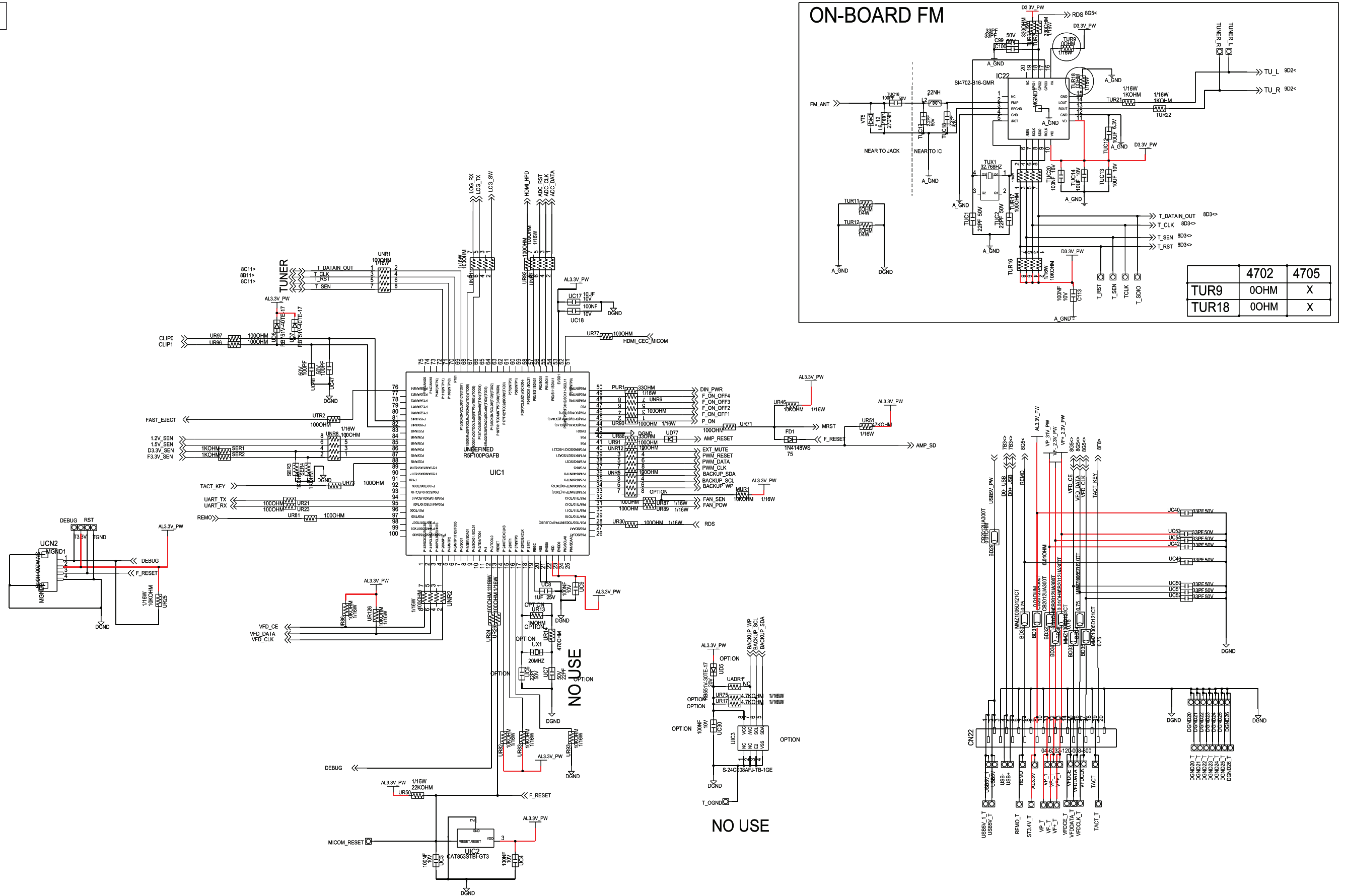
6.10. F/E-1



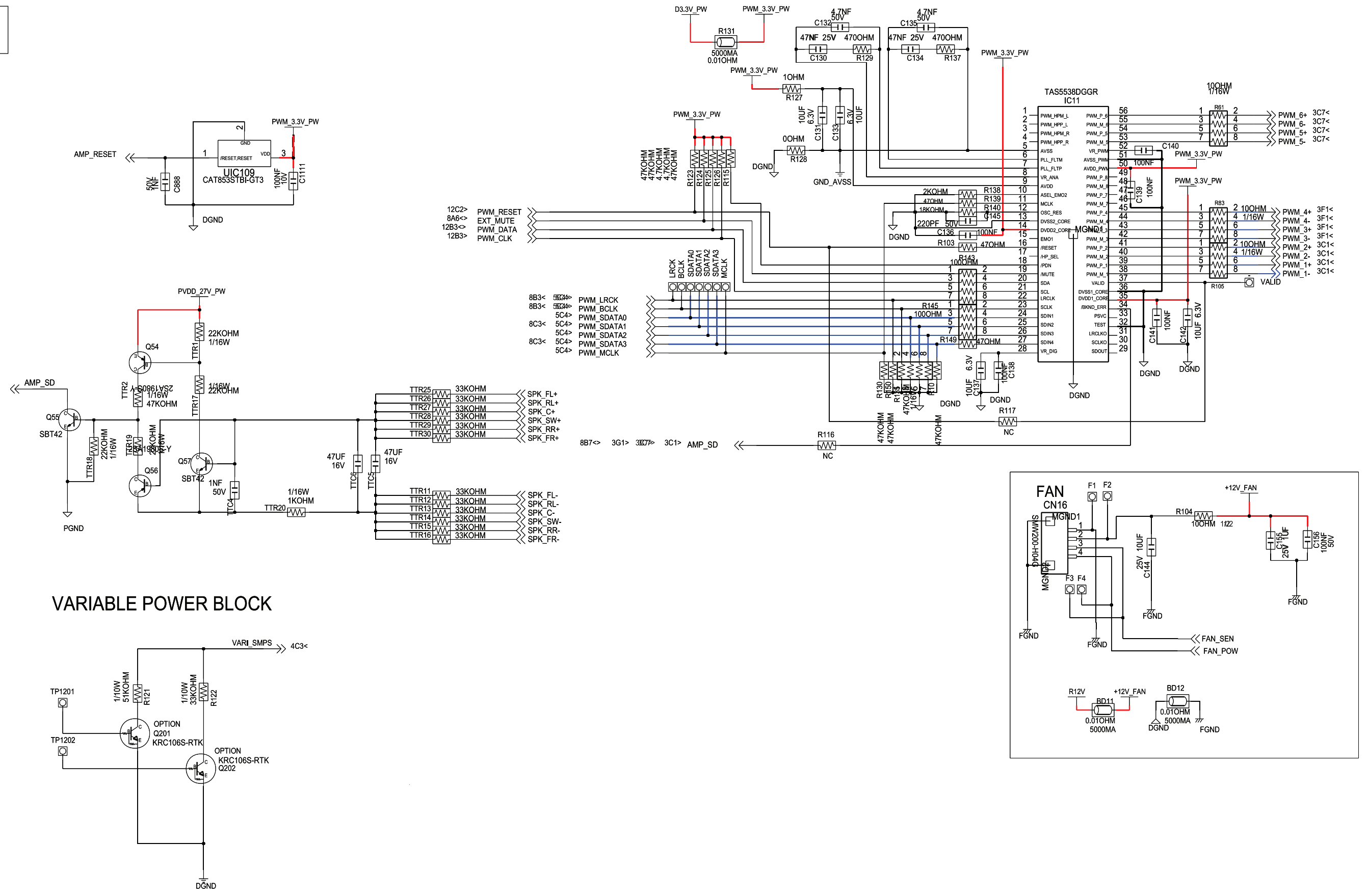
6.11. F/E-2



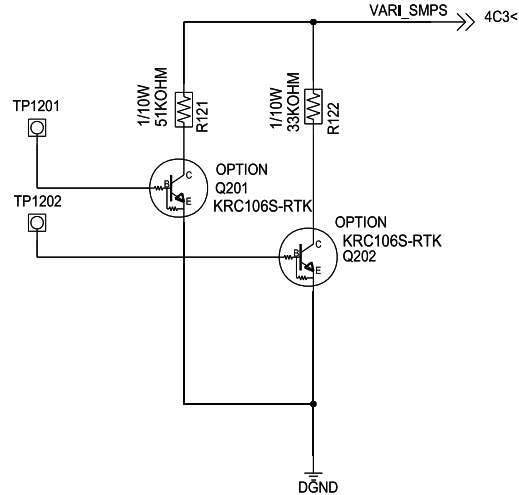
6.12. FRONT MICOM



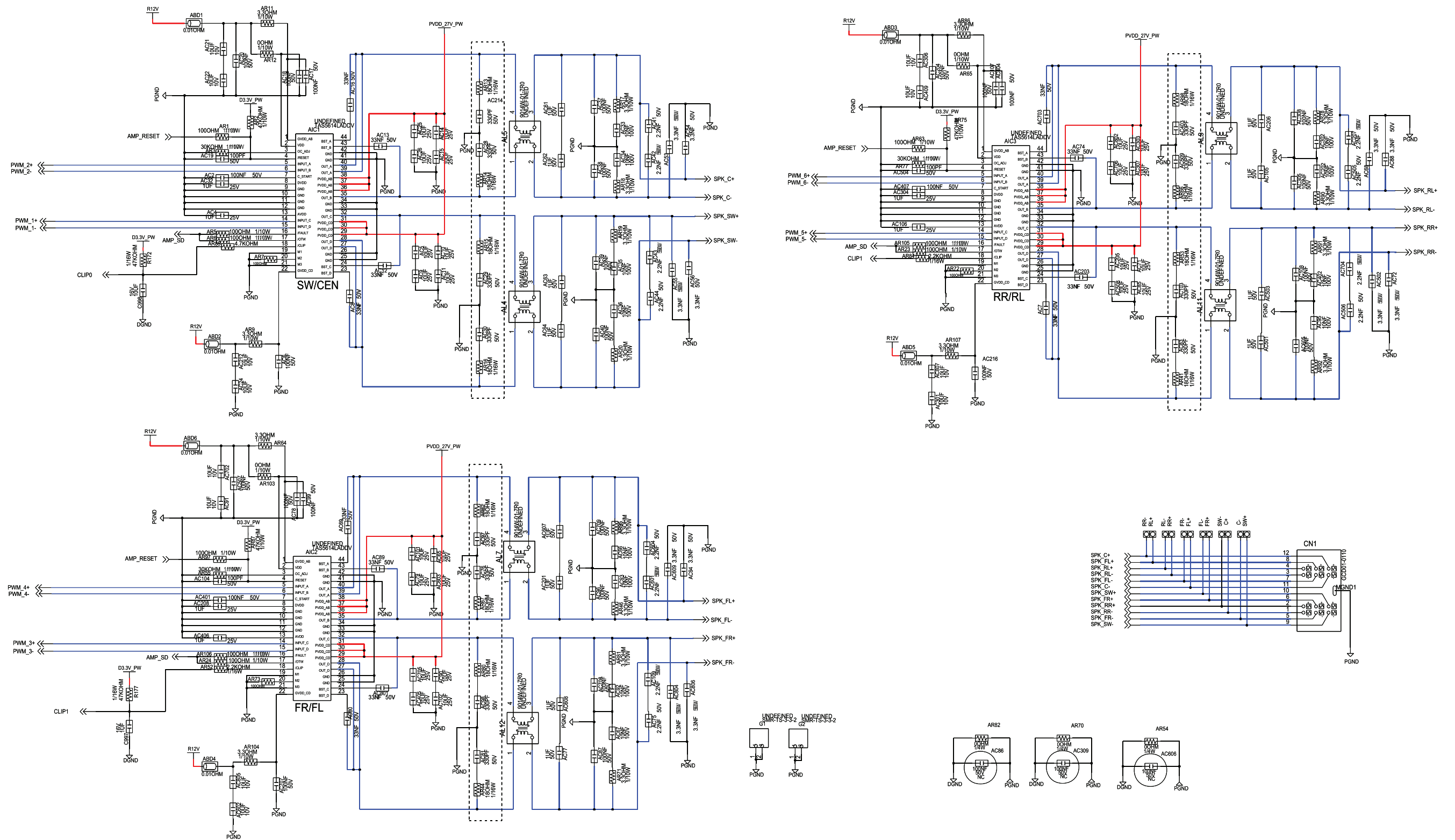
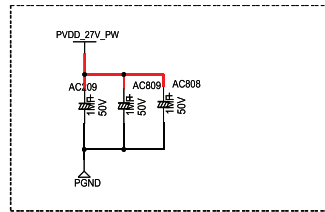
6.13. PWM



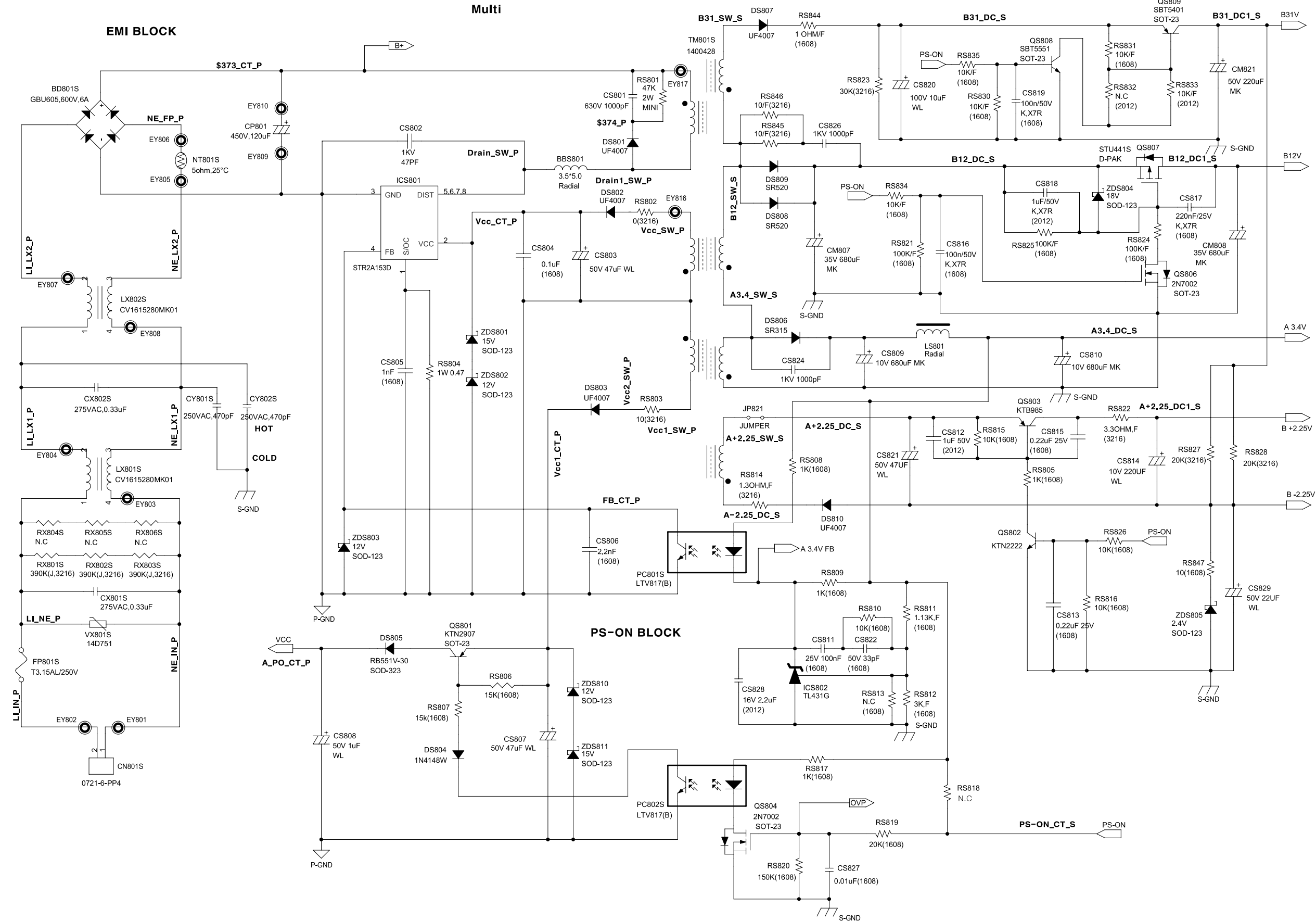
VARIABLE POWER BLOCK



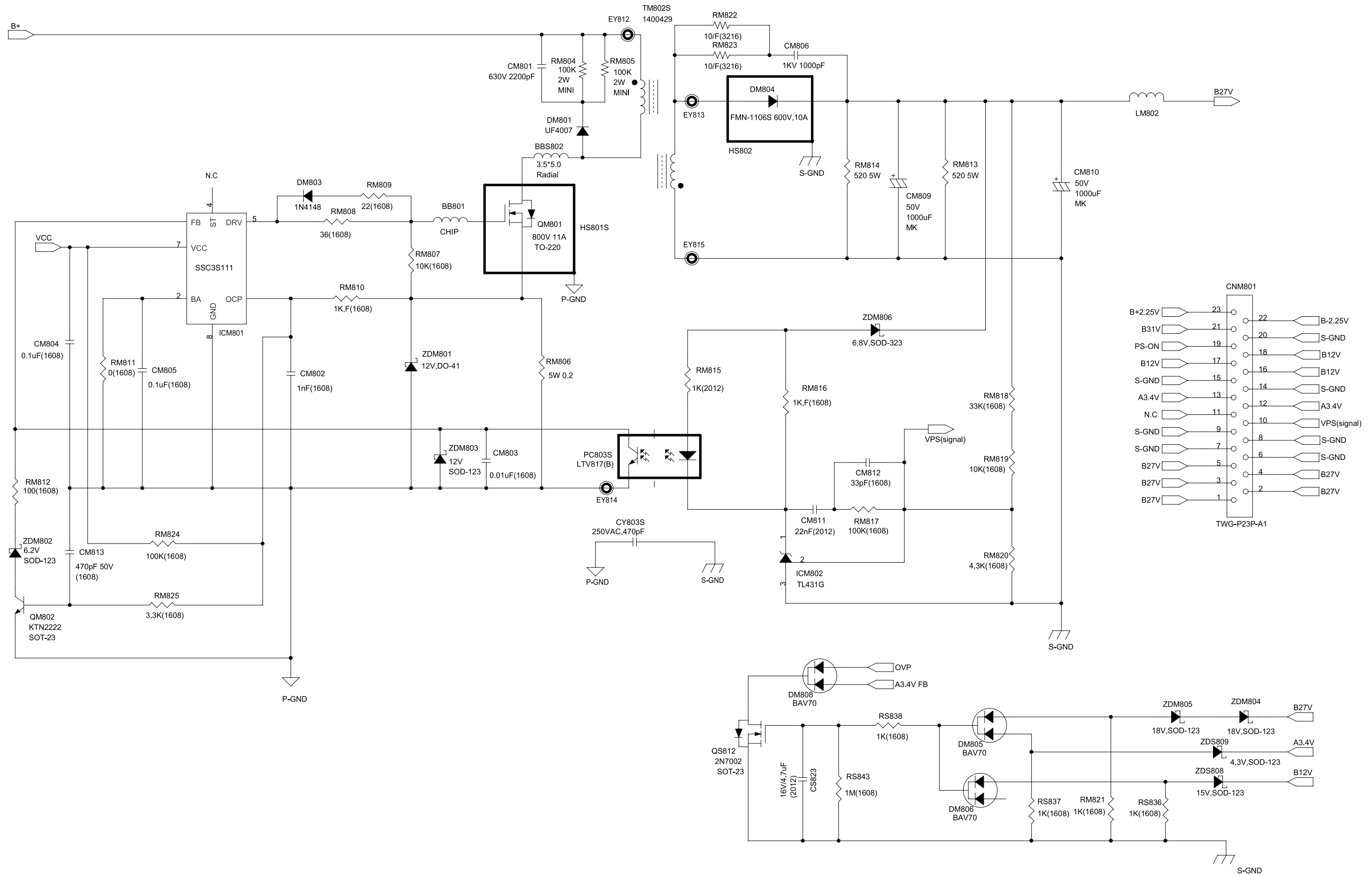
6.14. AMP



6.15. SMPS-1



6.16. SMPS-2





GSPN (GLOBAL SERVICE PARTNER NETWORK)

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

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