

Service  
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**Service**



# Service Manual



x.v.Colour



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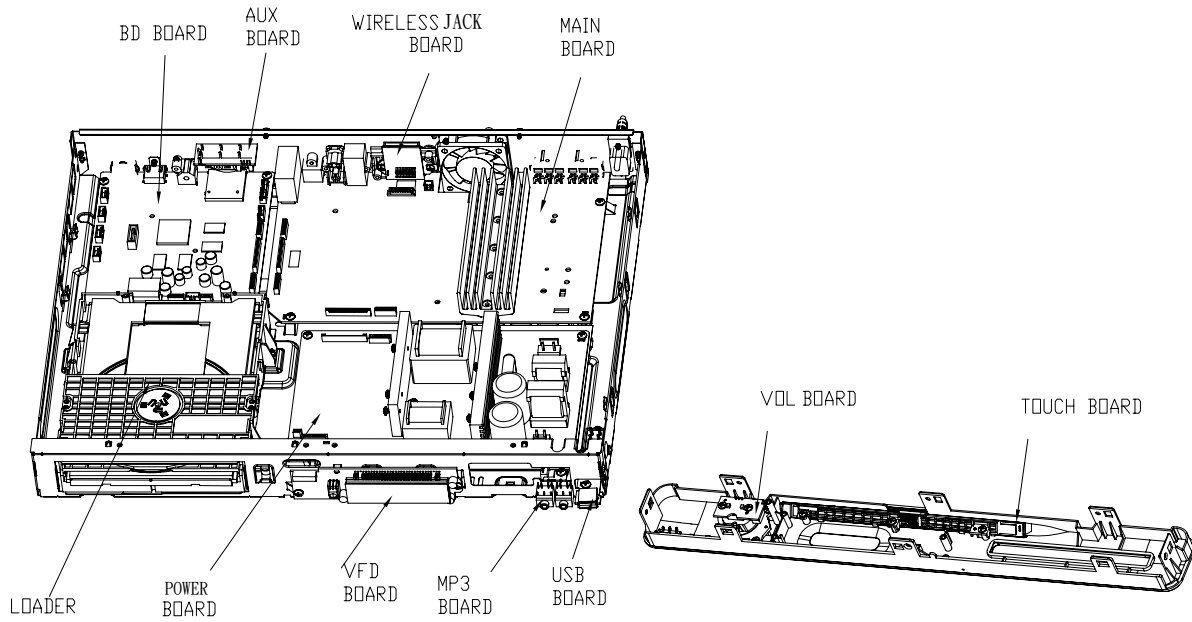
GB 3139 785 35581

Version 1.1



# PHILIPS

# LOCATION OF PCB BOARDS



## VERSION VARIATION:

Type/Versions	HTS4562
<b>Features</b>	<b>/12</b>
Output Power - 1000W	X
Voltage (220~240V)	X
Ipod Dock	X
Wireless ready	X

## SERVICE SCENARIO MATRIX:

Type/Versions	HTS4562
<b>Board in used</b>	<b>/12</b>
Main+VOL Board	C
Power Board	C
VFD+USB+MP3+AUX Board	Bd
BD Board	Bd
Touch Board	Bd
Wireless Jack Board	Bd
Ipod Dock Module	Bd

\*Bd= Board Level Replacement

\*C = Component Level Repair

## SPECIFICATIONS

### Media formats

- AVCHD, BD, BD-R/ BD-RE, BD-Video, DVD-Video, DVD+R/+RW, DVD-R/-RW, DVD+R/-R DL, CD-R/CD-RW, Audio CD, Video CD/SVCD, Picture files, MP3 media, WMA media, DivX (Ultra)/ DivX PlusHD media, USB storage device

### File formats

- Audio: .aac, .mka, .mp3, .wma, .wav, .mp4, .m4a
- Video:
  - .avi, .divx, .mp4, .mkv, .asf, .wmv, .mpg, .mpeg,
  - .rmvb, .rm (Available only in Asia Pacific and China)
- Picture: .jpg, .jpeg, .gif, .png

### Audio formats

Your home theater supports the following audio files.

Extension	Container	Audio codec	Bit rate
.mp3	MP3	MP3	32kbps ~ 320kbps
.wma	ASF	WMA	64kbps ~ 160kbps
.aac	AAC	AAC, HE-AAC	192kbps
.wav	WAV	PCM	1.4Mbps
.m4a	MKV	AAC	192kbps
.mka	MKA	PCM	27.648 Mbps
.mka	MKA	AC-3	640kbps
.mka	MKA	DTS core	1.54Mbps
.mka	MKA	MPEG	912kbps
.mka	MKA	MP3	32kbps ~ 320kbps
.mka	MKA	WMA	64kbps ~ 160kbps
.mka	MKA	AAC, HE-AAC	192kbps

### Video formats

If you have a high definition TV, your home theater allows you to play your video files with:

- Resolution: 1920 x 1080 pixels at
  - Frame rate: 6 ~ 30 frames per second.
- .avi files in AVI container

Audio codec	Video codec	Bit rate
PCM, AC-3, DTS core, MP3, WMA	DivX 3.11, DivX 4.x, DivX 5.x, DivX 6.x	10Mbps max
	MPEG 1, MPEG 2	20Mbps (peak 40Mbps)
	MPEG 4 ASP	10Mbps max
	H.264/AVC HP@4.1/4.0; MP@3.2/3.1/3.0	20Mbps (peak 40Mbps)
	WMV9	20Mbps

.divx files in AVI container

Audio codec	Video codec	Bit rate
PCM, AC-3, MP3, WMA	DivX 3.11, DivX 4.x, DivX 5.x, DivX 6.x	10Mbps max
	MPEG 1, MPEG 2	20Mbps (peak 40Mbps)
	MPEG 4 ASP	10Mbps max

.mp4 or .m4v files in MP4 container

Audio codec	Video codec	Bit rate
AC-3, MPEG, MP3, AAC, HE-AAC	MPEG 1, MPEG 2	20Mbps (peak 40Mbps)
	MPEG 4 ASP	10Mbps max
	H.264/AVC HP@4.1/4.0; MP@3.2/3.1/3.0	20Mbps (peak 40Mbps)

.mkv files in MKV container

Audio codec	Video codec	Bit rate
PCM, AC-3, DTS core, MPEG, MP3, WMA, AAC, HE-AAC	MPEG 1, MPEG 2	20Mbps (peak 40Mbps)
	MPEG 4 ASP	10Mbps max
	H.264/AVC HP@4.1/4.0; MP@3.2/3.1/3.0	20Mbps (peak 40Mbps)
	WMV9	20Mbps

.asf and .wmv files in ASF container

Audio codec	Video codec	Bit rate
PCM, AC-3, MP3, WMA	MPEG 4 ASP	10Mbps max
	H.264/AVC HP@4.1/4.0; MP@3.2/3.1/3.0	20Mbps (peak 40Mbps)
	WMV9	20Mbps

.mpg and .mpeg files in PScontainer

Audio codec	Video codec	Bit rate
PCM, DTS core, MPEG, MP3	MPEG 1, MPEG 2	20Mbps (peak 40Mbps)
	MPEG 1, MPEG 2	20Mbps (peak 40Mbps)

## Amplifier

- Total output power:
  - Europe and Asia: 1000W RMS (30% THD)
  - Latin America: 780W (10% THD)
- Frequency response: 20 Hz-20 kHz /  $\pm 3$  dB
- Signal-to-noise ratio: > 65 dB (CCIR) / (A-weighted)
- Input sensitivity:
  - AUX1, AUX2: 1000 mV
  - Music iLink: 500 mV

## Video

- Signalsystem: PAL / NTSC
- HDMI output: 480i/576i, 480p/576p, 720p, 1080i, 1080p, 1080p24

## Audio

- S/PDIF Digital audio input:
  - Coaxial: IEC 60958-3
  - Optical: TOSLINK
- Sampling frequency:
  - MP3: 32 kHz, 44.1 kHz, 48 kHz
  - WMA: 44.1 kHz, 48 kHz
- Constant bit rate:
  - MP3: 112 kbps - 320 kbps
  - WMA: 48 kbps - 192 kbps

## Radio

- Tuning range:
  - Europe/China: FM 87.5-108 MHz (50 kHz)
  - Asia Pacific/Russia/Latin America: FM 87.5-108 MHz (50/100 kHz)
- Signal-to-noise ratio: FM 50 dB
- Frequency response: FM 180 kHz-12.5 kHz /  $\pm 3$  dB

## USB

- Compatibility: Hi-Speed USB (2.0)
- Class support: USB Mass Storage Class (MSC)
- File system: FAT16, FAT32, NTFS
- Maximum memory support: < 160 GB

---

## Main unit

- Power supply:
  - Europe/China: 220-240 V~, 50 Hz
  - Latin America/Asia Pacific: 110-127 V/220-240 V~, 50-60 Hz
  - Russia/India: 220-240 V~, 50 Hz
- Power consumption: 105 W
- Standby power consumption:  $\leq 0.5$  W
- Dimensions (WxHxD): 435 x 57 x 356.5 mm
- Weight: 3.69 kg

---

## Subwoofer

- Total output power:
  - Europe and Asia: 230W RMS (30% THD)
  - Latin America: 180W RMS (10% THD)
- Impedance: 3 ohm
- Speaker drivers:
  - Europe and Asia: 165 mm (6.5") woofer
  - India and Latin America: 203 mm (8") woofer
- Frequency response: 20 Hz-150 Hz
- Dimensions (WxHxD): 196 x 395 x 342 (mm)
- Weight: 4.8 kg
- Cable length: 3 m

---

## Speakers

### Center speaker:

- Total output power:
    - Europe and Asia: 230W RMS (30% THD)
    - Latin America: 180W (10% THD)
  - System: full range satellite
  - Speaker impedance: 3ohm
  - Speaker drivers: 2 x 76.2 mm (3") full range
  - Frequency response: 150Hz-20kHz
  - Dimensions (WxHxD): 280 x 95 x 92mm
  - Weight: 1.40kg
  - Cable length: 2m
- Front / rear speakers:

- Total output power:
  - Europe and Asia: 4 x 135W RMS (30% THD)
  - Latin America: 4 x 105W RMS (10% THD)
- Speaker impedance: 5ohm
- Speaker drivers: 2 x 76.2 mm (3") full range
- Frequency response: 150Hz-20kHz
- Dimensions (WxHxD):
  - small speakers: 100 x 280 x 104mm
- Weight:
  - small speakers: 0.98-1.07 Kg each
- Cable length (front speakers): 4m
- Cable length (rear speakers): 10m

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## Remote control batteries

- 2 x AAA-LR03-1.5V

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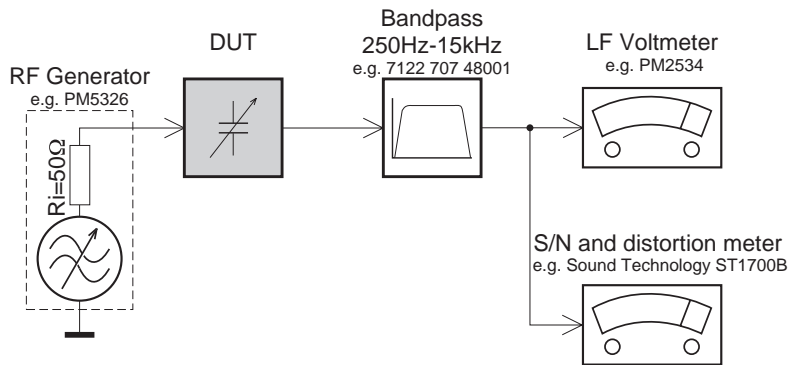
## Laser

- Laser Type (Diode): InGaN/AlGaIn (BD), AlGaInP (DVD/CD)
- Wave length: 405 +7nm/-7nm (BD), 655 +10nm/-10nm (DVD), 790 +10nm/-20nm (CD)
- Output power (Max. ratings): 20mW (BD), 6mW (DVD), 7mW (CD)

Specifications subject to change without prior notice.

# MEASUREMENT SETUP

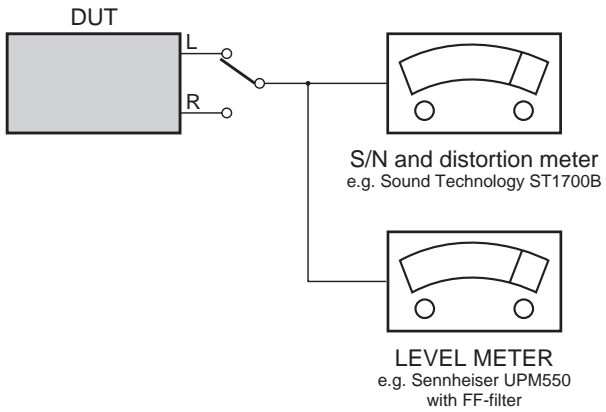
## Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilotone (19kHz, 38kHz).

## CD

Use Audio Signal Disc SBC429 4822 397 30184  
(replaces test disc 3)



# SERVICE AIDS

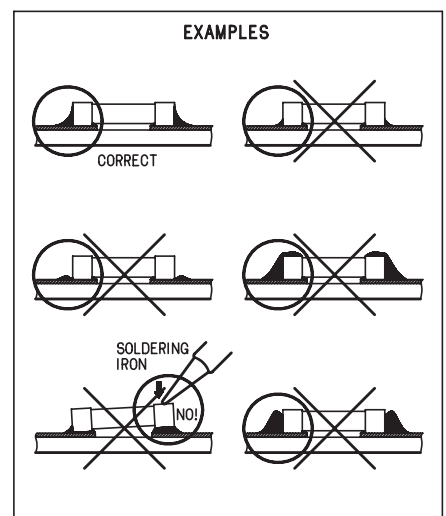
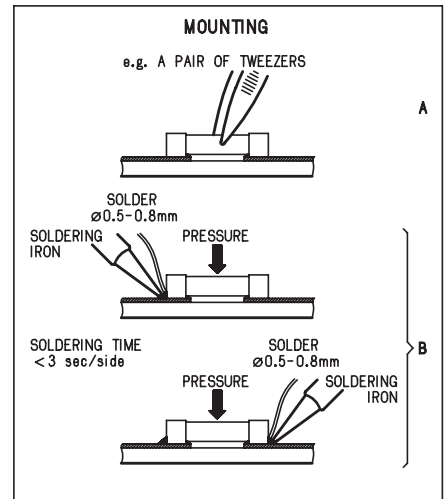
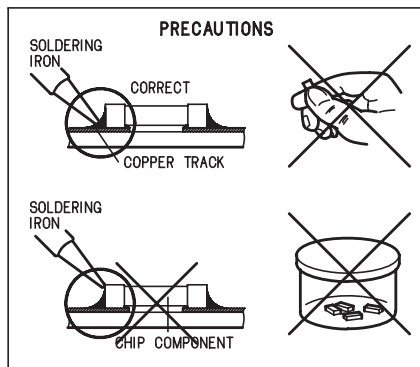
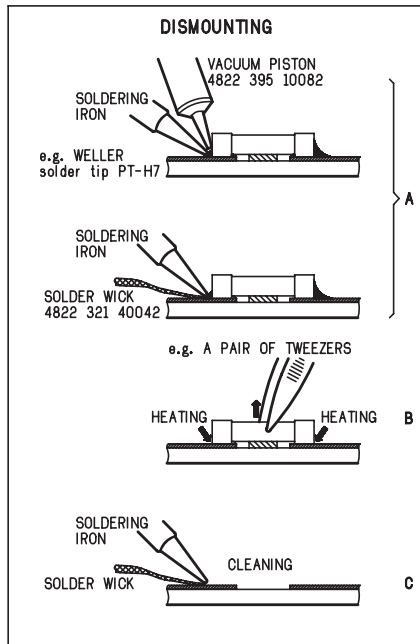
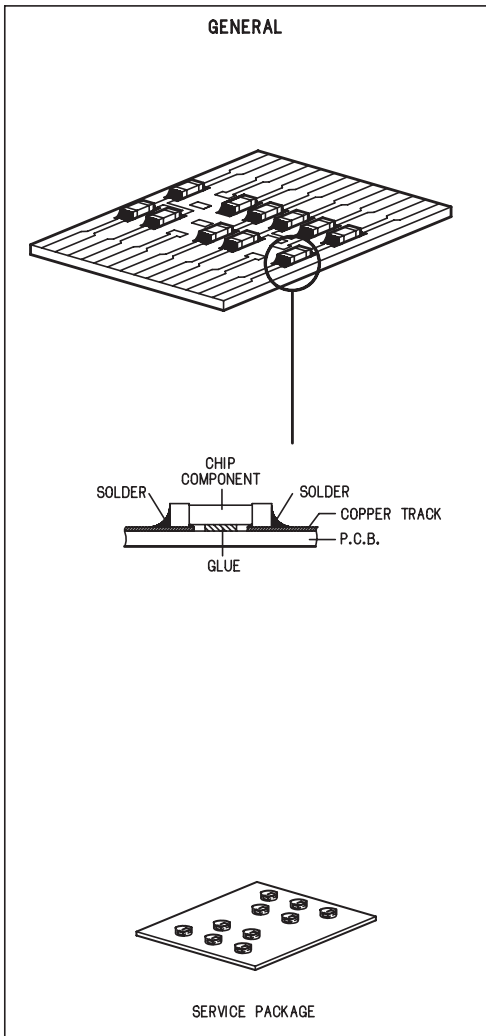
## Service Tools:

Universal Torx driver holder .....	4822 395 91019
Torx bit T10 150mm .....	4822 395 50456
Torx driver set T6-T20 .....	4822 395 50145
Torx driver T10 extended .....	4822 395 50423

## Compact Disc:

SBC426/426A Test disc 5 + 5A .....	4822 397 30096
SBC442 Audio Burn-in test disc 1kHz .....	4822 397 30155
SBC429 Audio Signals disc .....	4822 397 30184
Dolby Pro-logic Test Disc .....	4822 395 10216

## HANDLING CHIP COMPONENTS



**ESD****GB WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

**F ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).

Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.

Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.

Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

**D WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).

Unvorsichtige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes. Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

**NL WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).

Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.

Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

**I AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).

La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.

Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

**GB ESD PROTECTION EQUIPMENT**

Complete Kit ESD3 (small tablemat, wristband, connection box, estention cable and earth cable ..... 4822 310 10671  
Wristband tester ..... 4822 344 13999

**GB**

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

Safety components are marked by the symbol  $\Delta$ .

**NL**

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

De Veiligheidsonderdelen zijn aangeduid met het symbol  $\Delta$ .

**F**

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisés les pièces de rechange identiques à celles spécifiées.

Less composants de sécurité sont marqués  $\Delta$ .

**D**

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

Sicherheitsbauteile sind durch das Symbol  $\Delta$  markiert.

**I**

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

Componenti di sicurezza sono marcati con  $\Delta$ .

**GB**

After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist, The leakage current must not exceed 0.5mA.

**GB Warning !**

Invisible laser radiation when open.  
Avoid direct exposure to beam.

**S Varning !**

Osynlig laserstrålning när apparaten är öppnad och spårren är urkopplad. Betrakta ej strålen.

**SF Varoitus !**

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

**DK Advarse !**

Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for strålning.

**F**

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".



## Pb(Lead) Free Solder

When soldering, be sure to use the pb free solder.

### IDENTIFICATION:

Regardless of special logo (not always indicated)



one must treat all sets from **1 Jan 2005** onwards, according next rules:

**Important note:** In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (leaded/ lead-free). So best to always use SAC305 and the higher temperatures belong to this.

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free solder alloy Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment. In general use of solder-paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free solder alloy. The solder tool must be able
  - To reach at least a solder-temperature of 400°C,
  - To stabilize the adjusted temperature at the solder-tip
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature around 360°C – 380°C is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed. To avoid wear-out of tips switch off unused equipment, or reduce heat.
- Mix of lead-free solder alloy / parts with leaded solder alloy / parts is possible but PHILIPS recommends strongly to avoid mixed solder alloy types (leaded and lead-free).  
If one cannot avoid or does not know whether product is lead-free, clean carefully the solder-joint from old solder alloy and re-solder with new solder alloy (SAC305).
- Use only original spare-parts listed in the Service-Manuals. Not listed standard-material (commodities) has to be purchased at external companies.
- Special information for BGA-ICs:
  - Always use the 12nc-recognizable soldering temperature profile of the specific BGA (for desoldering always use the lead-free temperature profile, in case of doubt)
  - Lead free BGA-ICs will be delivered in so-called 'dry-packaging' (sealed pack including a silica gel pack) to protect the IC against moisture. After opening,

dependent of MSL-level seen on indicator-label in the bag, the BGA-IC possibly still has to be baked dry. (MSL=Moisture Sensitivity Level). This will be communicated via AYS-website.

Do not re-use BGAs at all.


- For sets produced before 1.1.2005 (except products of 2004), containing leaded solder-alloy and components, all needed spare-parts will be available till the end of the service-period. For repair of such sets nothing changes.
- On our website [www.atyourservice.ce.Philips.com](http://www.atyourservice.ce.Philips.com) you find more information to:
  - BGA-de-/soldering (+ baking instructions)
  - Heating-profiles of BGAs and other ICs used in Philips-sets

You will find this and more technical information within the "magazine", chapter "workshop news".


For additional questions please contact your local repair-helpdesk.

## Software upgrade & Procedure to restore product setting


### 1) Restore factory setting

- Press “” <Home> button on R/C.
- Select <SETUP>, then press “OK” button on R/C.
- Select <Advanced setup>, then press < OK > button on R/C.
- Select <Restore default settings>, then press <OK> to confirm.


### 2) Password change

- Press “” <Home> button on R/C.
  - Select <SETUP>, then press “OK” button on R/C.
  - Select <preference setup>, then press <OK> button on R/C.
  - Select <Change Password> <Confirm>, then press <OK> button on R/C.
- “0000” is default password supplied.

### 3) Trade mode

- In open model, press “” <Home> button on R/C.
- Press “2” “5” “9” on R/C, VFD will display “TRA ON” or “TRA OFF”.

### 4) Check software version

- Press “” <Home> button on R/C
- Select <Setup>, then press <OK> button on R/C.
- Select <Advanced Setup> <Version Info.>, then press <OK> button on R/C.
- TV will show message as follow:


Model: HTS4562/12  
 Version:  
 System SW: 027.00  
 Subsystem SW: 20-00-00-00  
 Ethernet MAC: 00:25:D1:01:8D:6C  
 For more information, frequently asked questions and software updates, please visit [philips.com/support](http://philips.com/support)

Close

- Select <Close> on the version display screen and press <OK> button to exit .

### 5) Upgrading new software

Method 1: Update software from a USB storage device

- Create a folder named “UPG\_ALL” in your USB storage device, and Copy the latest upgrading software into the folder.
- Connect the USB storage device to the home theater.
- Press “” <Home> button on R/C, and select <Setup>.
- Select <Advance Setup> <Software Update> <USB>.
- TV will show message as follow:

Now searching for upgrade software!  
Please wait...!

Software updates for this player have been found. Do you want to upgrade?

Cancel

Start

- Select <Start>, press <OK> button on R/C.

Software upgrade will take 5 minutes  
 Do not switch off!  
 Package version: 000025.0

Software BE	80%
Software FE	Completed
Software MCU1:	
Software Dock:	
Software MCU3:	

Software upgrade will take 5 minutes  
 Do not switch off!  
 Package version: 000025.0

Software BE	Completed
Software FE	Completed
Software MCU1:	Not started
Software Dock:	2%
Software MCU3:	Not started

Software upgrade will take 5 minutes  
 Do not switch off!  
 Package version: 000025.0

Software BE	Completed
Software FE	Completed
Software MCU1:	1%
Software Dock:	Failed
Software MCU3:	

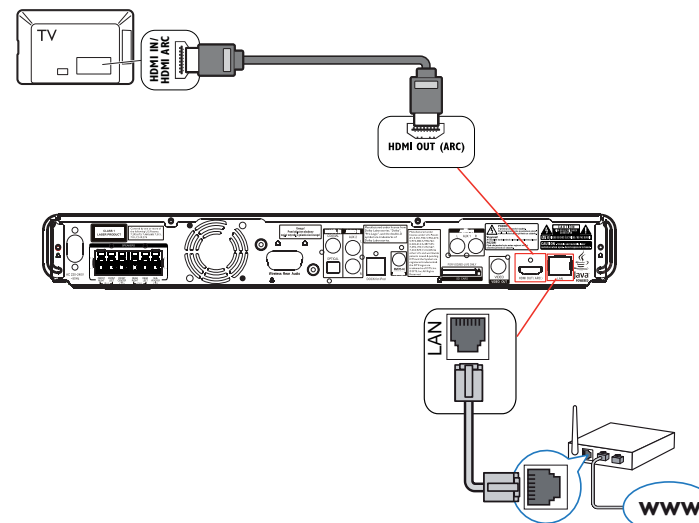
- The set will shut down automatically when the software upgrade is completed.


Method 2: Update software from the internet

Note: To check for new updates, compare the current software version of your home theater with the latest software version (if available) on the Philips web site, and for BD-Live application and software update, make sure that the network router has access to the Internet and the firewall is disabled.

- The “LAN” jack at the back panel of the set must be connect to the network router via network cable and the set connect to TV,

Prepare the connection as shown follow:



- Press “” <Home> button on R/C, and select <Setup>.
- Select <Advance Setup> <Software Update> <Network>.
- TV will show message as follow:

Now searching for upgrade software!  
Please wait...!

Software updates for this player have been found. Do you want to upgrade?

Cancel

Start

- Select <Start>, press <OK> button on R/C.

Software upgrade will take 5 minutes  
 Do not switch off!  
 Package version: 000025.0

Software BE	80%
Software FE	Completed
Software MCU1:	
Software Dock:	
Software MCU3:	

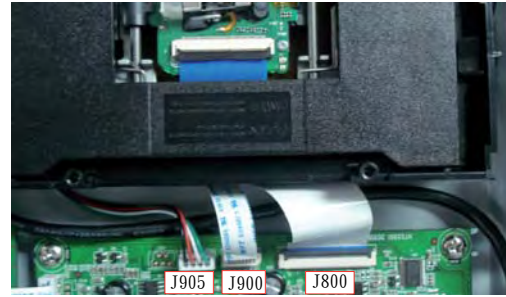
Software upgrade will take 5 minutes

Do not switch off!

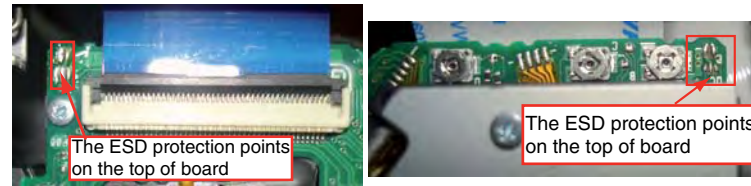
Package version: 000025.0

Software BE	Completed
Software FE	Completed
Software MCU1:	Not started
Software Dock:	2%
Software MCU3:	Not started

c) Assembly Blu-ray Loader to "J800", "J900", "J905" on the top of BD Board as shown below.



d) Remove soldered joint on the ESD protection points.



Top side view of OPU

Bottom side view of OPU

Note: The 2 ESD protection points on any one side must be soldered if

- o the Blu-ray Loader is OK and needs to be disconnected from connector J800, J900 and J905 of the BD Board.
- o the defective Blu-ray Loader is needed to be send back to supplier for failure analysis and to support backcharging evidence.

**CAUTION!**

This information is confidential and may not be distributed. Only a qualified service person should reprogram the Region Code.

Software upgrade will take 5 minutes

Do not switch off!

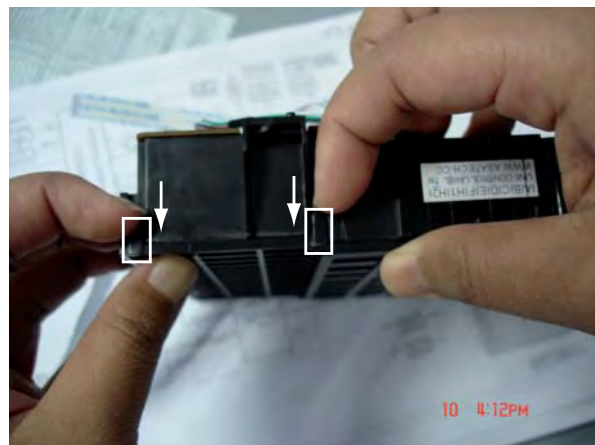
Package version: 000025.0

Software BE	Completed
Software FE	Completed
Software MCU1:	1%
Software Dock:	Failed
Software MCU3:	

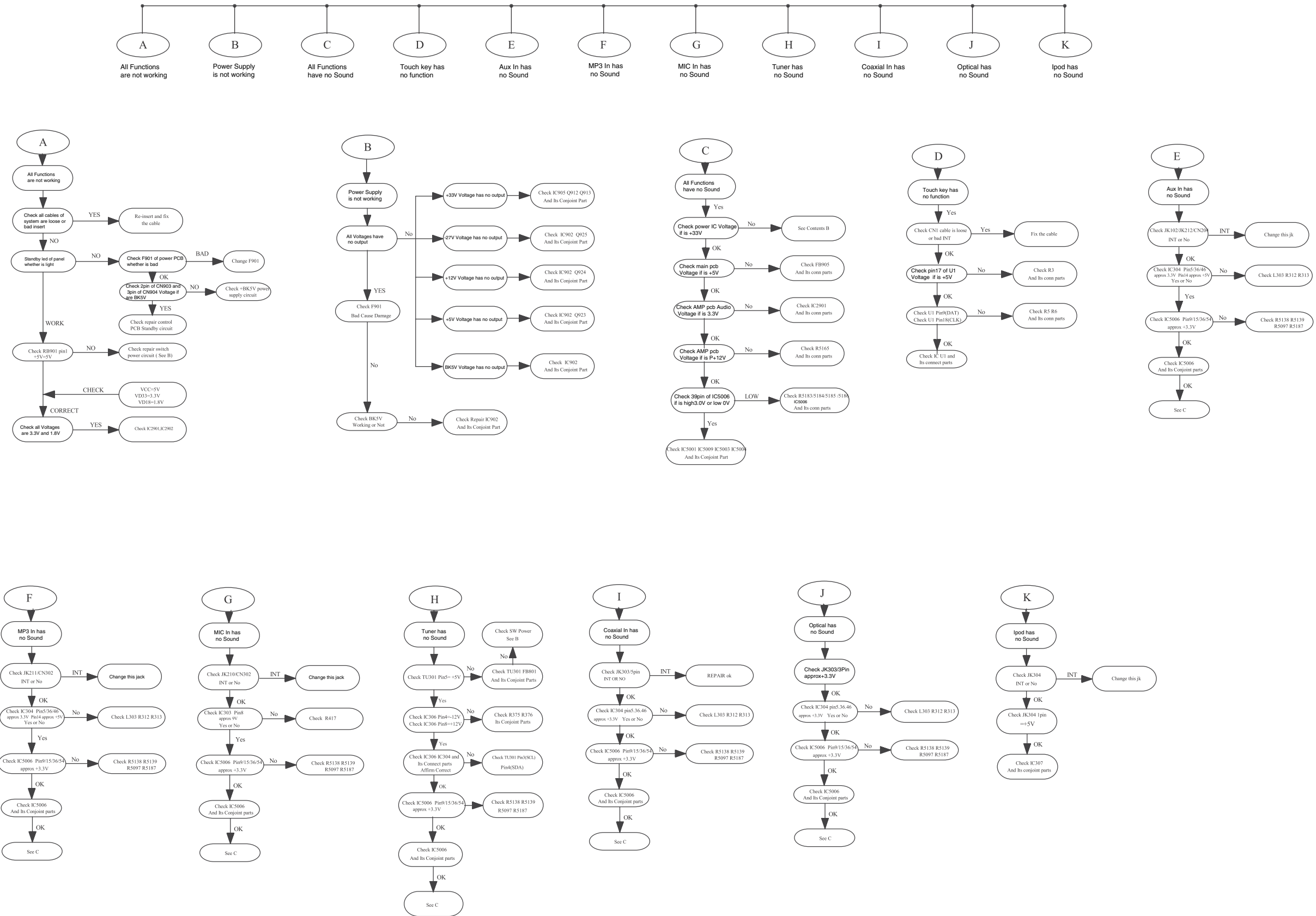
f) The set will shut down automatically when the software upgrade is completed.

**6) How to replace the defective Blu-ray Loader**

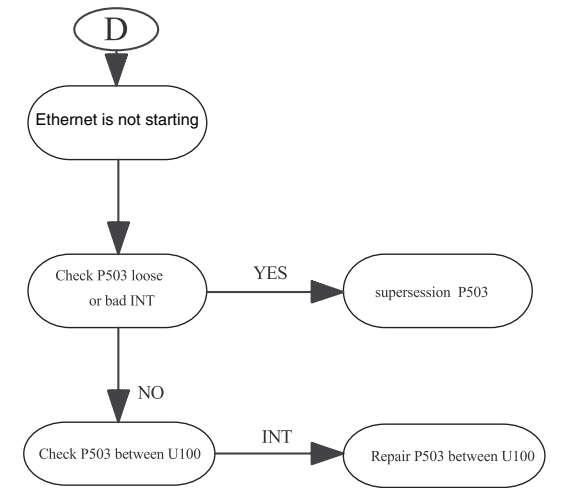
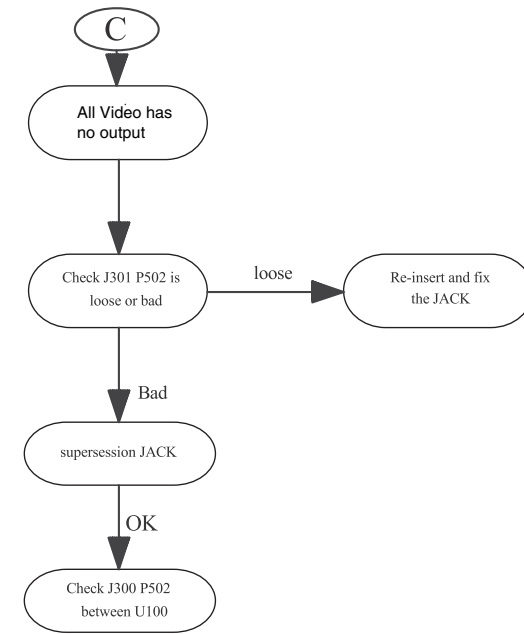
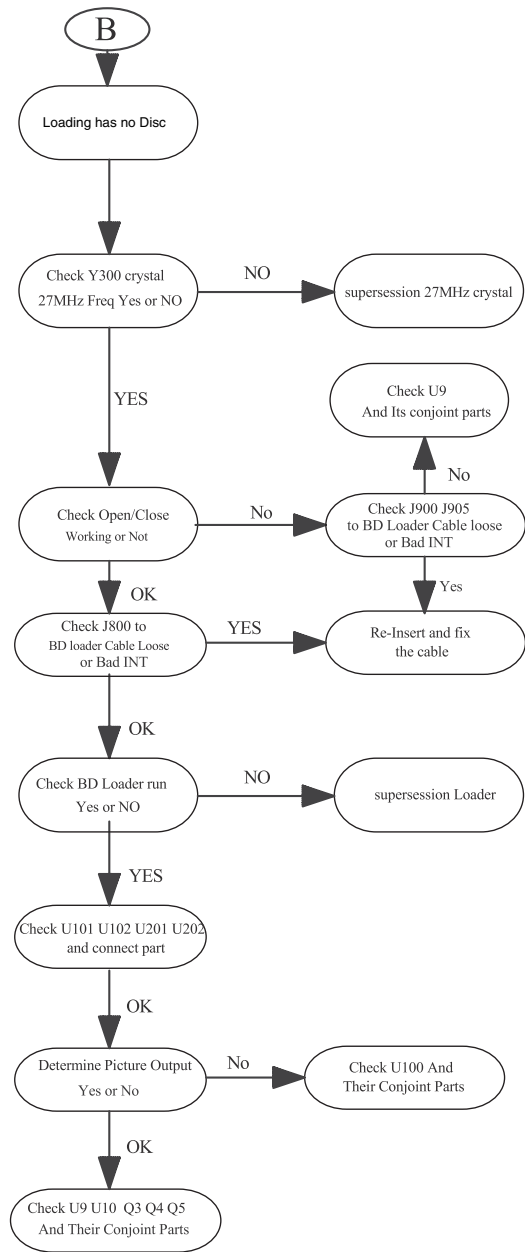
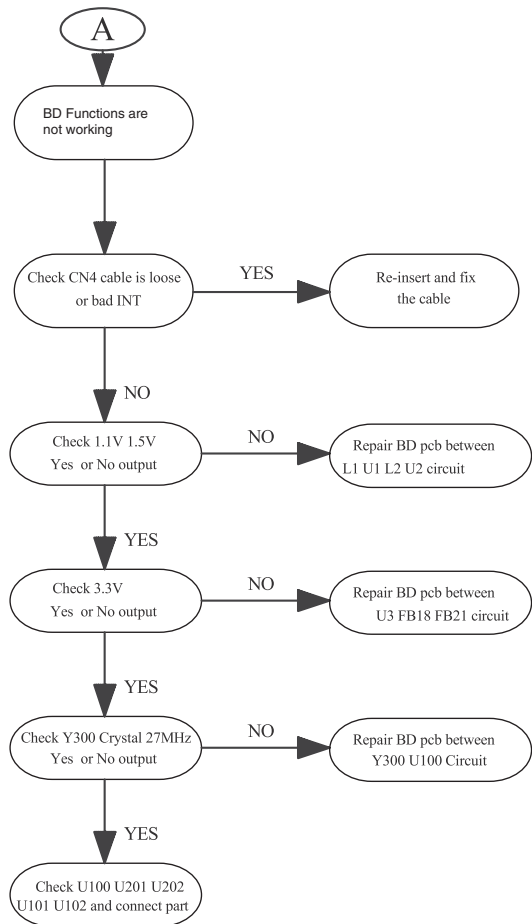
- a) Remove the defective Blu-ray Loader.
- b) Remove the shield cover at the top of Blu-ray Loader as shown below.



REPAIR CHART



# BD Board REPAIR CHART



# DISASSEMBLY INSTRUCTIONS

## Dismantling of the Top & Front Panel Assemble

- 1) Loosen 6 screws and remove the Top Cover by lifting the rear portion upwards before sliding it out towards the rear.
  - 4 screws "A" at the back panel as shown in figure 1.
  - 1 screw "B" each on the left & right side as shown in figure 2.

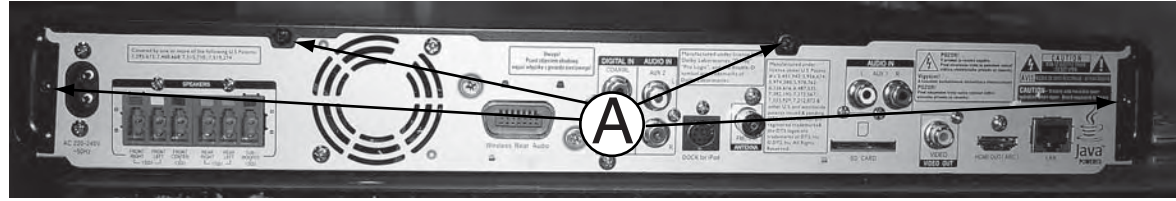


Figure 1

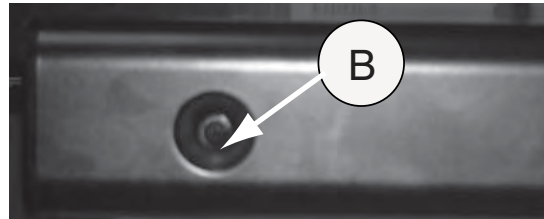


Figure 2

- 2) Open the DVD Tray by using the Open/Close Button while the Set is ON and disconnect the mains supply after removing the DVD Door.

*Note: If this is not possible, the DVD Tray has to be open manually.*

- a) Loosen 4 screws "E" at the DVD Module as shown in figure 3.
  - b) Rotate the gear wheel on the side of DVD Module to remove DVD Door as shown in figure 4 and figure 5 then close the tray manually by pushing it back in.
- 3) Loosen 5 screws remove the front panel.
    - 3 screws "C" at the bracket as shown in figure 6.
    - 1 screw "D" each on the left & right side as shown in figure 7.

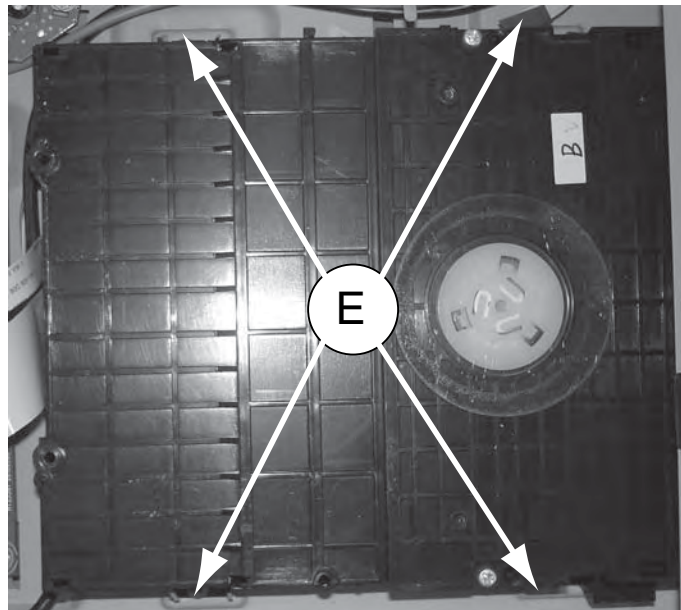


Figure 3

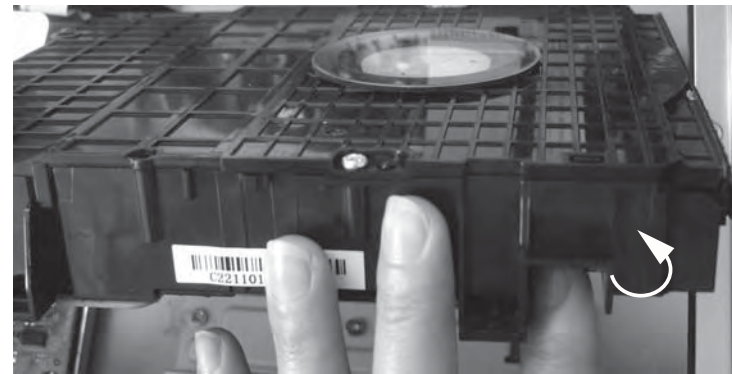


Figure 4

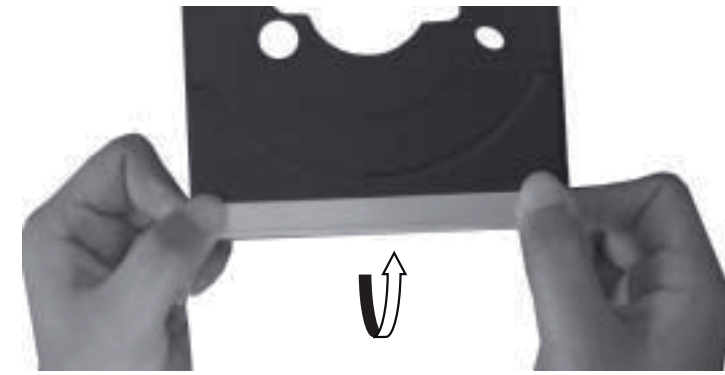


Figure 5

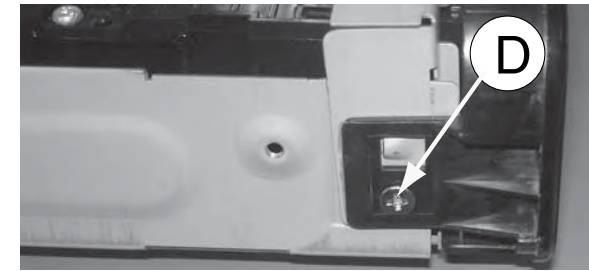


Figure 6

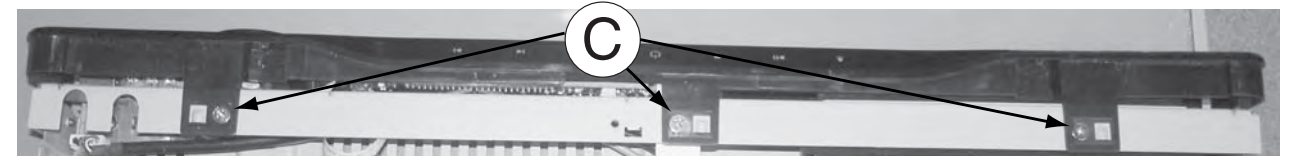


Figure 7

## Dismantling of the VFD Board

- 1) Loosen 2 screws "F" on the top of VFD Board as shown in figure 8.

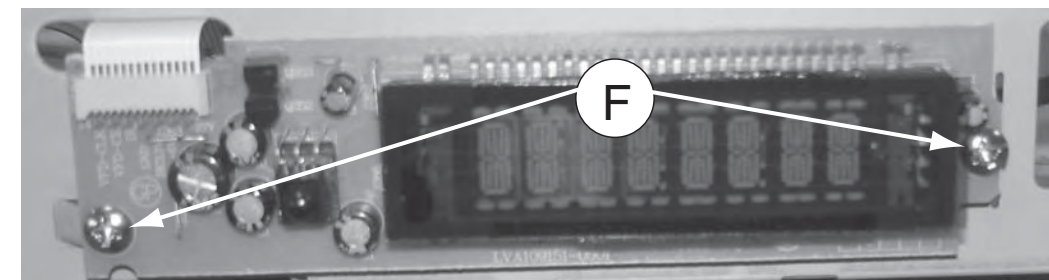


Figure 8

**Dismantling of the MP3+USB Board**

- 1) Loosen 2 screws "H" as shown in figure 9 to remove MP3+USB Board.

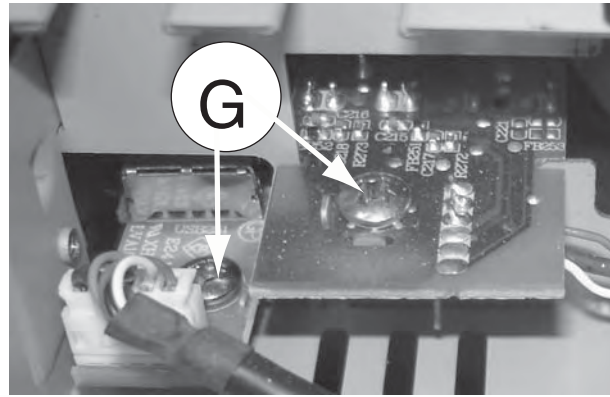


Figure 9

**Dismantling of the VOL Board and VOL Button**

- 1) Loosen 2 screws "H" as shown in figure 10 to remove VOL Board.
- 2) After remove VOL Board ,pull out the VOL button .

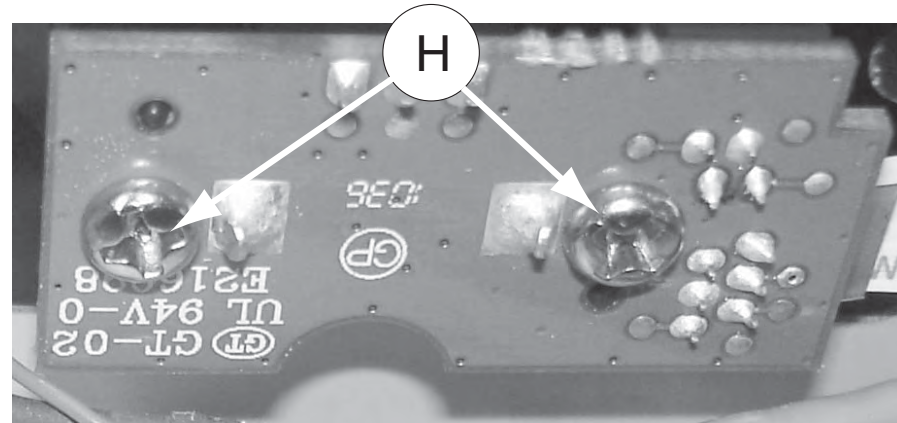


Figure 10

**Dismantling of the TOUCH Board**

- 1) Loosen 3 screws "I" on the Touch bracket as shown in figure 11.



Figure 11

**Dismantling of the POWER Board**

- 1) Loosen 5 screws "O" on the top of power Board as shown in figure 12.

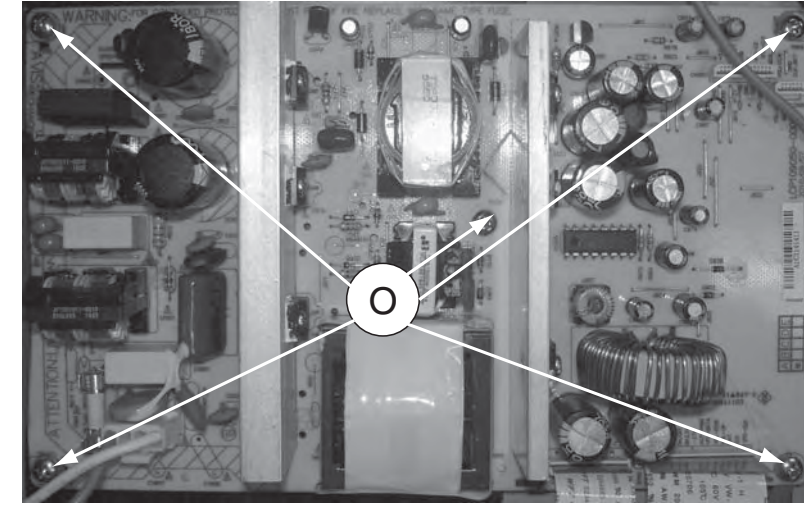


Figure 12

**Dismantling of the Wireless Jack Board**

- 1) Loosen 2 screws "J" at the back panel to remove the Wireless Jack Board as shown in figure 13.

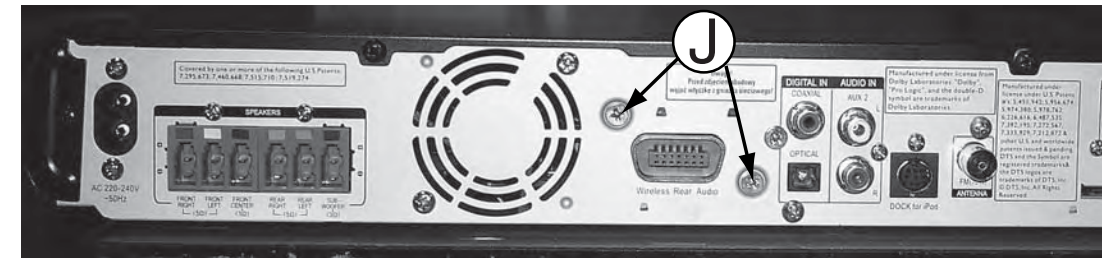


Figure 13

**Dismantling of the MAIN Board**

- 1) Loosen 5 screws "K" on the top of Main Board as shown in figure 14.
- 2) At the back panel, loosen 6 screws "L" as shown in figure 15.

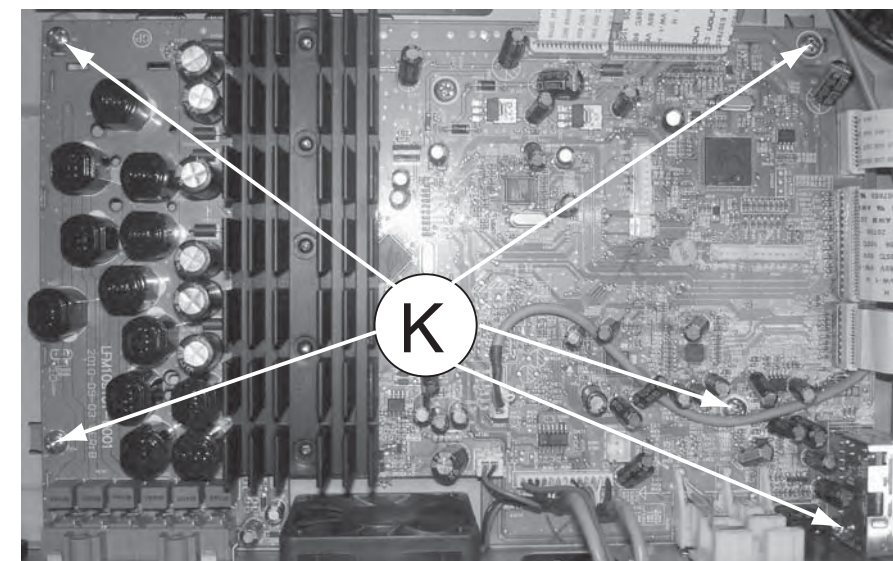


Figure 14

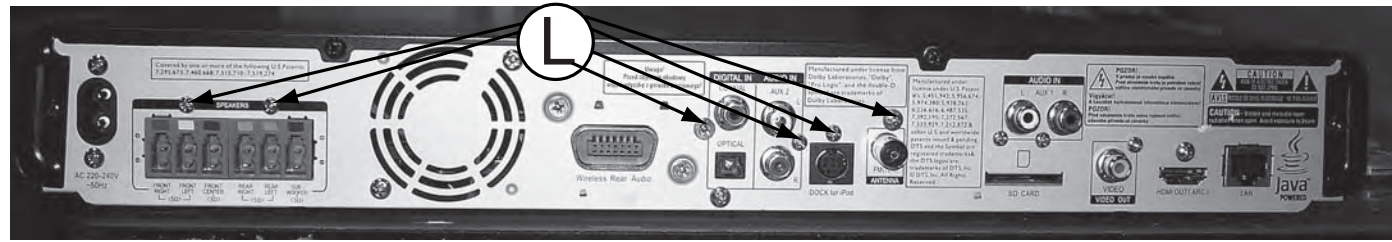


Figure 15

**Dismantling of the AUX Board**

- 1) Loosen 2 screws “M” at the back panel to remove AUX Board as shown in figure 16.

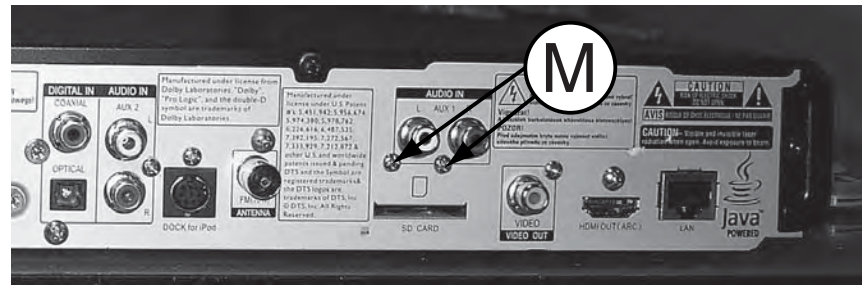


Figure 16

**Dismantling of the BD Board**

- 1) Loosen 4 screws “N” on the top of BD board as shown in figure 17.

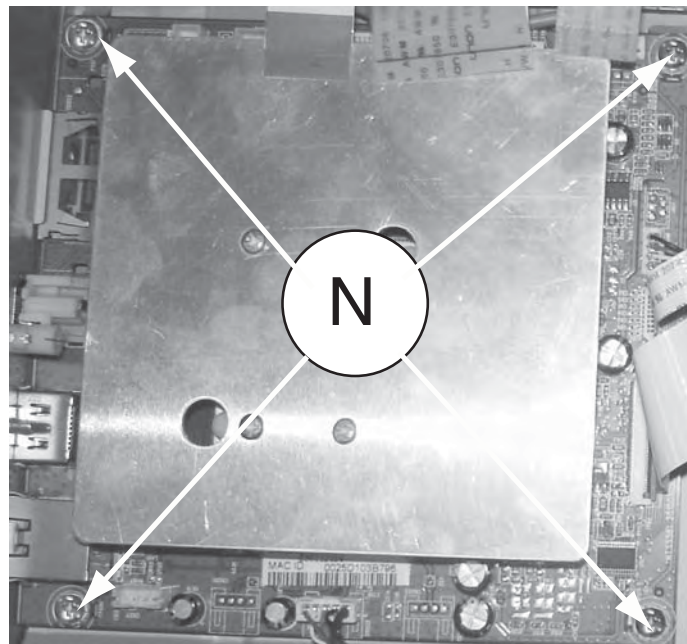
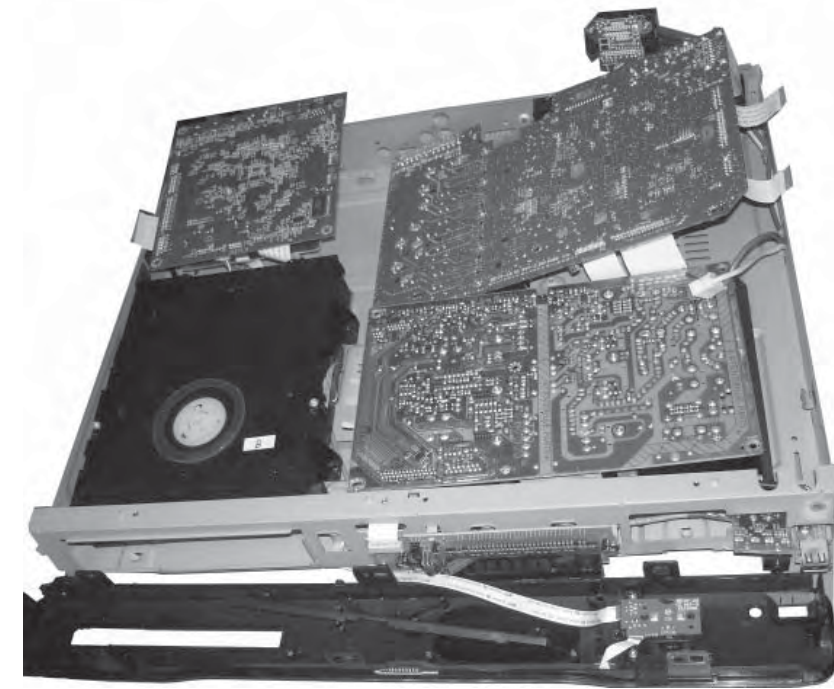


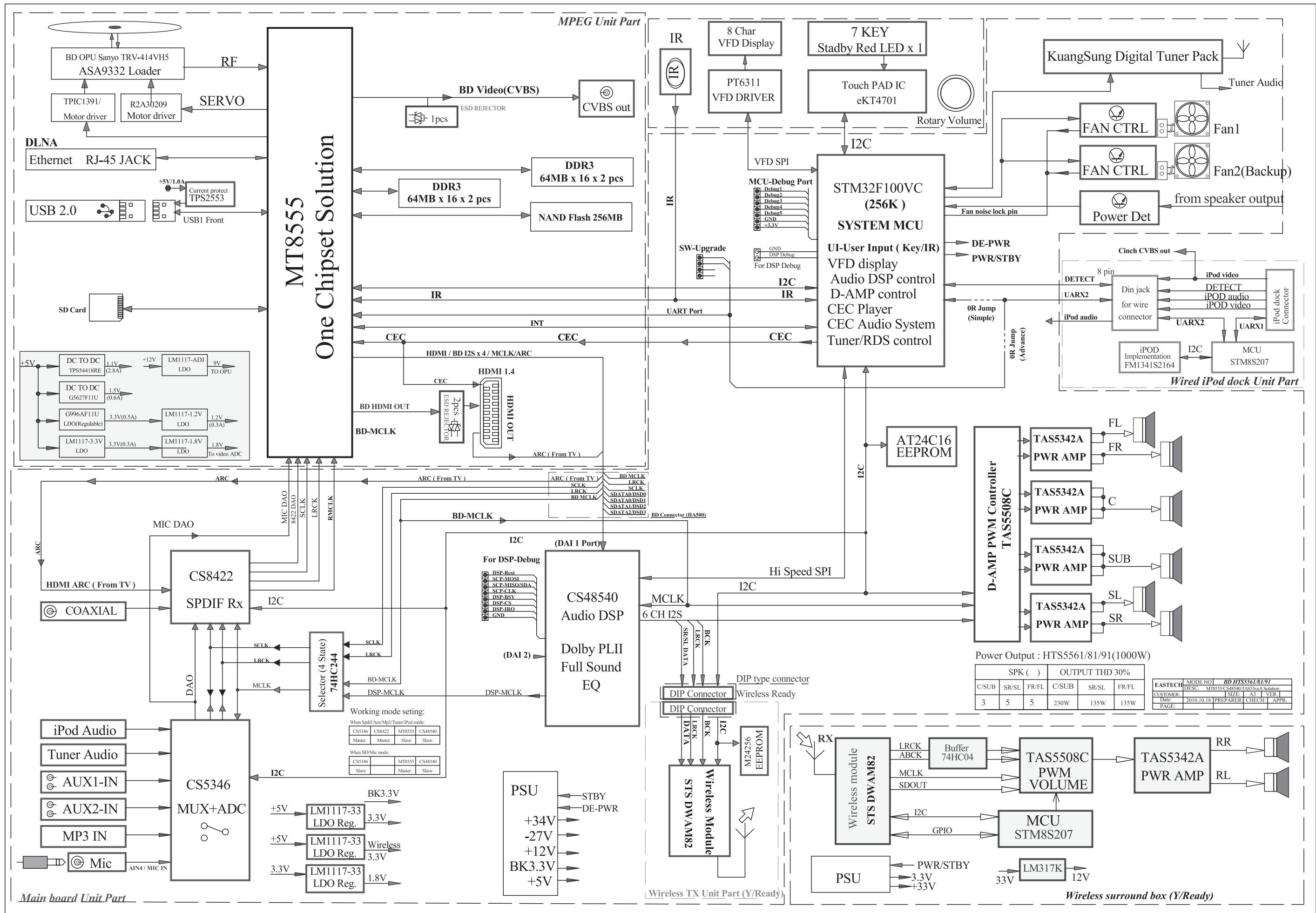
Figure 17

**SERVICE POSITIONS**



Note: In some service positions the components or copper patterns of one board may risk touching its neighbouring pc boards or metallic parts. To prevent such short-circuit use a piece of hard paper or other insulating material between them.





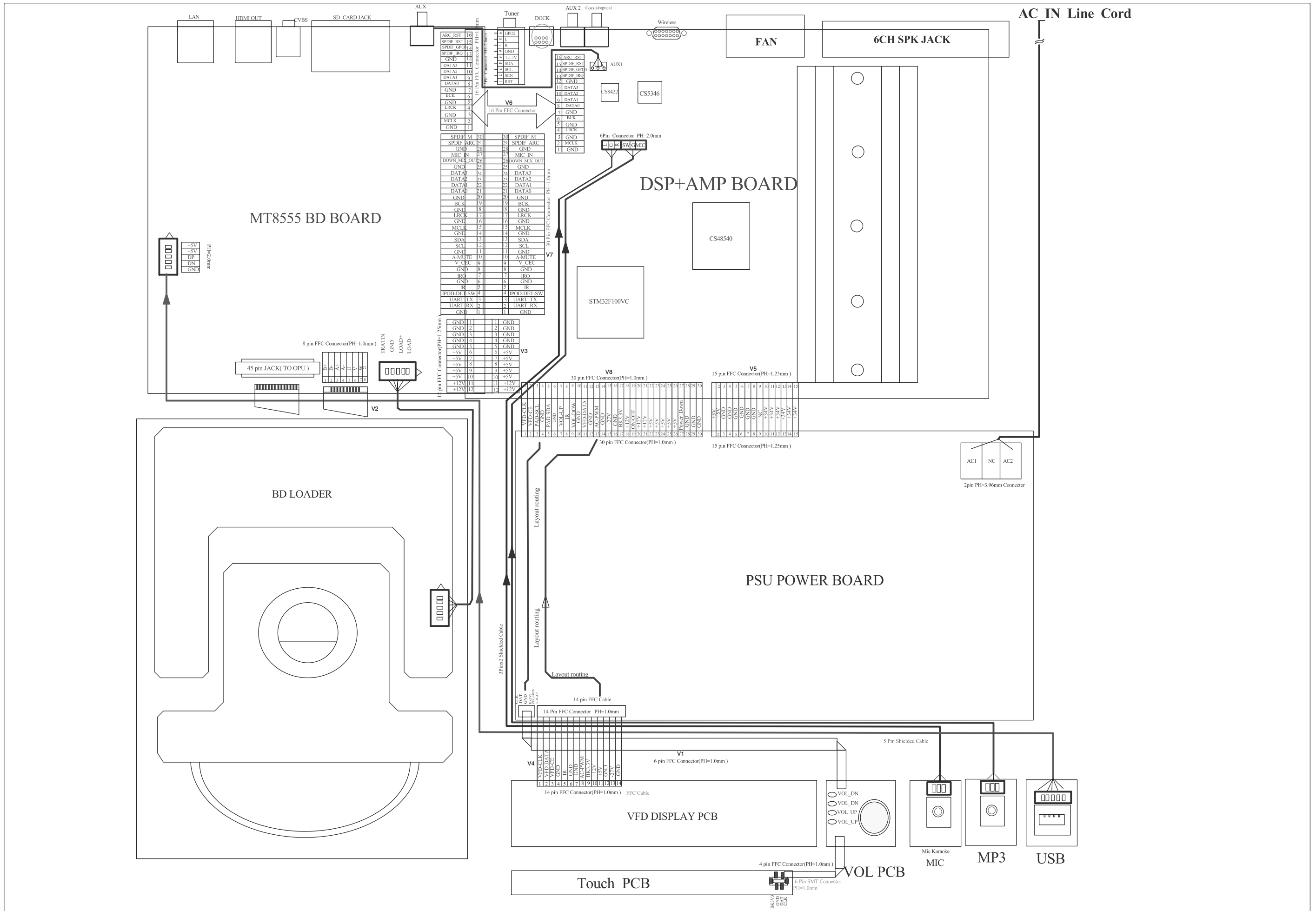
Power Output : HTS5561/81/91(1000W)

SPK ( )			OUTPUT THD 30%		
C/SUB	SR/SL	FR/FL	C/SUB	SR/SL	FR/FL
3	5	5	230W	135W	135W

EASTECH	MODE NO	BD HTS5561/81/91
DESC	DESC	MT8555/CS48540/TAS5342A Solution
CUSTOMER	SIZE	A3   VER 1
Date	PREPARED	CHECKED
PAGE		APPK

Working mode setting:

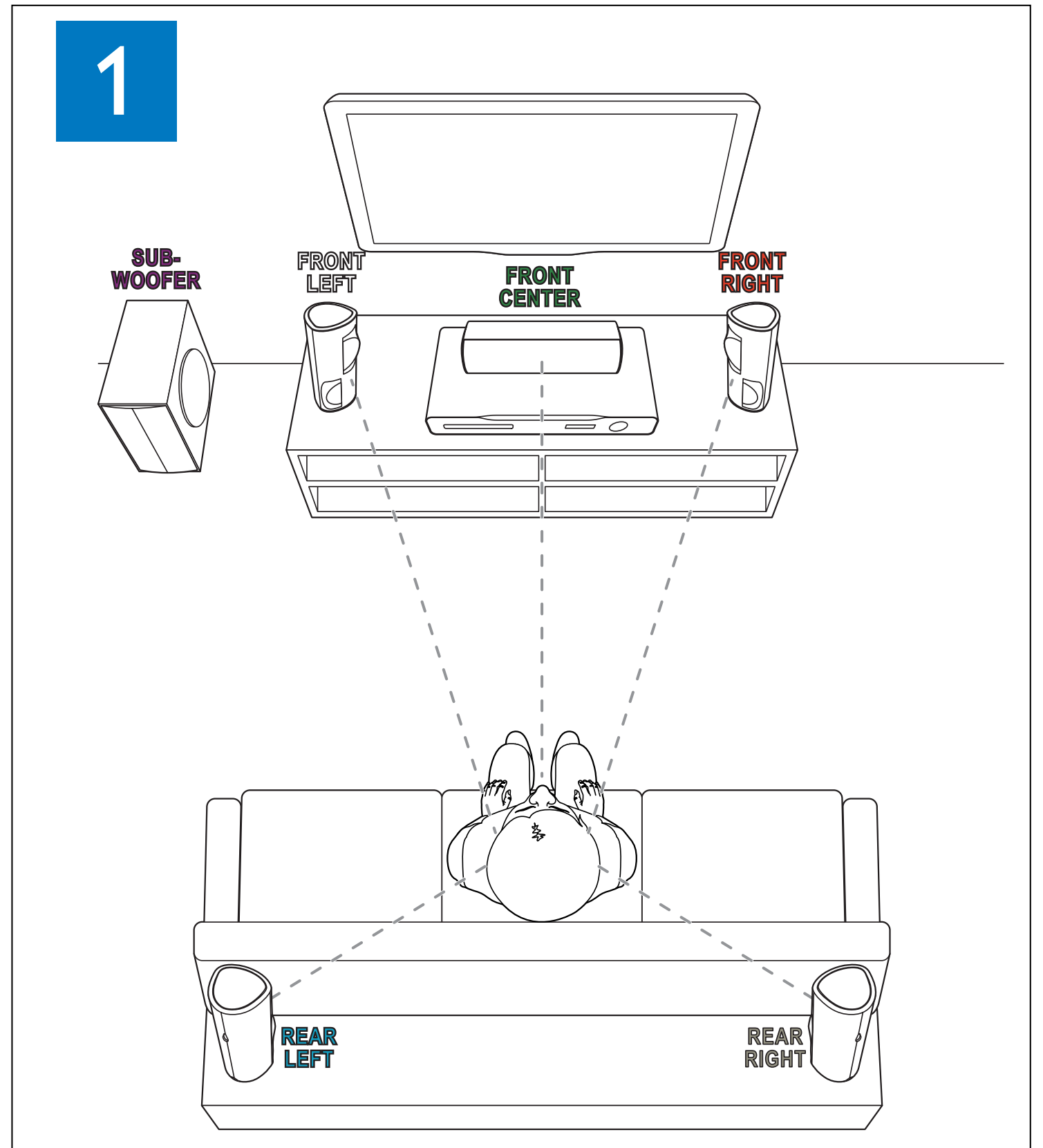
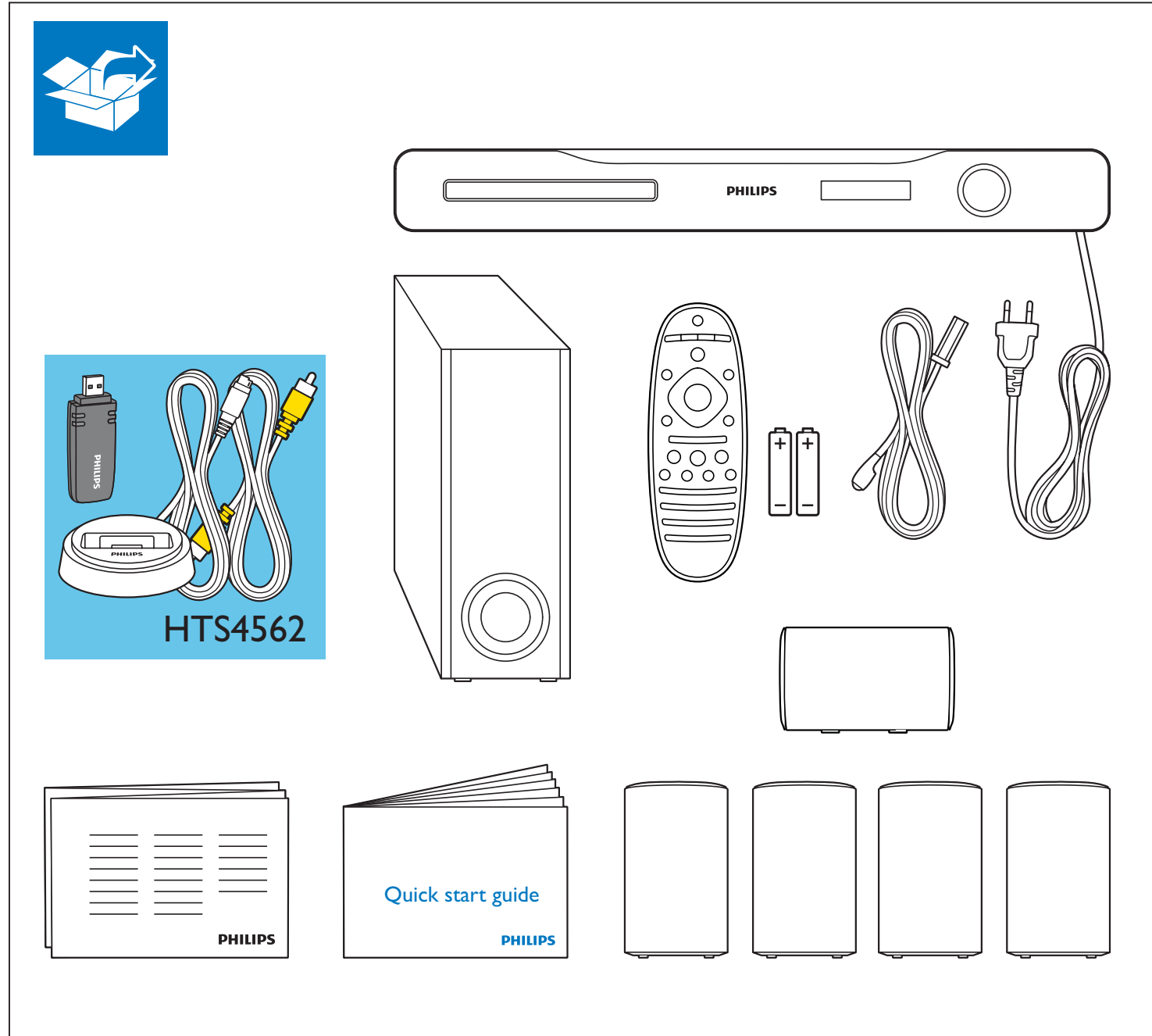
When Spdif/Aux/Mp3/Tuner/iPod mode:			
CS5346	CS8422	MT8555	CS48540
Master	Master	Slave	Slave
When BD Mic mode:			
CS5346	MT8555	CS48540	
Slave	Master	Slave	



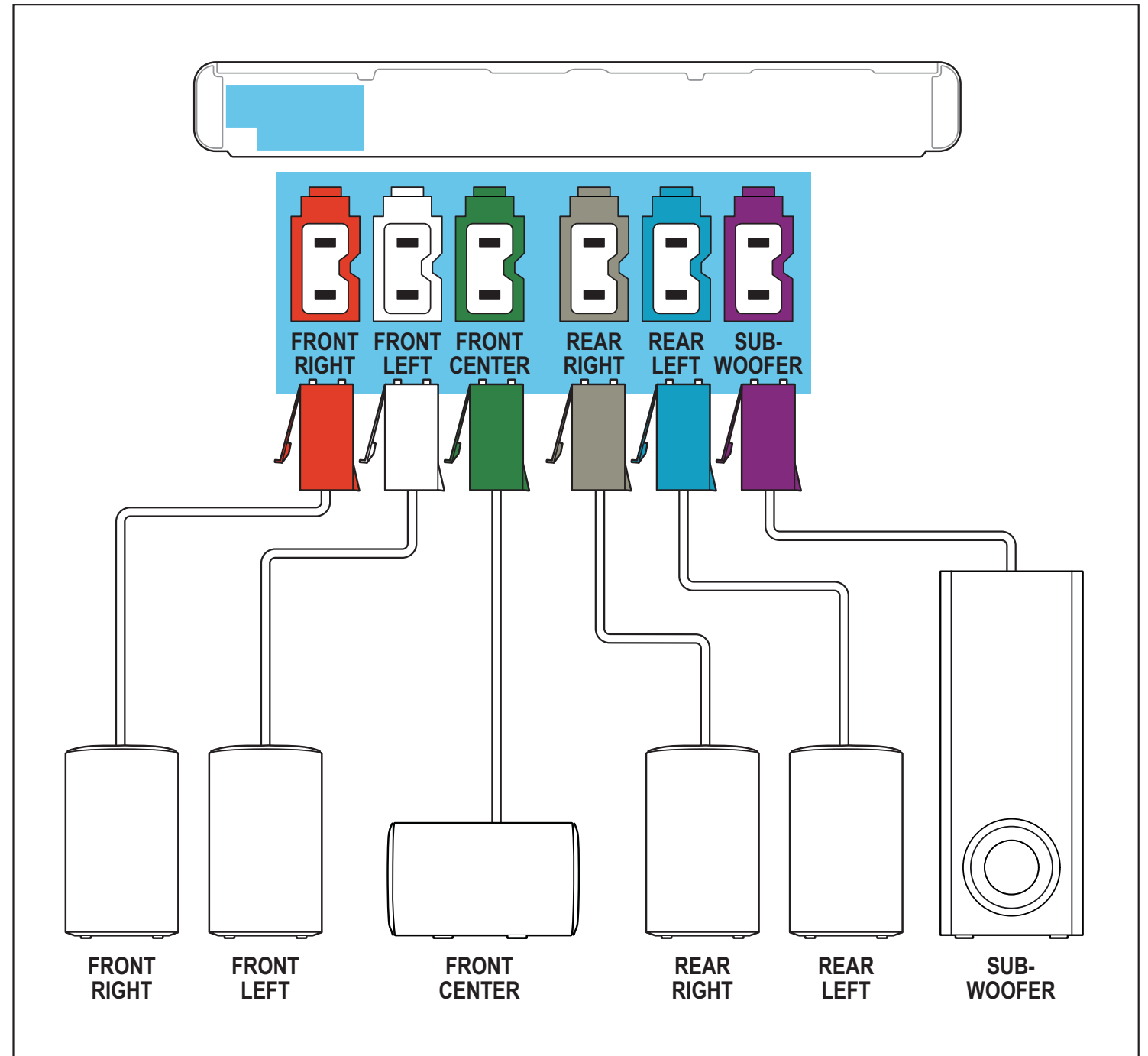
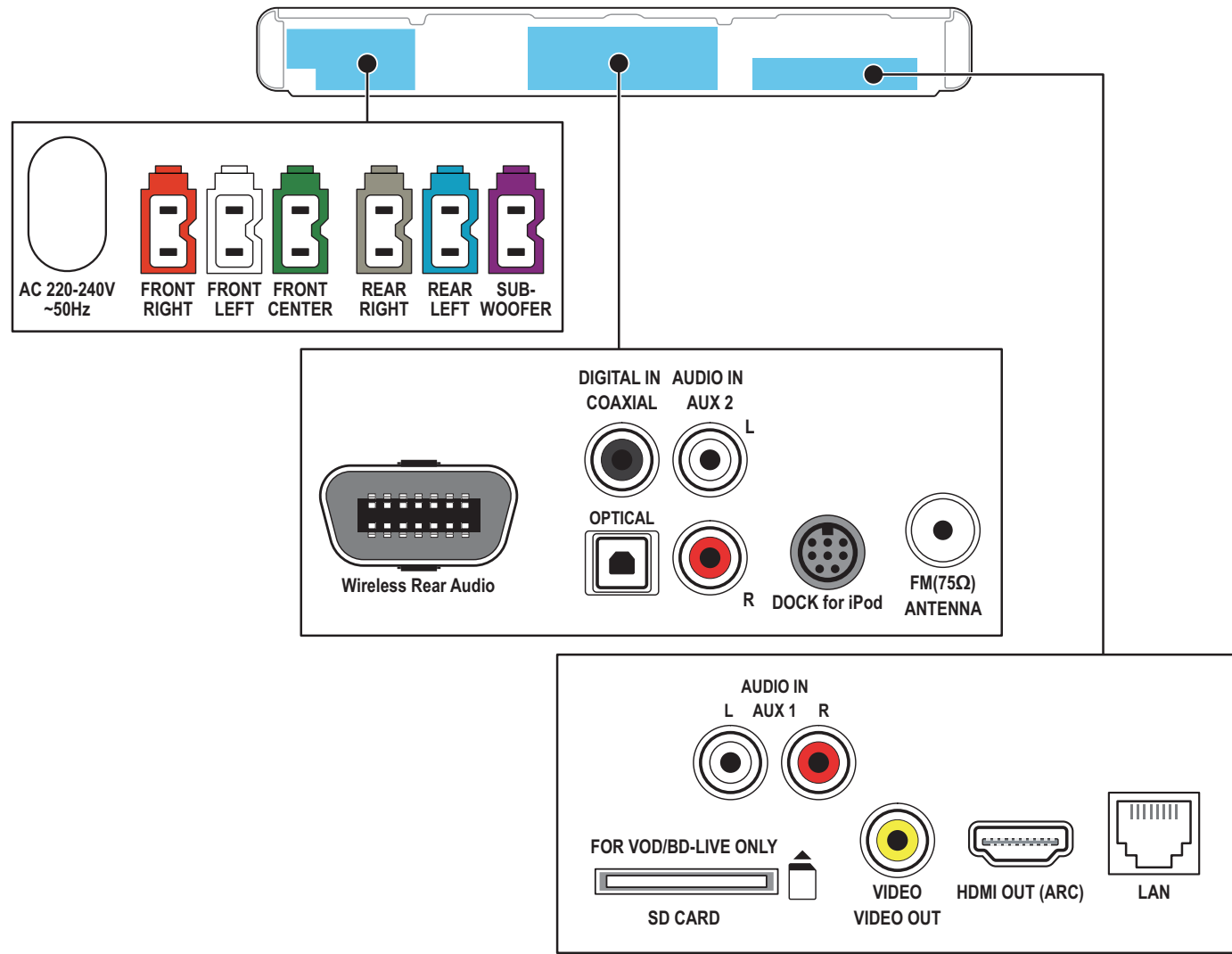
# QUICK START GUIDE

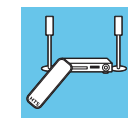
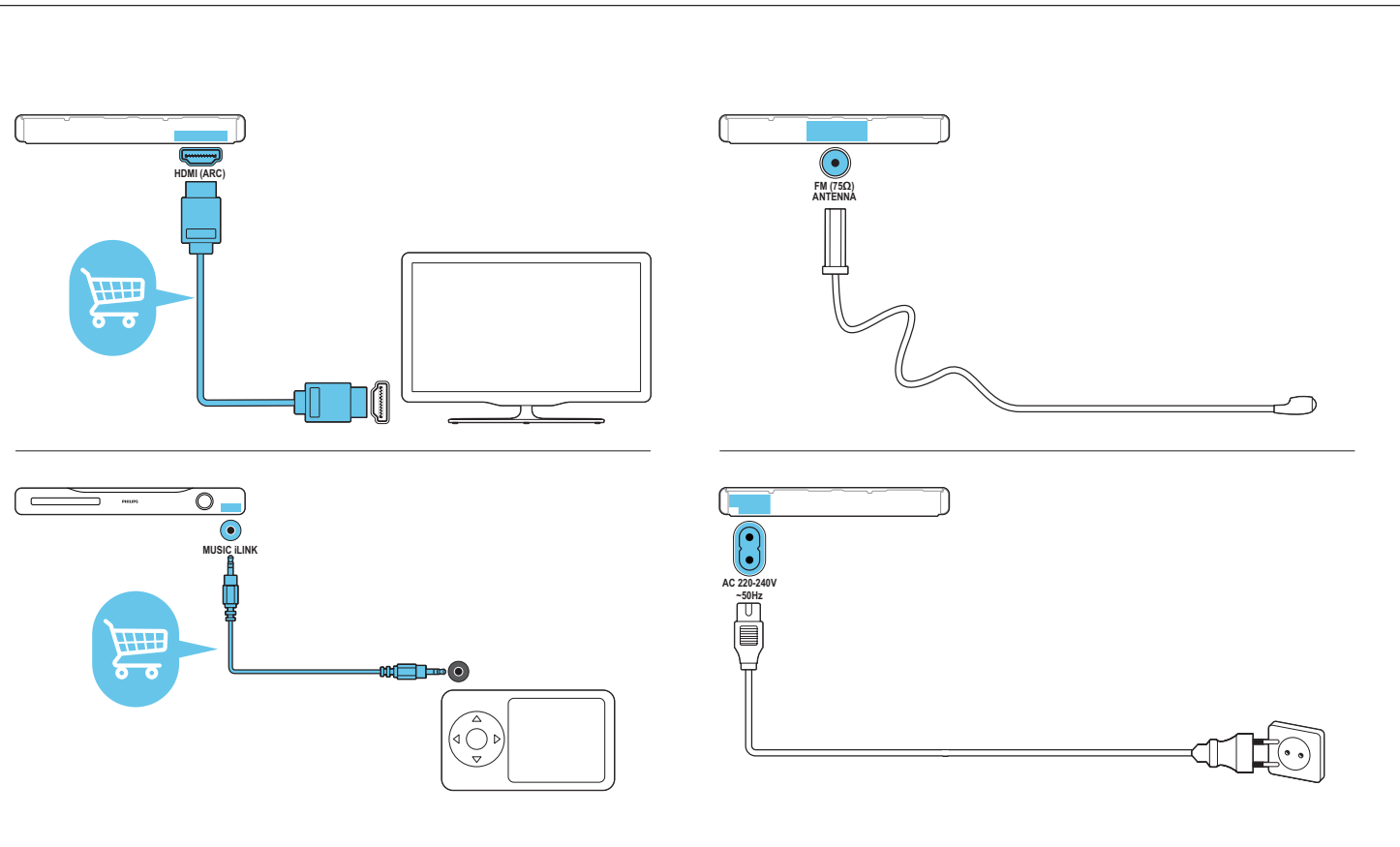
The following excerpt of the QSG/DFU serves as an introduction to the set.

The complete Direction for Use can be download in the different languages from the internet site of Philips Consumer Care Center: [www.support.philips.com](http://www.support.philips.com).

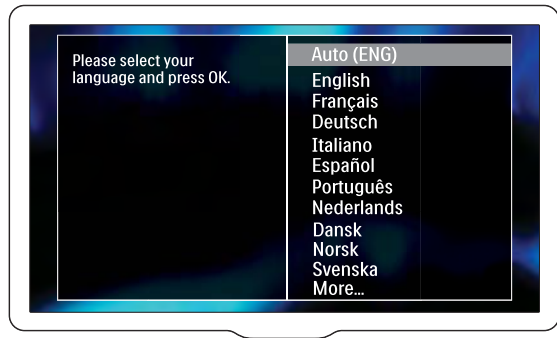


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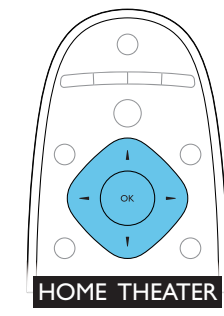
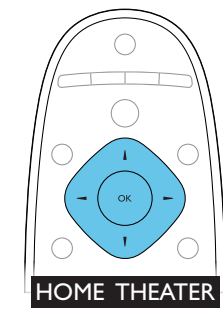
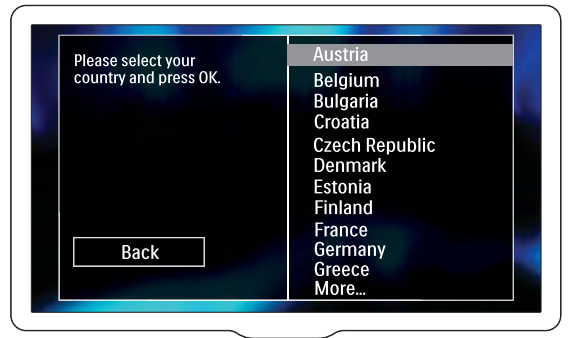




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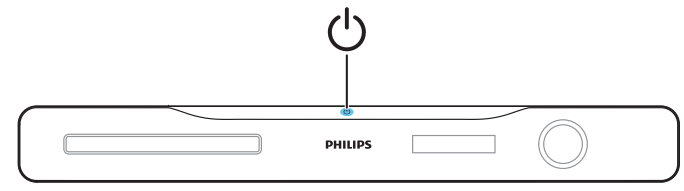


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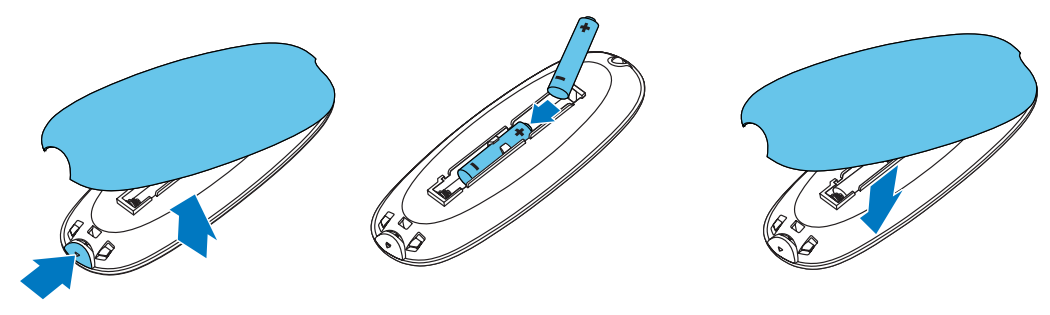


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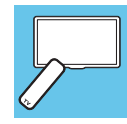
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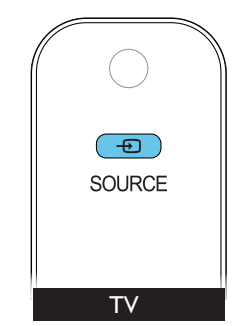
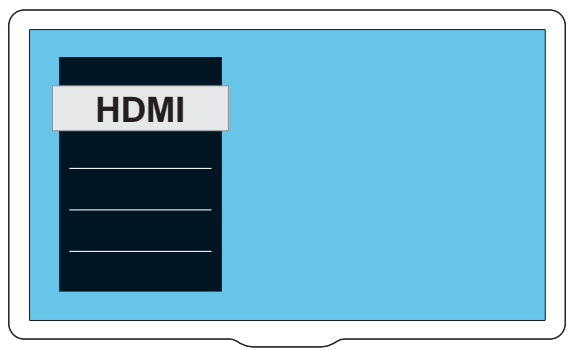
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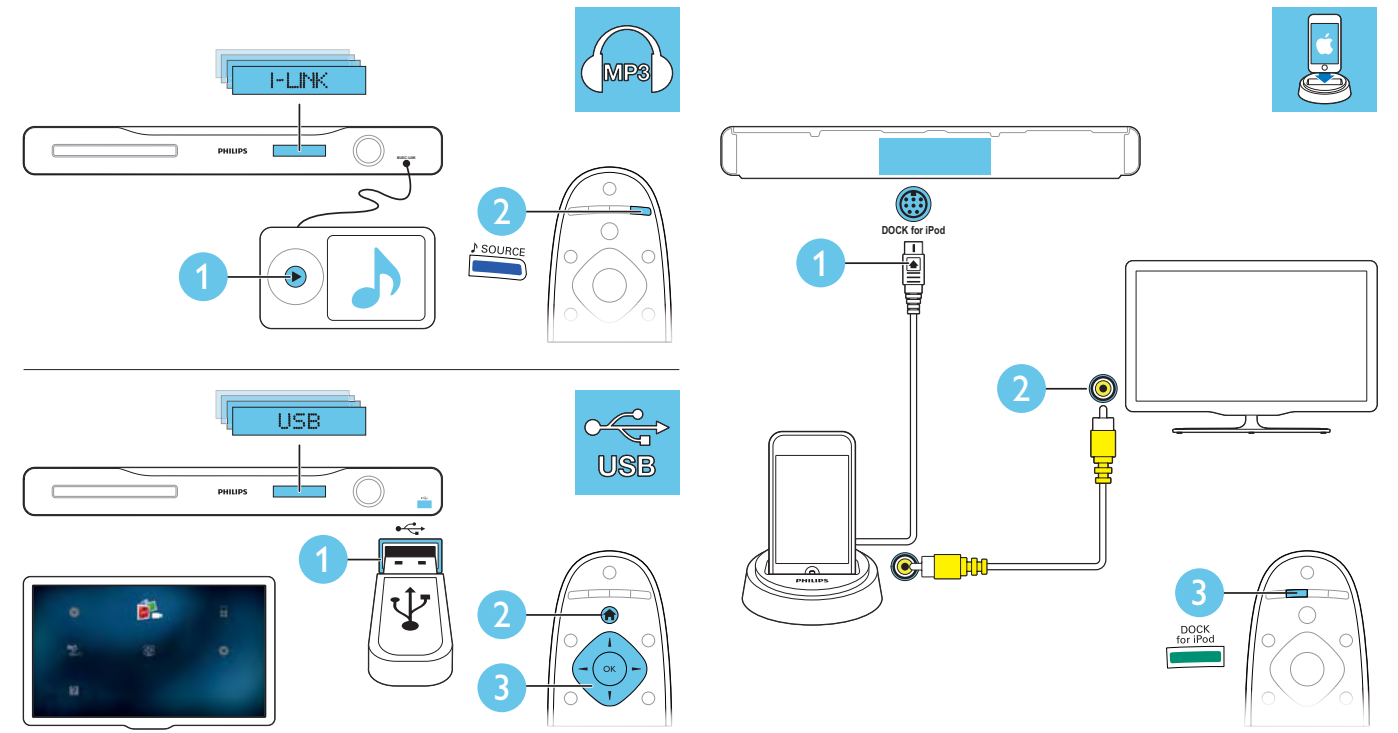
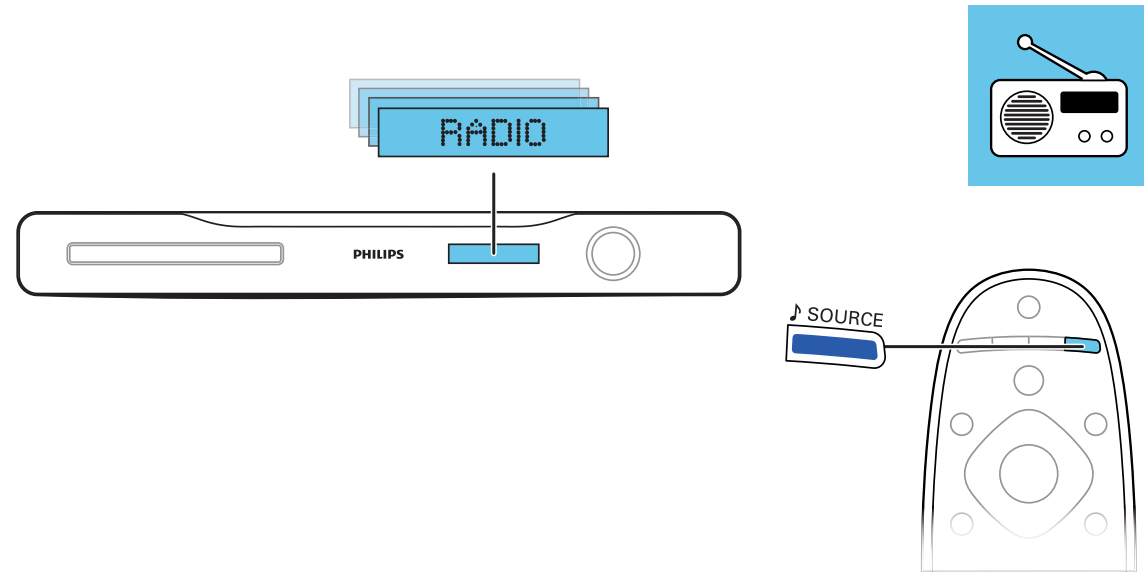
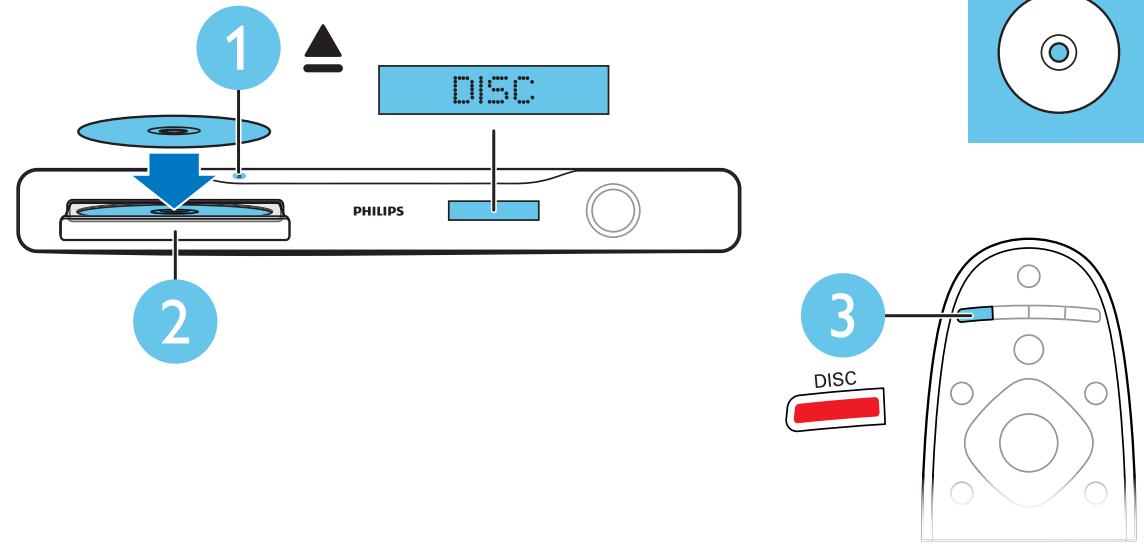
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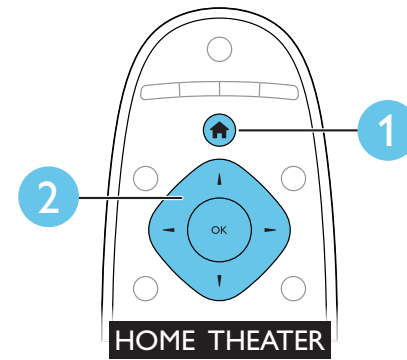
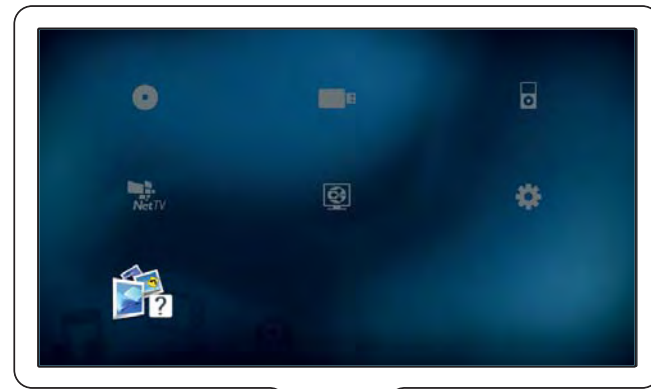
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# 5



# ?

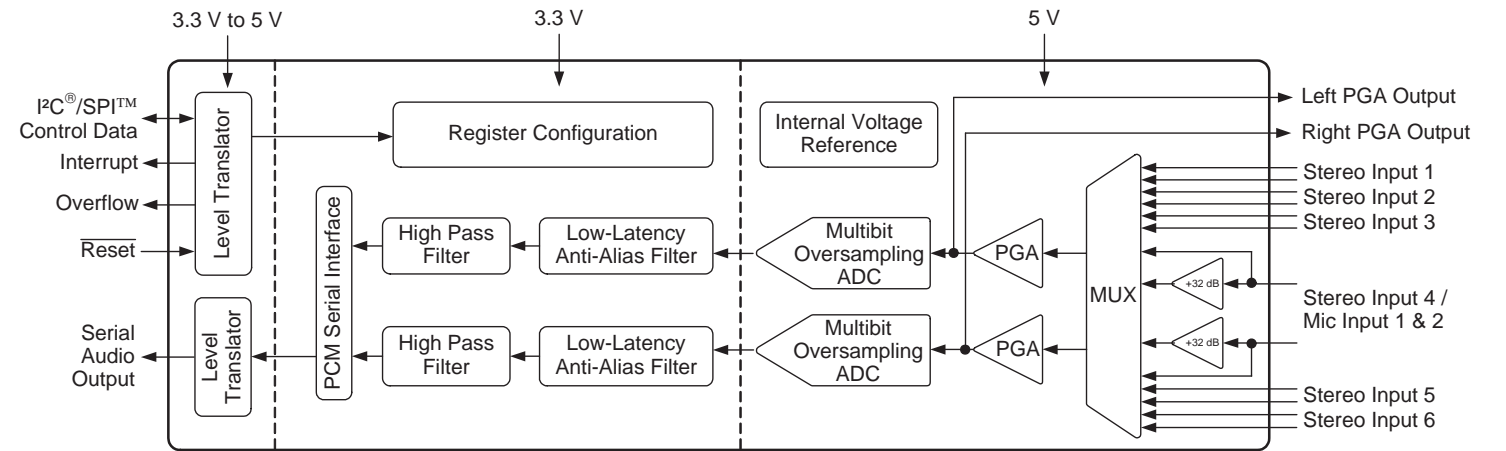


# MAIN+VOL BOARD

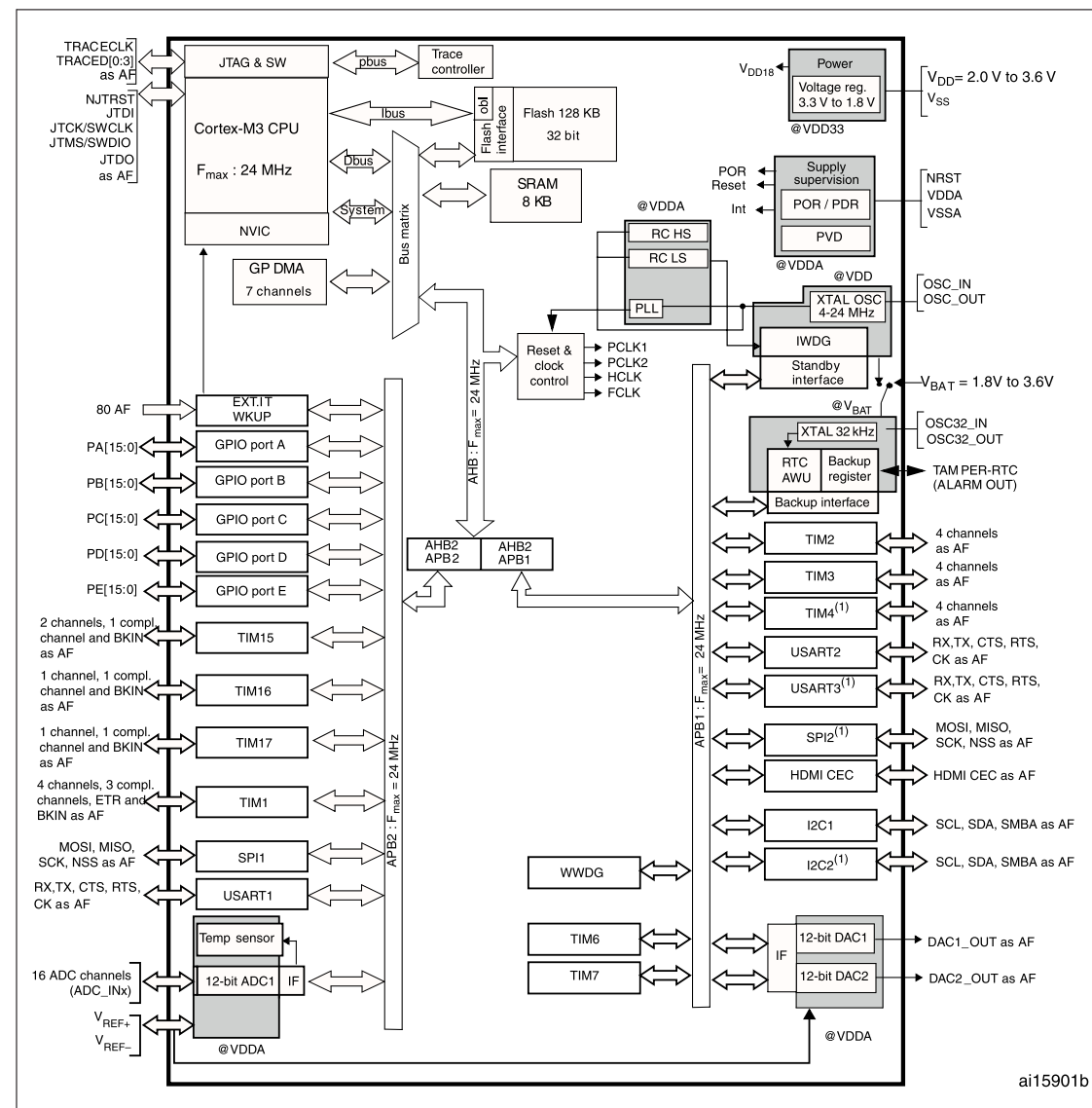
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**INTERNAL IC DIAGRAM - CS5346-CQZR LQFP**

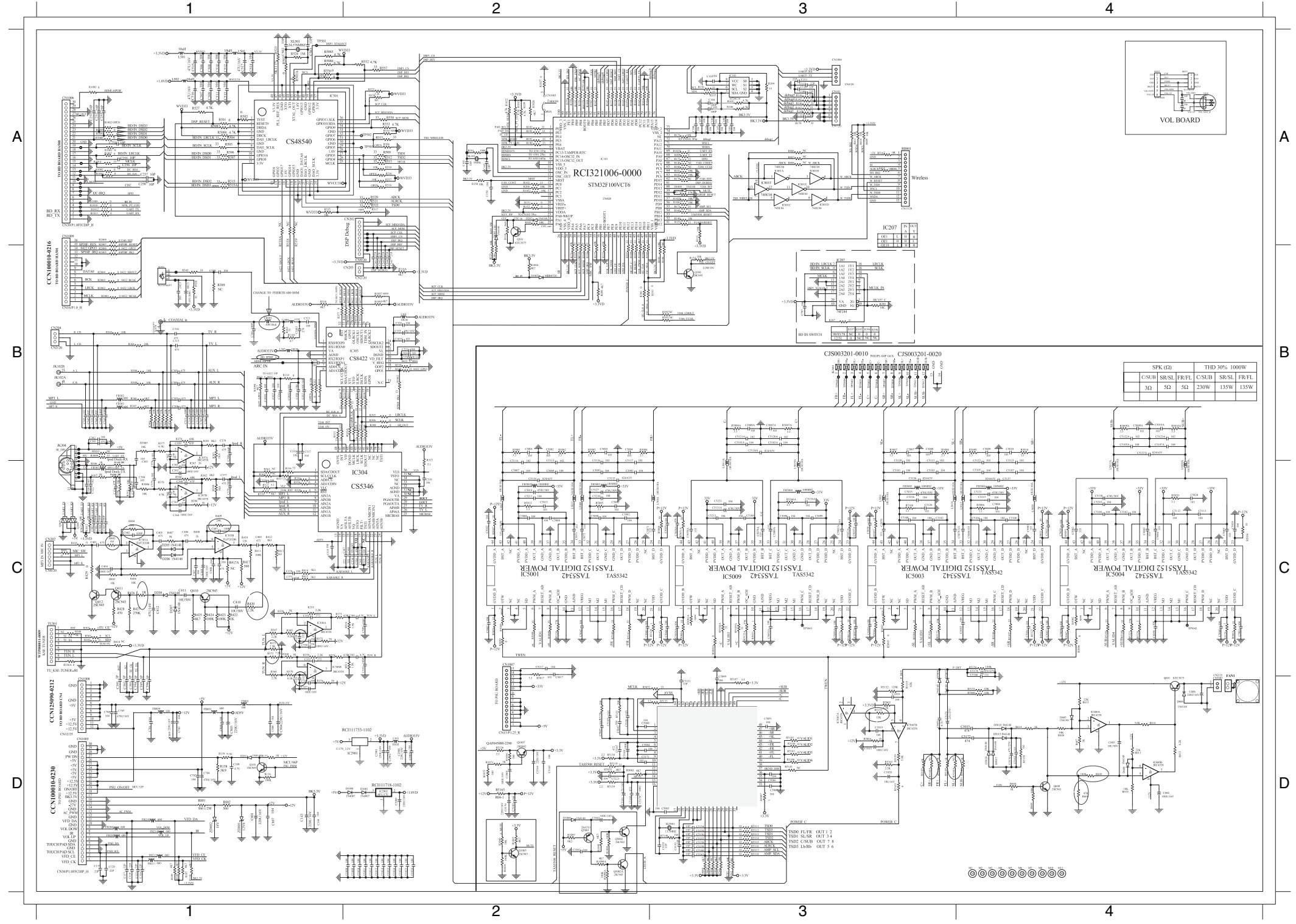


**INTERNAL IC DIAGRAM - STM32F100VCT6**



# CIRCUIT DIAGRAM

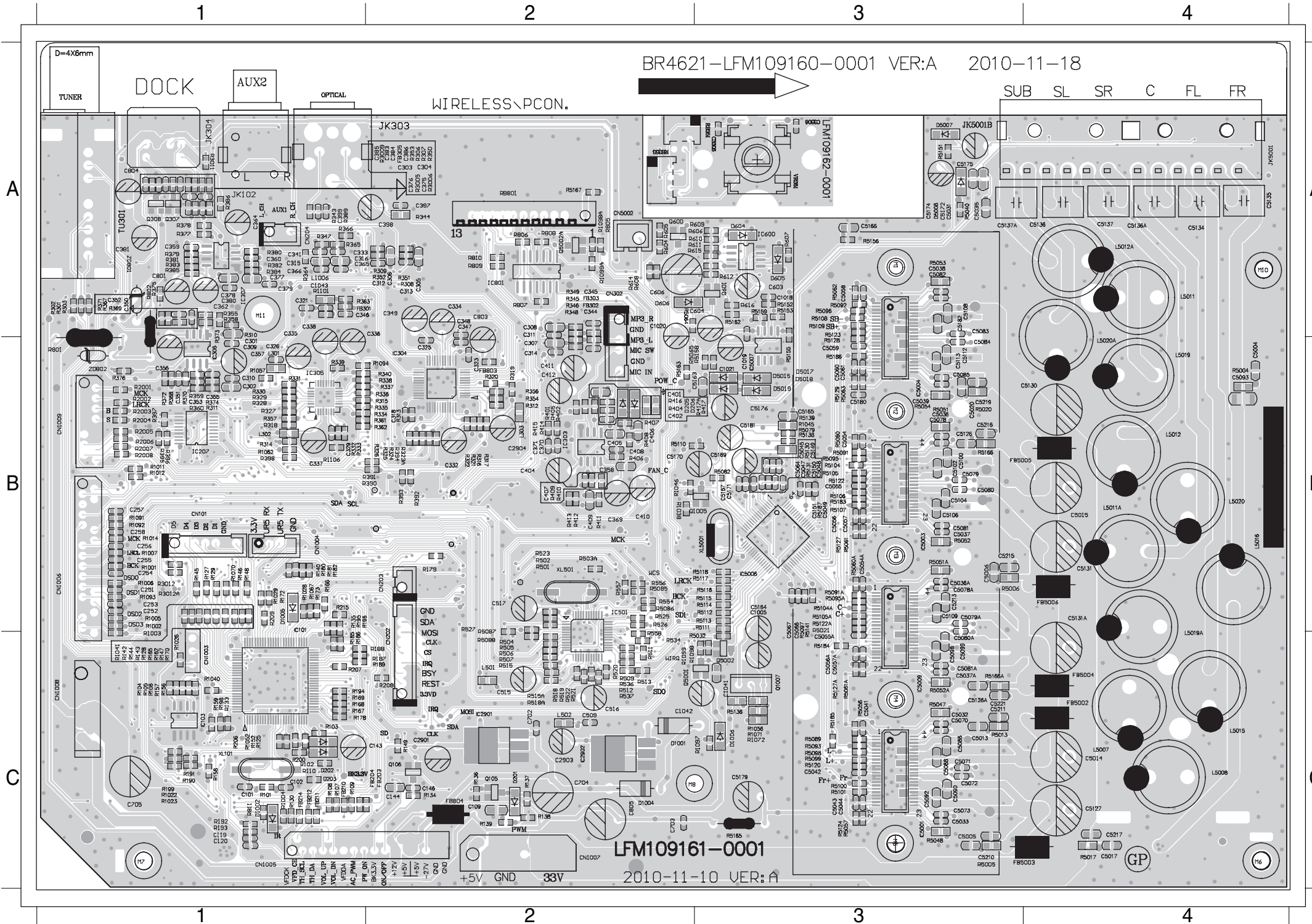
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C1009 D2	C108 A3	C252 A1	C315 B1	C340 C1	C367 B1	C5008AB3	C5047 D2	C5078 C3	C5101 C3	C5122AB4	C5157 D3	C5217 C2	CN302 C1	FB5004C3	L1006 B1	Q5001 D2	R1040 A2	R1098AD2	R150 A2	R181 A3	R215 A3	R319 C1	R347 B1	R374 B1	R5008AB3	R5057 C3	R5100 C2	R5127 C4	R5184 D3	R802 D1
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C1011 D2	C111 A3	C255 A1	C318 C2	C343 B1	C376 C1	C5010 B4	C5051 D3	C5079AC3	C5103 C3	C5126 C3	C516 A1	C5223 D2	D1002 B2	FB801 D1	L303 D2	Q600 D4	R1046 D2	R110 A2	R153 B2	R186 B2	R284 D3	R322 B1	R350 C1	R377 B1	R501 A1	R5060AC3	R5104AC3	R5129 C4	R5187 D3	R810 A3
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C1015 D2	C115 D1	C2901 D2	C322 C1	C347 C2	C380 B1	C5015 C3	C5055AC3	C5081 C4	C5105AB4	C5130 C4	C5165 D2	C701 D1	D201 D1	IC103 A3	L5011 C3	Q1004 B2	R106 A3	R127 A2	R158 A2	R191 A2	R301 C1	R326 B2	R354 C1	R381 B1	R5017 D2	R5063 C4	R5107 C4	R5133 D3	R523 A1	RB801 A3
C1016 D2	C116 D1	C2902 D2	C323 C1	C348 C2	C381 B1	C5017 D2	C5056 C4	C5081AC3	C5106 C4	C5131 C4	C5166 C4	C702 D1	D202 A2	IC2901 D2	L5011AC3	Q1005 A1	R1062 B2	R128 A2	R159 A2	R192 A2	R3012 C1	R327 B2	R355 C1	R382 C1	R5017 A1	R507 A1	R5108 C4	R5136 D2	R524 A1	TU301 C1
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C1022 D2	C120 D1	C2905 D2	C326 B2	C351 D1	C384 C1	C503 A1	C5057AC3	C5084 C4	C5108 C4	C5135 C2	C5169 D2	C705 D1	D5008 D4	IC305 B2	L5015 C2	Q1009 A1	R1067 A3	R133 A2	R162 A2	R198 A2	R303 C1	R330 B2	R357 B1	R385 C1	R503 A1	R5083 D3	R5110 D2	R5140 D3	R527 A1	XL5001 D3
C1023 D2	C143 D1	C301 C2	C327 B1	C352 C1	C385 C1	C5031 D3	C5058 C4	C5085 C4	C5109 C3	C5136 C3	C517 A1	C706 D1	D605 D4	IC306 C1	L5016 C3	Q101 A2	R107 D1	R134 B3	R163 A2	R199 A2	R306 C1	R331 B2	R358 C1	R386 C1	R5032 D3	R5084 D3	R5111 D3	R5144 D4	R535 A1	XL501 A1
C1024 D2	C144 D1	C302 B1	C329 B1	C353 C1	C386 C1	C5032 C2	C5059 C4	C5086 C2	C511 A1	C5136AB3	C5170 D2	C801 D1	D606 D4	IC307 C1	L5019 C3	Q1010 A1	R1070 A2	R135 A3	R164 A2	R200 B2	R307 C1	R332 B1	R359 C1	R390 B2	R503A A1	R5085 A1	R5112 D3	R5145 D3	R537 A2	ZD801 D1
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C105 A3	C244 B2	C312 B1	C337 B1	C364 C1	C5007 B3	C5043 C2	C5071 C2	C5099 C3	C5121 B3	C5154 D3	C5213 C3	CN1008D1	FB305 C1	JK304 B1	Q106 B3	R103 A2	R1096 C1	R147 A3	R174 A3	R207 B2	R317 C1	R344 B1	R371 C1	R5007 B3	R5053 C4	R5098 C2	R5122AC3	R5166AC3	R614 D4	





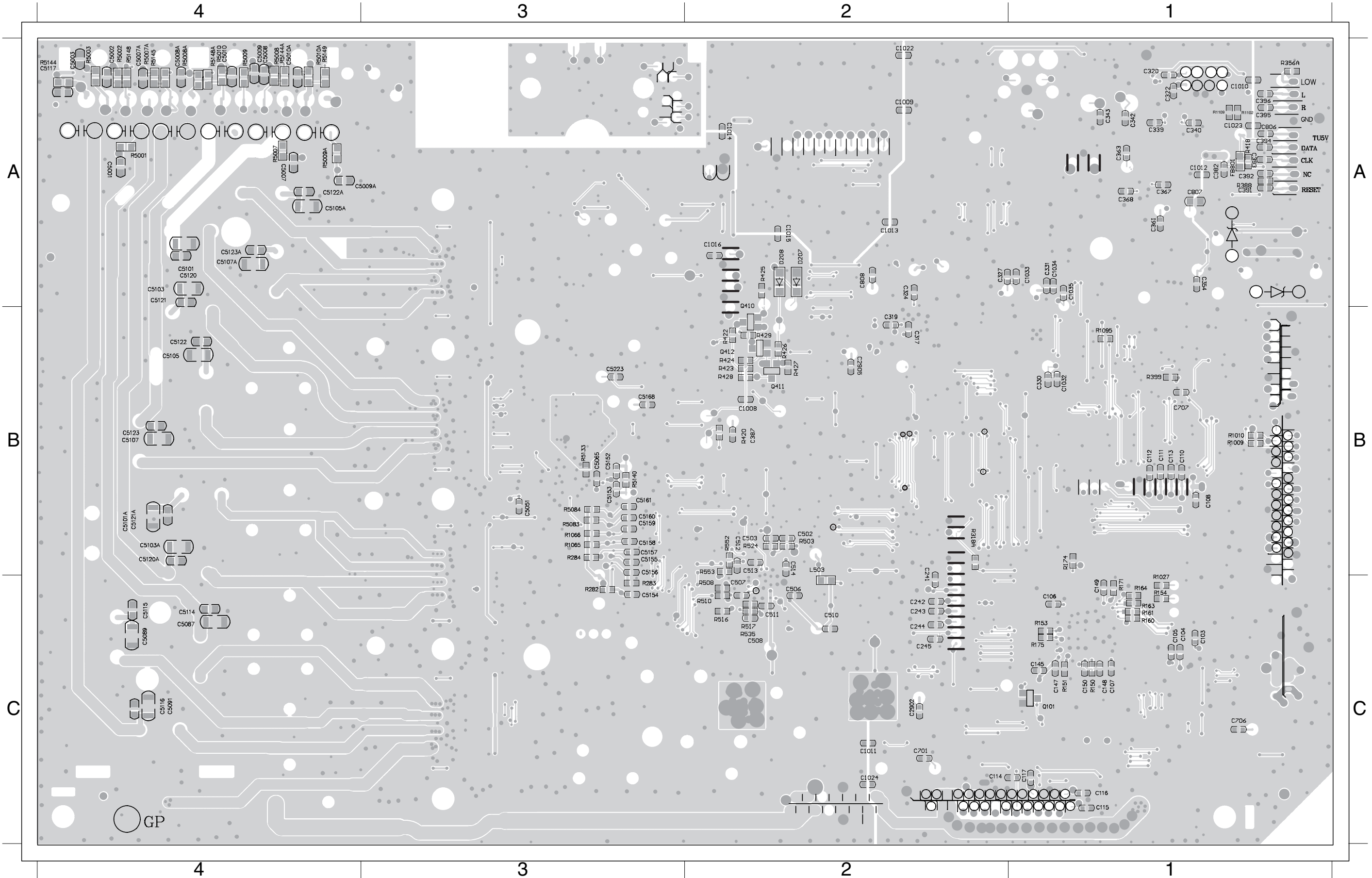
# PCB LAYOUT - TOP VIEW

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C101 C1	C2903 C2	C325 B2	C352 A1	C397 A2	C5042 C3	C5067 C3	C5092 C3	C5136AA4	C5182 A3	CN1006B1	FB210 C1	IC306 B1	L501 C2	Q600 A2	R1041 C1	R1098AA2	R146 B1	R185 C1	R207 C1	R315 B2	R336 B2	R359 B1	R382 A1	R5040 A3	R5085 B2	R5109 A3	R513 C2	R521 C2	R811 C1
C1018 A3	C2904 B2	C326 B1	C353 B1	C398 A2	C5043 C3	C5070 C3	C5093 B4	C5137 A4	C5210 C3	CN1007C2	FB211 C1	IC307 A1	L5011 A4	Q601 A3	R1045 B3	R1099 C2	R147 C1	R186 C1	R208 C2	R316 B2	R337 B2	R360 B1	R383 A1	R5047 C3	R5086 B2	R511 C2	R5130 B3	R522 C2	RB351 A3
C102 C1	C301 B1	C329 B1	C355 B1	C399 A1	C5044 C3	C5071 C3	C5098 C3	C5137AA3	C5211 C3	CN1008C1	FB212 C1	IC5001C3	L5011AB4	R1001 B1	R1046 B2	R1099AA2	R148 B1	R187 C2	R209 B1	R317 B2	R338 B2	R363 A1	R384 A1	R5048 C3	R5087 C2	R5110 B2	R5131 B3	R523 B2	RB353 A2
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C1043 A1	C304 A2	C332 B2	C359 A1	C5006 B3	C5048 B3	C5078 B3	C5102 B3	C5150 B3	C5216 B3	CN302 A2	FB302 A2	IC5006B3	L5015 C4	R1005 B1	R1056 C3	R125 C1	R156 C1	R191 C1	R3006 A2	R320 B2	R343 A1	R366 A1	R390 B2	R5051AB3	R5093 C3	R5113 B3	R5139 B3	R527 B2	VR351 A3
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C119 C1	C306 A2	C334 A2	C362 A1	C5014 C4	C5054 B3	C5079 B3	C5106 B3	C516 C2	C5219 B3	D1001 C2	FB305 A2	IC501 B2	L5019 B4	R1007 B1	R1062 B1	R128 C1	R158 C1	R193 C1	R301 A1	R322 B2	R345 A2	R368 B1	R394 B2	R5053 A3	R5095AB3	R5115 B3	R5151 A3	R554 B2	XL5001B3
C120 C1	C307 B2	C335 A1	C364 A1	C5015 B4	C5054AB3	C5079AB3	C5108 A3	C5164 B3	C5221 C3	D1002 C1	FB5002C4	IC801 A2	L5019AC4	R101 C1	R1067 B1	R129 B1	R159 C1	R194 C1	R3012 B1	R323A B2	R346 A2	R369 A1	R397 B1	R5054 B3	R5096 A3	R5116 B3	R5152 A3	R556 B2	XL501 B2
C143 C2	C308 A2	C336 A2	C365 A1	C5017 C4	C5055 B3	C5080 B3	C5109 B3	C5165 B3	C603 A3	D1004 C2	FB5003C4	JK102 A1	L502 C2	R1011 B1	R107 C1	R130 C1	R162 C1	R198 C1	R3012AB1	R324 B2	R347 A1	R370 B1	R5004 B4	R5056 C3	R5097 C3	R5117 B3	R5153 A3	R557 B2	ZD801 A1
C144 C2	C309 B1	C337 B1	C366 A1	C5020 B3	C5055AC3	C5080AC3	C5112 B3	C5166 A3	C604 A2	D1005 B1	FB5004C4	JK303 A2	L5020 B4	R1012 B1	R1070 B1	R133 C1	R165 C1	R199 C1	R302 A1	R325 B2	R348 A2	R371 A1	R5005 C3	R5057 C3	R5098 C3	R5118 B3	R5156 A3	R558 C2	ZD802 B1
C146 C2	C310 B1	C338 A1	C375 A2	C5031 A3	C5056 B3	C5081 B3	C5113 B3	C5167 B3	C606 A2	D1006 C3	FB5005B4	JK304 A1	L5020AB4	R1014 B1	R1071 C3	R134 C2	R166 B1	R200 C1	R303 A1	R326 B2	R349 A2	R372 B1	R5006 B4	R506 C2	R5099 C3	R512 C2	R5165 C3	R604 A2	
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**PCB LAYOUT - BOTTOM VIEW**

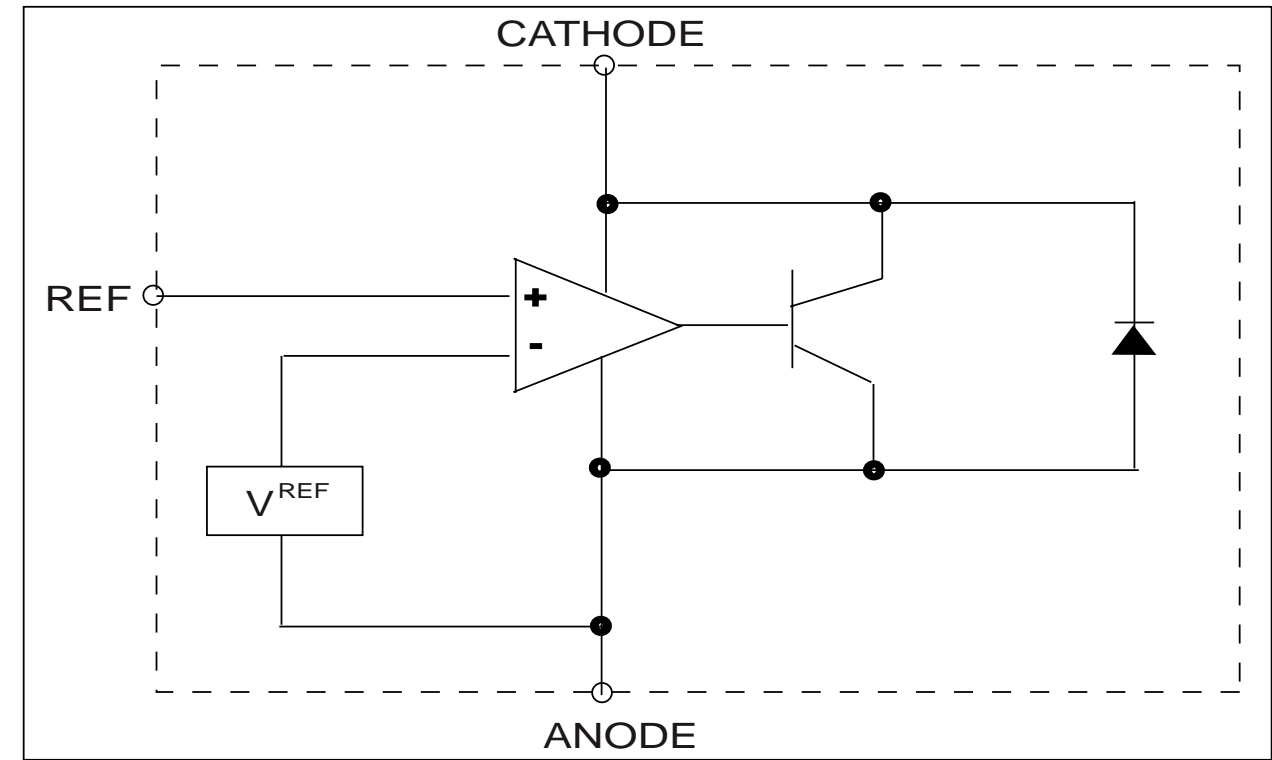
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|-------|----|-------|----|-------|----|------|----|------|----|-------|----|------|----|------|----|-------|----|----------|-------|----------|-------|-------|----------|----------|-------|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|------|-------|-------|----------|----------|-------|-------|-------|------|----|
| C1008 | B2 | C1015 | A2 | C1033 | A1 | C108 | B1 | C116 | C1 | C241  | B2 | C317 | B2 | C331 | A1 | C363  | A1 | C5003    | A4    | C5010    | A4    | C507  | C2       | C5101AB4 | C511  | C2       | C5120AB4 | C513  | B2    | C5157 | B3    | C701  | C2    | Q101  | C1    | R1096 | A1    | R161 | C1    | R283 | C3    | R5007 | A4       | R5010AA4 | R5140 | B3    | R552  | B2   |    |
| C1009 | A2 | C1016 | A2 | C1034 | A1 | C110 | B1 | C117 | C1 | C242  | C2 | C319 | B2 | C339 | A1 | C367  | A1 | C5007    | A4    | C5010AA4 | C508  | C2    | C5103    | A4       | C5114 | C4       | C5121    | A4    | C514  | B2    | C5158 | B3    | C706  | C1    | R1009 | B1    | R1102 | A1   | R163  | C1   | R284  | B3    | R5007AA4 | R503     | B2    | R5144 | A4    | R553 | B2 |
| C1010 | A1 | C1022 | A2 | C1035 | A1 | C111 | B1 | C145 | C1 | C243  | C2 | C320 | A1 | C340 | A1 | C368  | A1 | C5007AA4 | C502  | B2       | C5087 | C4    | C5103AB4 | C5115    | C4    | C5121AB4 | C5152    | B3    | C5159 | B3    | C806  | A1    | R1010 | B1    | R150  | C1    | R164  | C1   | R318A | B2   | R5008 | A4    | R5052AC3 | R5145    | A4    |       |       |      |    |
| C1011 | C2 | C1023 | A1 | C104  | C1 | C112 | B1 | C147 | C1 | C244  | C2 | C322 | A1 | C342 | A1 | C379  | A1 | C5008    | A4    | C503     | B2    | C5089 | C4       | C5105    | B4    | C5116    | C4       | C5122 | B4    | C5153 | B3    | C5160 | B3    | C807  | A1    | R1027 | B1    | R151 | C1    | R171 | C1    | R356A | A1       | R5008AA4 | R5083 | B3    | R5148 | A4   |    |
| C1012 | A1 | C1024 | C2 | C105  | C1 | C113 | B1 | C148 | C1 | C245  | C2 | C324 | A2 | C343 | A1 | C382  | A1 | C5008AA4 | C5051 | B3       | C5091 | C4    | C5105AA4 | C5117    | A4    | C5122AA4 | C5154    | C3    | C5161 | B3    | C808  | A2    | R1065 | B3    | R153  | C1    | R174  | B1   | R5001 | A4   | R5009 | A4    | R5084    | B3       | R5149 | A4    |       |      |    |
| C1013 | A2 | C103  | C1 | C106  | C1 | C114 | C2 | C149 | C1 | C2902 | C2 | C327 | A2 | C354 | A1 | C5001 | A4 | C5009    | A4    | C506     | C2    | C510  | C2       | C5107    | B4    | C512     | B2       | C5123 | A4    | C5155 | B3    | C5168 | B3    | FB801 | A1    | R1066 | B3    | R154 | C1    | R175 | C1    | R5002 | A4       | R5009AA4 | R510  | C2    | R524  | B2   |    |
| C1014 | A2 | C1032 | B1 | C107  | C1 | C115 | C1 | C150 | C1 | C2905 | B2 | C330 | B1 | C361 | A1 | C5002 | A4 | C5009AA4 | C5065 | B3       | C5101 | A4    | C5107AA4 | C5120    | A4    | C5123AA4 | C5156    | B3    | C5223 | B3    | L503  | B2    | R1095 | B1    | R160  | C1    | R282  | C3   | R5003 | A4   | R5010 | A4    | R5133    | B3       | R535  | C2    |       |      |    |



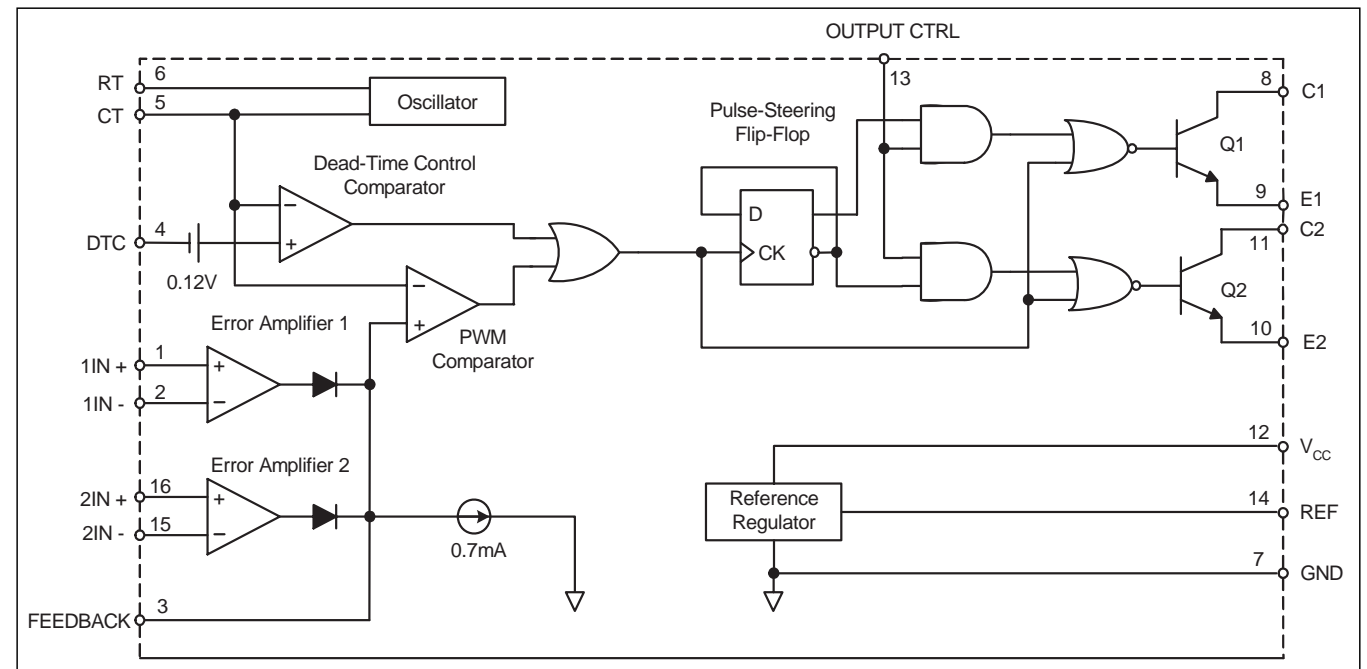
# POWER BOARD

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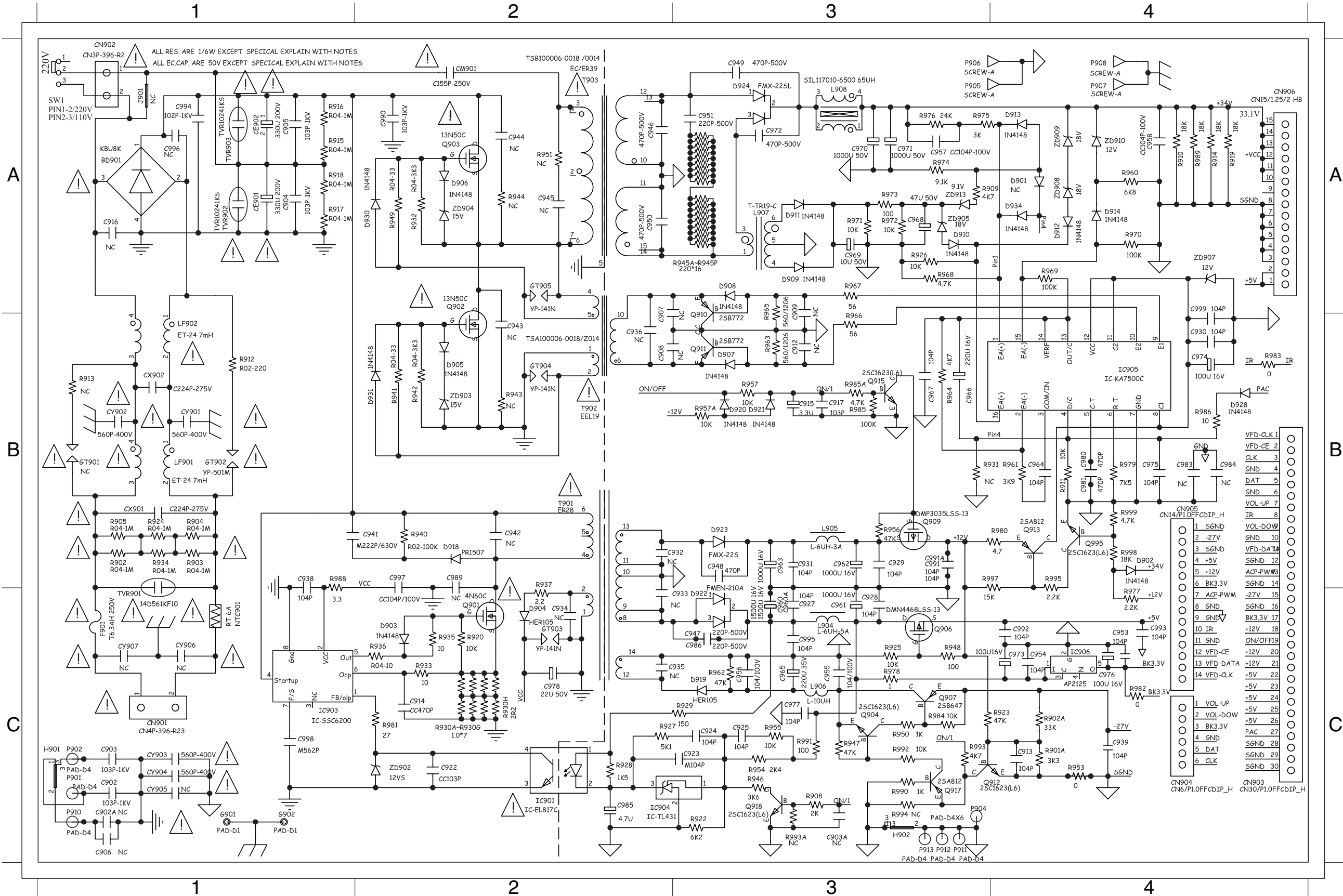


INTERNAL IC DIAGRAM - AZ7500BP



# CIRCUIT DIAGRAM

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C902 C1	C925 C3	C948 B3	C960A C3	C971 A3	C986 C2	CE901 A1	CY902 B1	D910 A3	D924 A3	IC903 C1	Q901 C2	Q915 B3	R909 A3	R922 C3	R930D C2	R940 B2	R945I A3	R949 A2	R963 B3	R974 A3	R985 B3	R998 B4	ZD905 A3
C903 C1	C927 C3	C949 A3	C961 C3	C972 A3	C990 A2	CE902 A1	CY903 C1	D911 A3	D928 B4	IC904 C2	Q902 A2	Q917 C3	R910 A4	R923 C3	R930E C2	R941 B2	R945J A3	R950 C3	R964 B3	R975 A3	R985A B3	R999 B4	ZD907 A4
C904 A1	C928 C3	C950 A2	C962 B3	C973 C4	C991 B3	CM901 A2	CY904 C1	D912 A4	D930 A2	IC905 B4	Q903 A2	Q918 C3	R911 B4	R924 B1	R930F C2	R942 B2	R945K A3	R953 C4	R965 A3	R976 A3	R986 B4	T901 B2	ZD908 A4
C905 A1	C929 B3	C951 A3	C963 B3	C974 B4	C991A B3	CN901 C1	D902 B4	D913 A4	D931 B2	IC906 C4	Q904 C3	Q995 B4	R912 B1	R925 C3	R930G C2	R945A A3	R945L A3	R954 C3	R966 B3	R977 C4	R988 B1	T902 B2	ZD909 A4
C913 C4	C930 B4	C953 C4	C964 B3	C975 B4	C992 C4	CN903 C4	D903 C2	D914 A4	D934 A4	L905 B3	Q906 C3	R901A C4	R914 A4	R926 A3	R930H C2	R945B A3	R945M A3	R955 C3	R967 A3	R978 C4	R989 A4	T903 A2	ZD910 A4
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C915 B3	C938 B1	C955 C3	C966 A1	C977 C3	C994 A1	CN905 B4	D905 B2	D919 C3	GT902 B1	L907 A3	Q909 B3	R902A C4	R916 A1	R928 C2	R933 C2	R945D A3	R945O A3	R957 B3	R969 A4	R980 B3	R991 C3	TVR902A1	
C917 B3	C939 C4	C956 C3	C967 B3	C978 C2	C995 C3	CN906 A4	D906 A2	D920 B3	GT903 C2	L908 A3	Q910 B3	R903 B1	R917 A1	R929 C3	R934 B1	R945E A3	R945P A3	R957A B3	R970 A4	R981 C2	R992 C3	TVR903A1	
C922 C2	C941 B1	C957 A3	C968 A3	C980 B4	C997 B2	CX901 B1	D907 B3	D921 B3	GT904 B2	LF901 B1	Q911 B3	R904 B1	R918 A1	R930A C2	R935 C2	R945F A3	R946 C3	R960 A4	R971 A3	R982 C4	R993 C3	ZD902 C2	
C923 C3	C946 A2	C958 A4	C969 A3	C981 B4	C998 C1	CX902 B1	D908 A3	D922 C3	GT905 A2	LF902 B1	Q912 C3	R905 B1	R919 A4	R930B C2	R936 C2	R945G A3	R947 C3	R961 B4	R972 A3	R983 B4	R995 B4	ZD903 B2	

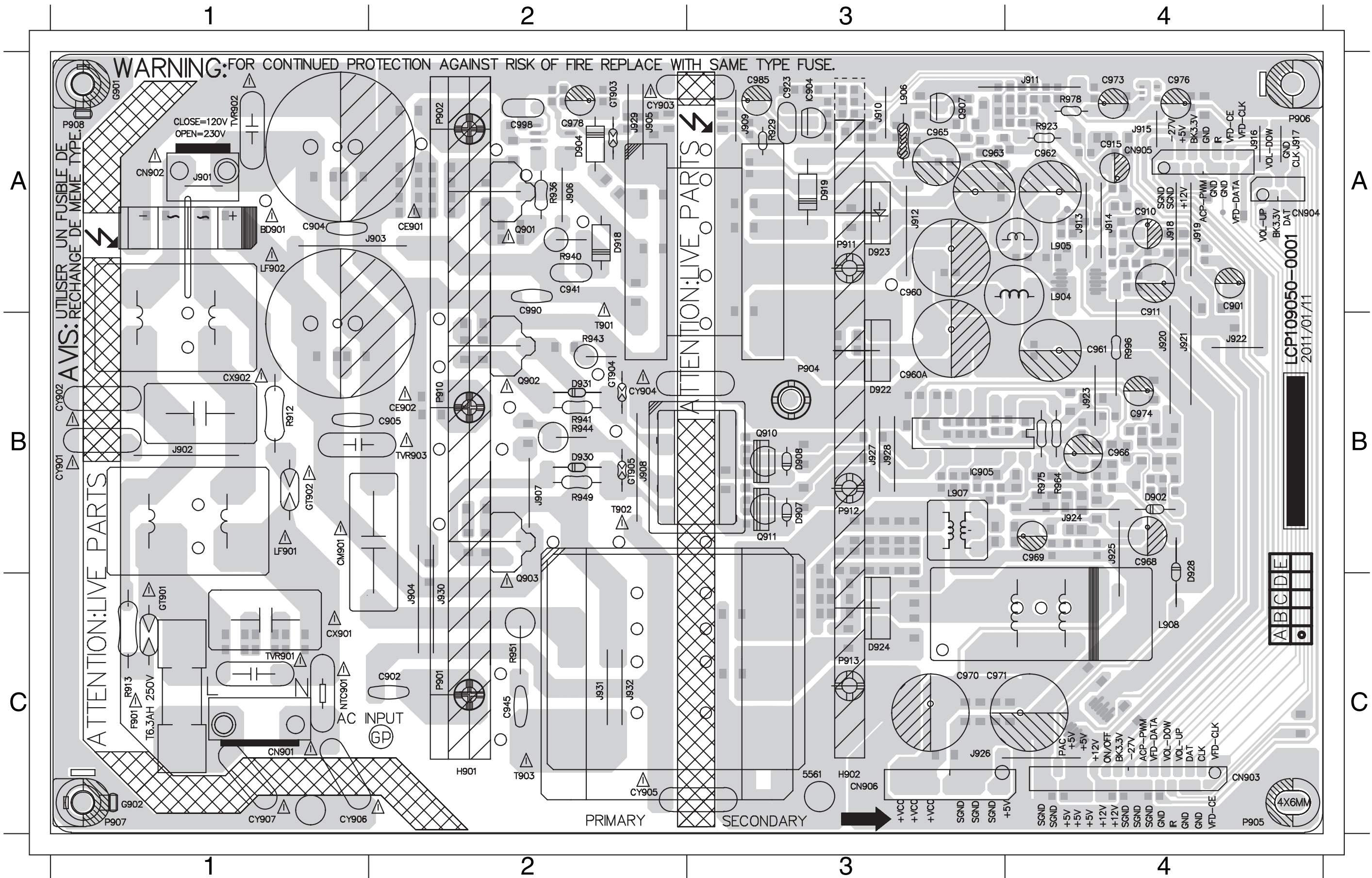


# PCB LAYOUT - TOP VIEW

7-3

7-3

BD901	A1	C911	A4	C961	B4	C969	B4	C978	A2	CM901	B1	CX901	C1	D902	B4	D922	B3	F901	C1	IC905	B3	J908	B2	J914	A4	J920	B4	J926	C3	J932	C2	LF901	B1	Q907	A3	R936	A2	R978	A4	TVR902A1
C901	A4	C915	A4	C962	A4	C970	C3	C985	A3	CN901	C1	CX902	B1	D904	A2	D923	A3	GT902	B1	J902	B1	J909	A3	J915	A4	J921	B4	J927	B3	L904	A4	LF902	A1	Q910	B3	R940	A2	R996	B4	TVR903B2
C902	C2	C923	A3	C963	A3	C971	C4	C990	A2	CN903	C4	CY901	B1	D907	B3	D924	C3	GT903	A2	J903	A2	J910	A3	J916	A4	J922	B4	J928	B3	L905	A4	NTC901	C1	Q911	B3	R941	B2	T901	B2	
C904	A1	C941	A2	C965	A3	C973	A4	C998	A2	CN904	A4	CY902	B1	D908	B3	D928	B4	GT904	B2	J904	C2	J911	A4	J917	A4	J923	B4	J929	A2	L906	A3	Q901	A2	R912	B1	R949	B2	T902	B2	
C905	B2	C960	A3	C966	B4	C974	B4	CE901	A2	CN905	A4	CY903	A2	D918	A2	D930	B2	GT905	B2	J905	A2	J912	A3	J918	A4	J924	B4	J930	C2	L907	B3	Q902	B2	R923	A4	R964	B4	T903	C2	
C910	A4	C960A	B3	C968	B4	C976	A4	CE902	B2	CN906	C3	CY904	B2	D919	A3	D931	B2	IC904	A3	J906	A2	J913	A4	J919	A4	J925	B4	J931	C2	L908	C4	Q903	C2	R929	A3	R975	B4	TVR901C1		



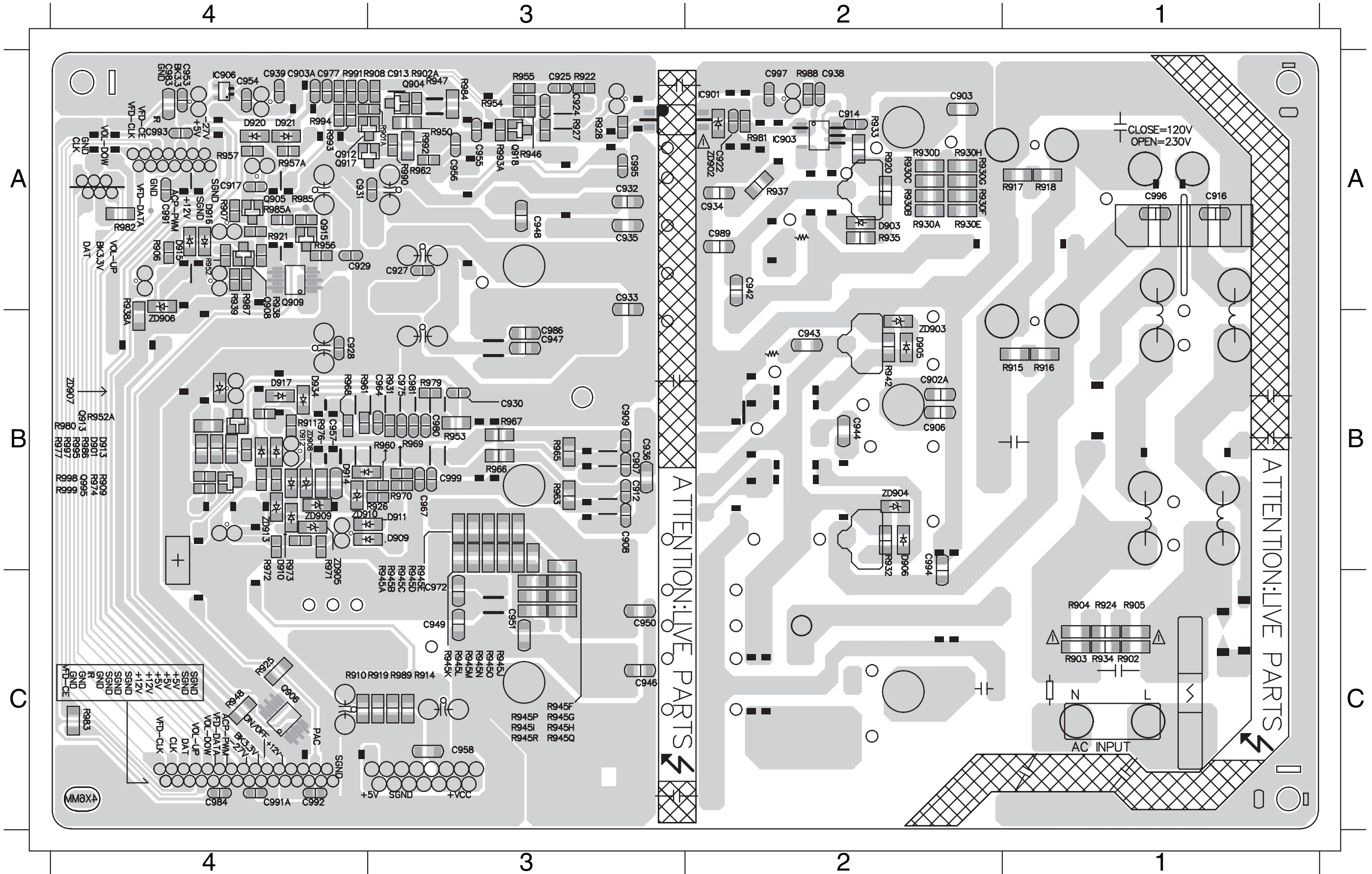
LCP109050-0001  
2011/01/11

ABCDE

4X6MM

# PCB LAYOUT - BOTTOM VIEW

C913	A3	C930	B3	C950	C3	C964	B3	C991	A4	D903	A2	D914	B4	IC906	A4	Q915	A4	R904	C1	R914	C3	R922	A3	R930F	A2	R938A	A4	R945G	C3	R945O	C3	R954	A3	R963	B3	R972	B4	R983	C4	R990	A3	ZD902	A2	ZD910	B3		
C914	A2	C931	A4	C951	C3	C967	B3	C991A	C4	D905	B3	D916	A4	Q904	A3	Q917	A4	R905	C1	R915	B1	R924	C1	R930G	A2	R939	A4	R945H	C3	R945P	C3	R955	A3	R965	B3	R973	B4	R984	A3	R991	A4	ZD903	B2	ZD913	B4		
C917	A4	C938	A2	C953	A4	C972	C3	C992	C4	D906	B2	D917	B4	Q905	A4	Q918	A3	R906	A4	R916	B1	R925	C4	R930H	A2	R945A	C3	R945I	C3	R946	A3	R956	A4	R966	B3	R974	B4	R985	A4	R992	A3	ZD904	B2				
C922	A2	C939	A4	C954	A4	C975	B3	C993	A4	D909	B3	D920	A4	Q906	C4	Q995	B4	R907	A4	R917	A1	R926	B3	R932	B2	R945B	C3	R945J	C3	R947	A3	R957	A4	R967	B3	R976	B4	R985A	A4	R993	A4	ZD905	B4				
C924	A3	C946	C3	C955	A3	C977	A4	C994	B2	D910	B4	D921	A4	Q908	A4	R901A	A3	R908	A3	R918	A1	R927	A3	R933	A2	R945C	C3	R945K	C3	R948	C4	R957A	A4	R968	B4	R977	B4	R986	B4	R995	B4	ZD906	A4				
C925	A3	C947	B3	C956	A3	C980	B3	C995	A3	D911	B3	D934	B4	Q909	A4	R902	C1	R909	B4	R919	C3	R928	A3	R934	C1	R945D	C3	R945L	C3	R950	A3	R960	B3	R969	B3	R979	B3	R987	A4	R997	B4	ZD907	B4				
C927	A3	C948	A3	C957	B4	C981	B3	C997	A2	D912	B4	IC901	A2	Q912	A4	R902A	A3	R910	C4	R920	A2	R930A	A2	R935	A2	R945E	C3	R945M	C3	R952	A4	R961	B3	R970	B3	R980	B4	R988	A2	R998	B4	ZD908	B4				
C928	B4	C949	C3	C958	C3	C986	B3	C999	B3	D913	B4	IC903	A2	Q913	B4	R903	C1	R911	B4	R921	A4	R930E	A2	R937	A2	R945F	C3	R945N	C3	R953	B3	R962	A3	R971	B4	R982	A4	R989	C3	R999	B4	ZD909	B4				

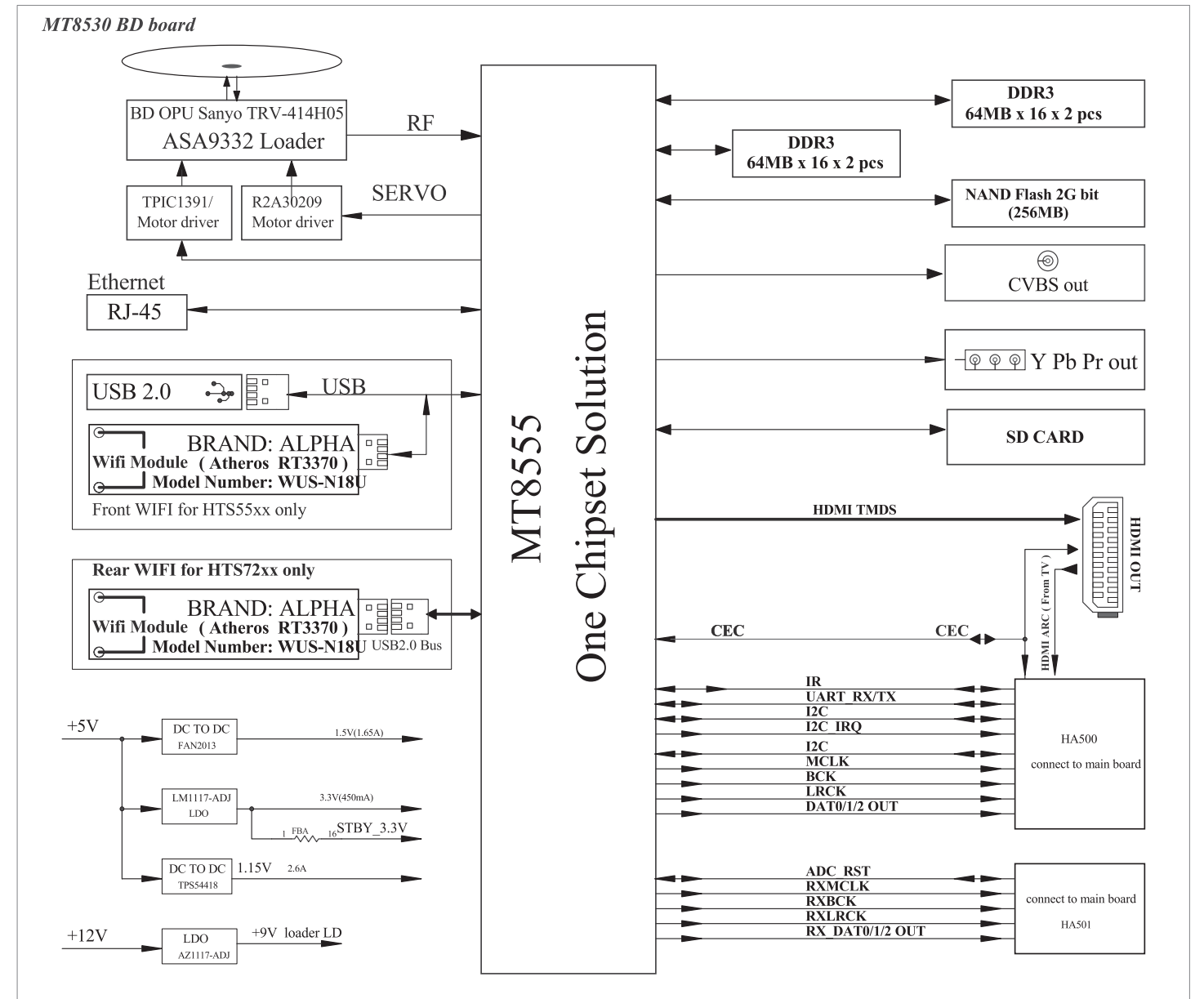


# BD BOARD

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 Voltages for connector pin..... 8-2  
 Waveforms for measure point ..... 8-3

## BLOCK DIAGRAM



## Voltages for per connection pin

### 1. HA500--->>from BD board connect to main board

PIN NO	PIN Assign	Remarks
1	GND	
2	IPOD_TXD	
3	IPOD_RXD	
4	IPOD_DET_SW	
5	IR	
6	GND	
7	I2C_IRQ	
8	GND	
9	CEC	
10	AMUTE	
11	GND	
12	SCL	
13	SDA	
14	GND	
15	MCLK	
16	GND	
17	LRCK	
18	GND	
19	BCK	
20	GND	
21	DATA0	
22	DATA1	
23	DATA2	
24	DATA3 N/A	
25	GND	
26	DATA4 N/A	
27	MIC_IN	
28	GND	
29	HDMI_ARC	
30	POD_DET N/A	

### 2. CN202--->>from BD board connect to USB connect PCB

PIN NO	PIN Assign	Remarks
1	USB+5V	4.75V-5.25V
2	USB+5V	
3	USBP	High speed
4	USBM	difference
5	GND	

### 3. HA501--->>from BD board connect to main board

PIN NO	PIN Assign	Remarks
1	GND	
2	RX_MCLK	
3	GND	
4	RX_LRCK	
5	GND	
6	RX_BCK	
7	GND	
8	RX_DATA0	
9	RX_DATA1	
10	RX_DATA2	
11	RX_DATA3 N/A	
12	GND	
13	SPDIF_IRQ N/A	
14	SPDIF_GPIO3 N/A	
15	SPDIF_RST N/A	
16	ADC_RST	

### 4 J900 --->>from BD board connect to BD loader(SERVO use)

PIN NO	PIN Assign	Remarks
1	A+	0-11.6V
2	A-	0-11.6V
3	B-	0-1.6V
4	B+	0-1.6V
5	U	4.52V
6	V	4.52V
7	W	4.52V
8	COMMON	4.52V

### 5. J905 --->>from BD board connect to BD loader(SERVO use)

PIN NO	PIN Assign	Remarks
1	LOAD-	0.65V
2	LOAD+	0.65V
3	GND	GND
4	TYAY_IN	0V-->>open/close 3.3V
5	TYAY_OUT N/A	

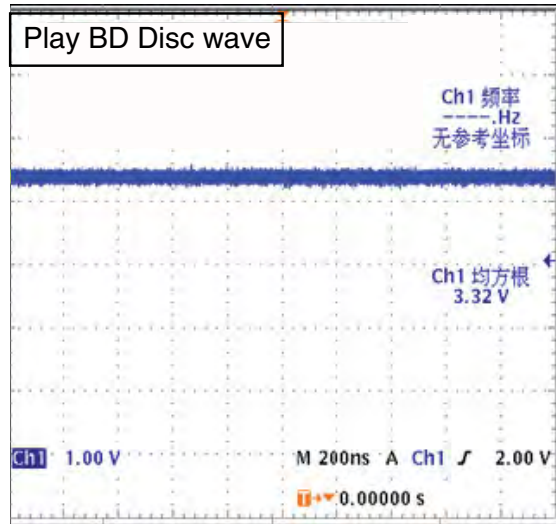
### 6. J800--->>from BD board connect to BD loader(SERVO use)

PIN NO	PIN Assign	Remarks
1	FOC2+	2.66V 2.4V 2.68V
2	FOC2-	2.49V 2.8V 2.52V
3	TR-	2.58V 2.59V 2.55V
4	FOC1+	2.66V 2.59V 2.7V
5	TR+	2.59V 2.62V 2.58V
6	FOC1-	2.48V 2.66V 2.52V
7	A-	0.49V 0.26V 0.48V
8	B-	0.49V 0.35V 0.4V
9	A+	0.72V 0.26V 0.42V
10	B+	0.72V 0.35V 0.4V
11	GND	GND
12	SIG_PO	n/a
13	GND	GND
14	B	2.22V 2.05V 2.36V
15	A	2.22V 2.05V 2.44V
16	D	2.26V 2.05V 2.45V
17	C	2.23V 2.06V 2.31V
18	G	2.09V 1.9V 2.37V
19	H	2.09V 1.9V 2.30V
20	F	2.09V 1.88V 2.43V
21	E	2.09V 1.9V 2.24V
22	LDO_SDIO	2.35V 2.15V 0V
23	RFO+	3.11V 2.82V 2.72V
24	RFO-	2.11V 1.92V 2.54V
25	LDO_CLK	3.25V 3.04V 0V
26	LDO_SEN	3.25V 3.02V 3.3V
27	HAVC	2.09V 1.8V 2.1V
28	VCC_PDIC	4.95V
29	GND	GND
30	GAIN_SW	3.25V 0V 1.65V
31	GND	GND
32	BD_LD	0V 0V 4.54V
33	CD_LD	1.74V 0V 0V
34	DVD_LD	0V 1.96V 0V
35	GND	GND
36	AUX1	1.55V 1.23V 1.48V
37	VCC_HFM	4.92V
38	MDI_DVD	0.15V 0V 0.15V
39	MDI_BD	0V 0V 0.08V
40	DVD_VR	0.15V 0V 0.15V
41	CD_VR	0V 0V 0V
42	DVD_HFM	0V 0V 0V
43	CD_HFM	0V 0V 0V
44	GND	GND
45	GND	GND
Disc type voltage		CD DVD BD

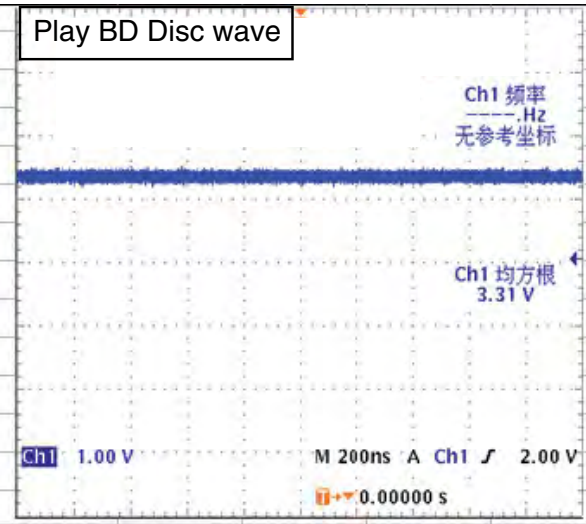


# Waveforms for measure point

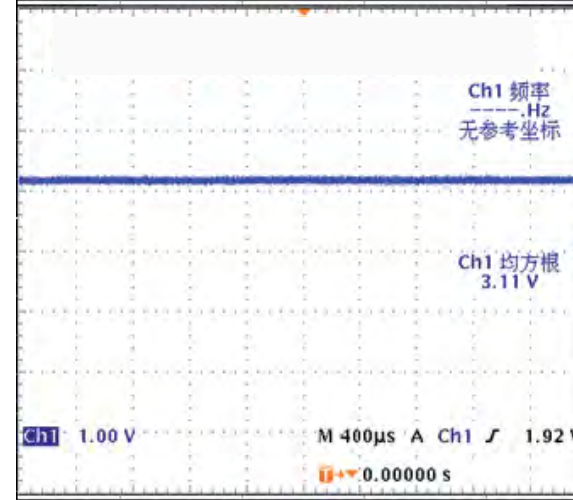
### HA500 PIN2\_Ipod\_TX



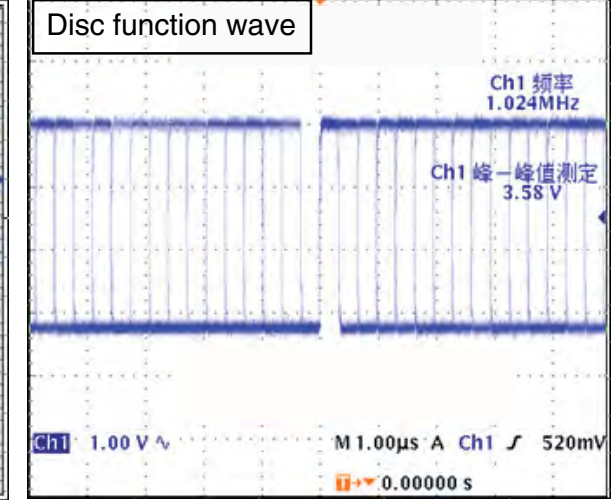
### HA500 PIN3\_Ipod\_RX



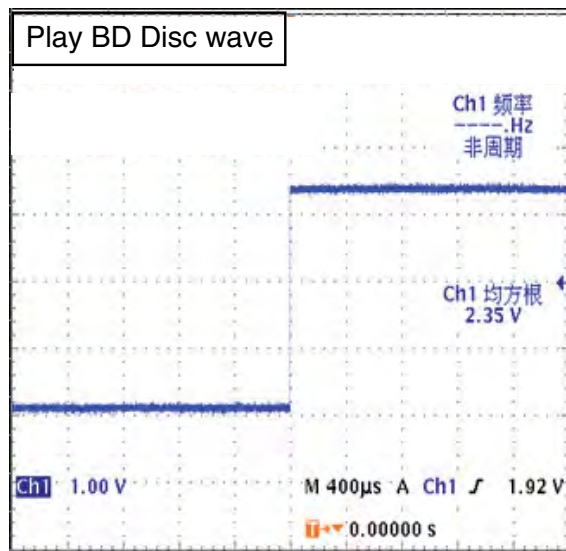
### HA500 PIN9\_CEC(no single)



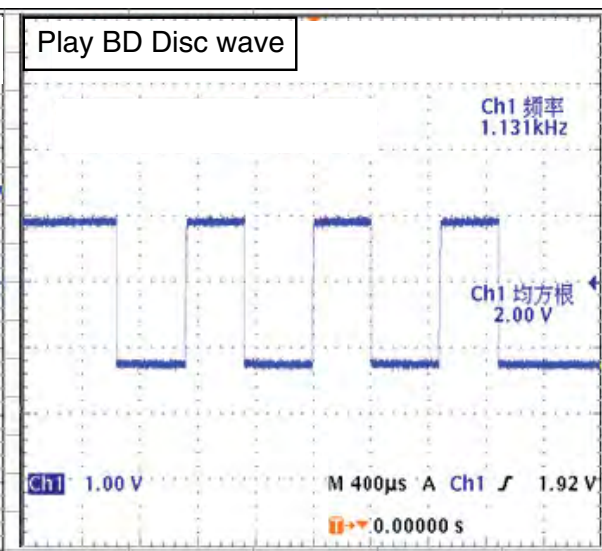
### HA500 PIN10\_MIC\_IN



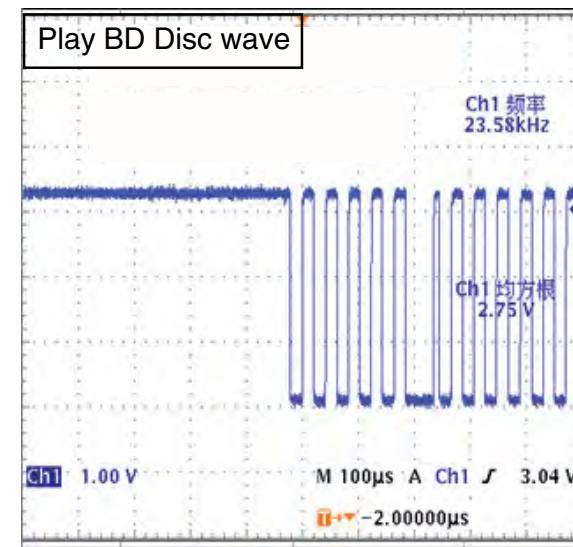
### HA500 PIN5\_12C\_IRQ



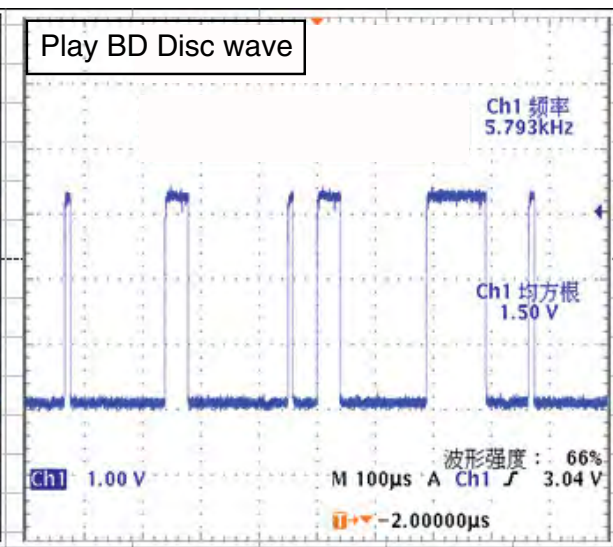
### HA500 PIN7\_IR(VOL up/down)



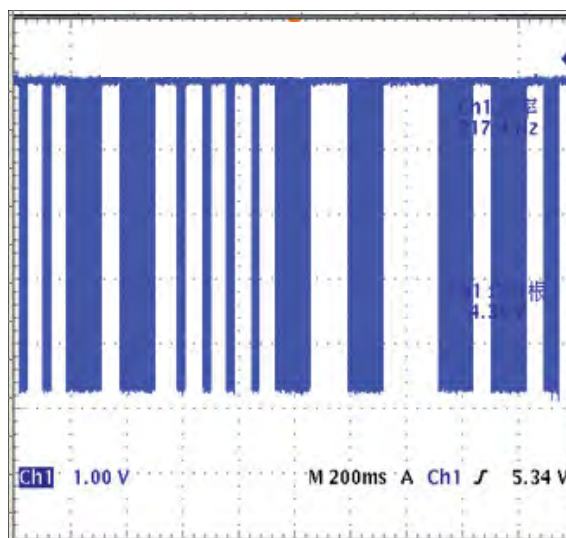
### HA500 PIN12\_SCL



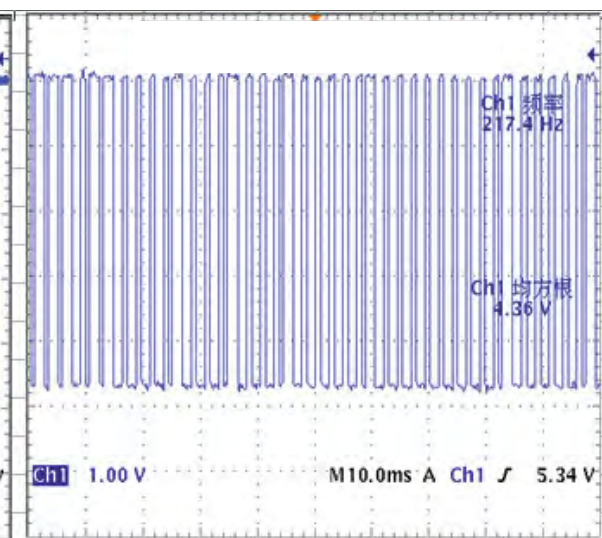
### HA500 PIN13\_SDA



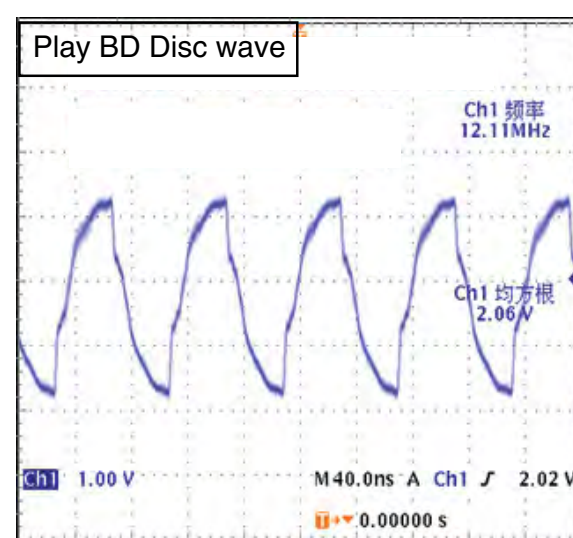
### HA500 PIN9\_CEC



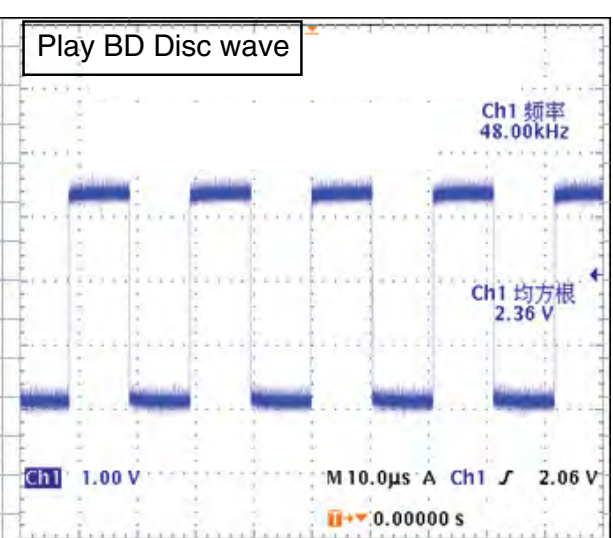
### HA500 PIN9\_CEC



### HA500 PIN15\_MCLK



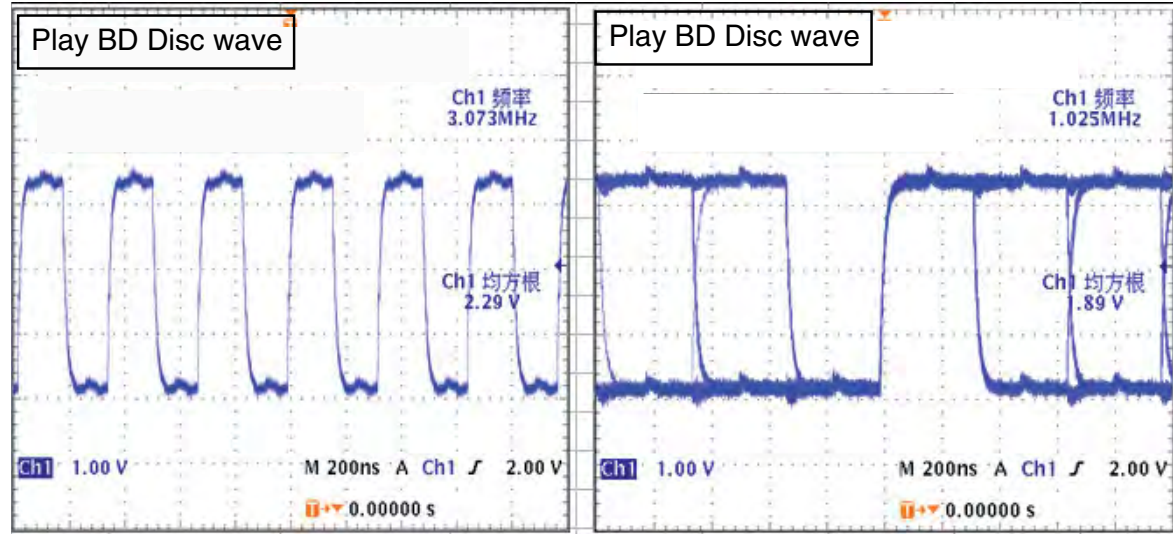
### HA500 PIN17\_LRCK



# Waveforms for measure point

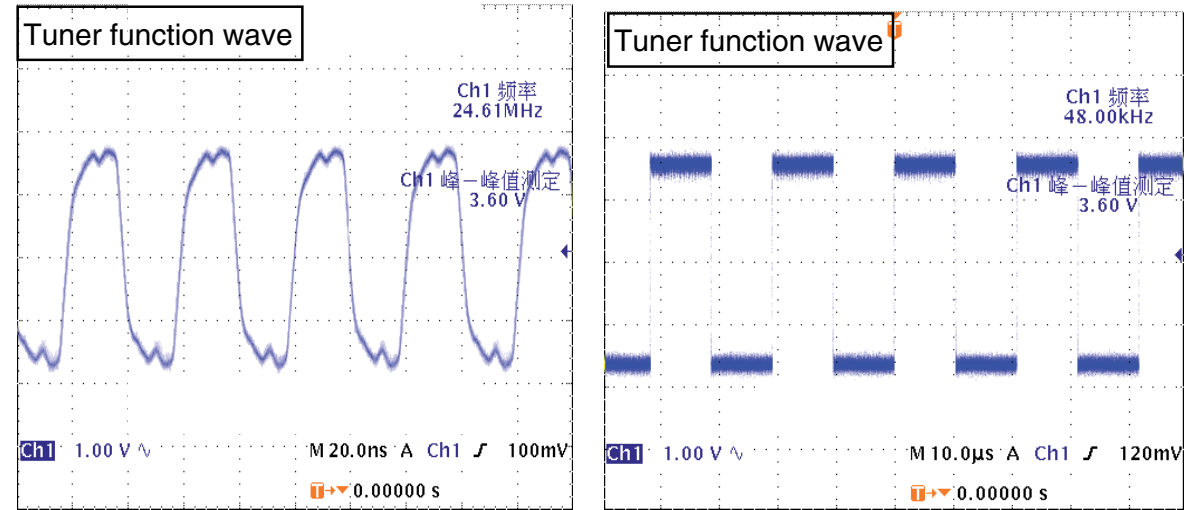
HA500 PIN19\_BCK

HA500 PIN21\_AOSDAT0



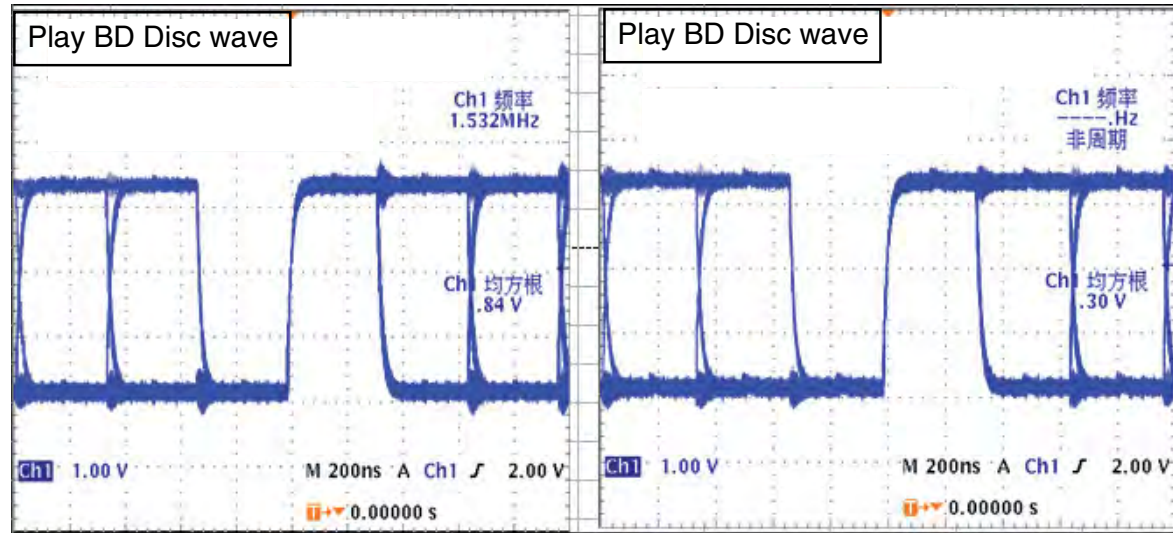
HA501 PIN12\_RX\_MCLK

HA501 PIN4\_RX\_LRCK



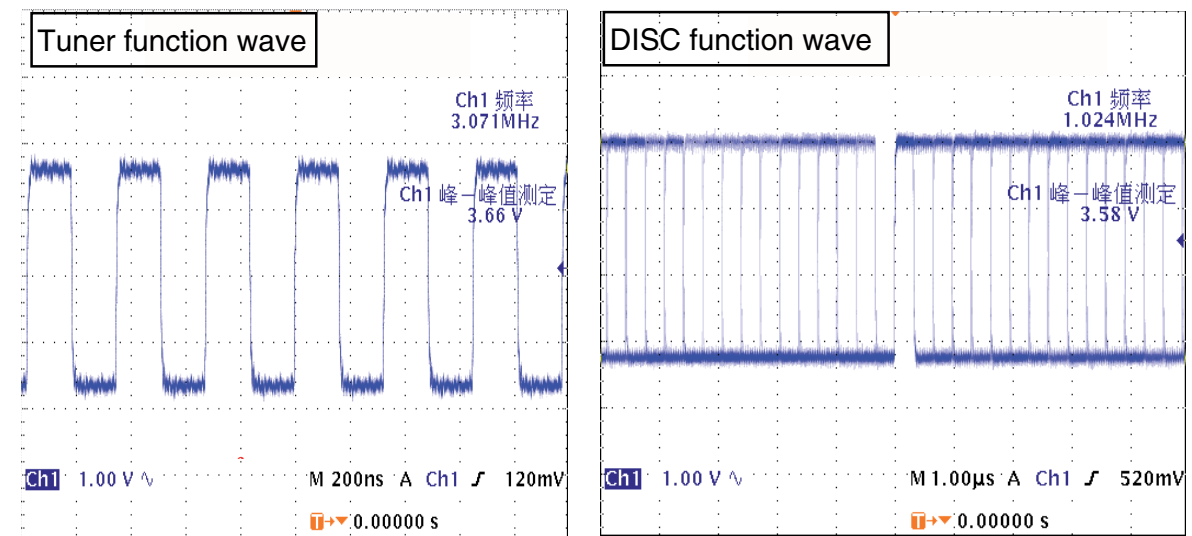
HA500 PIN22\_AOSDAT1

HA500 PIN23\_AOSDAT2



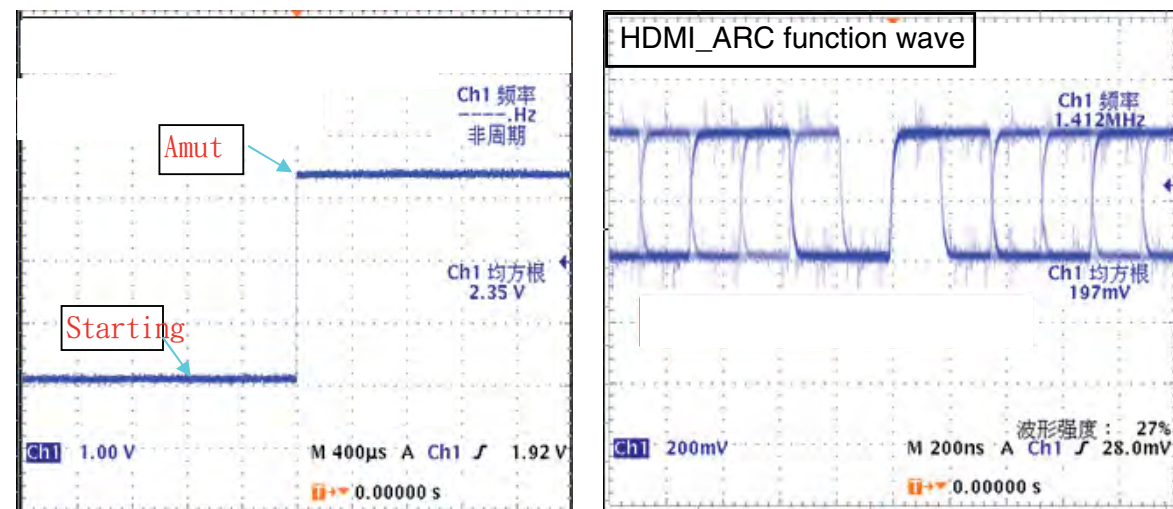
HA501 PIN6\_RX\_BCK

HA501 PIN8\_RX\_DATA0



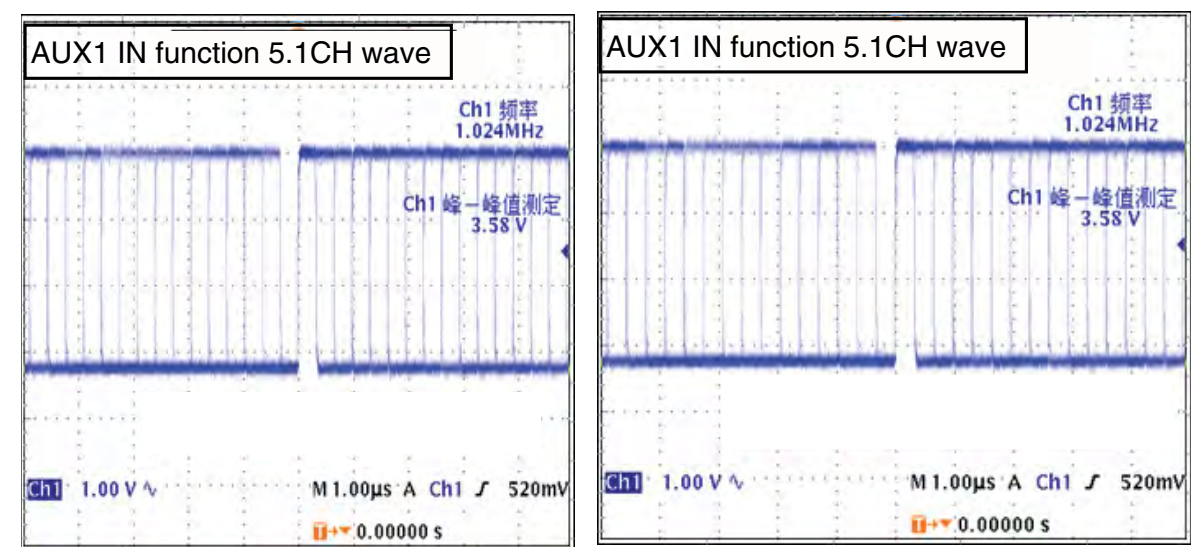
HA500 PIN10\_A\_MUTE

HA500 PIN29\_HDMI\_ARC



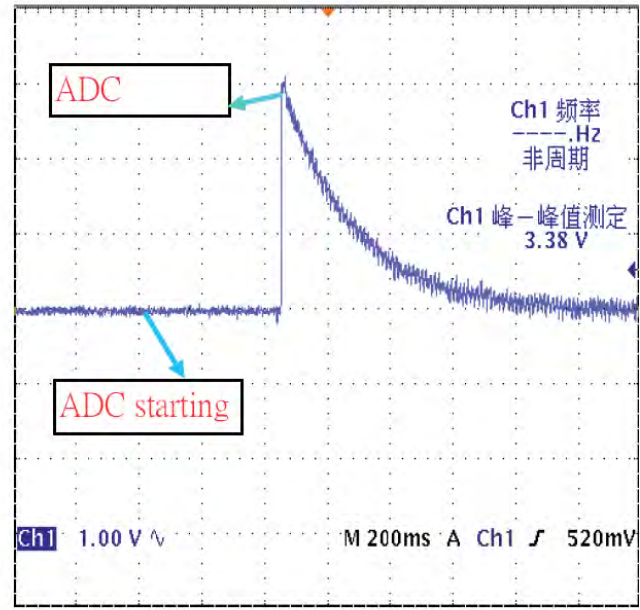
HA501 PIN9\_RX\_DATA1

HA501 PIN910\_RX\_DATA2

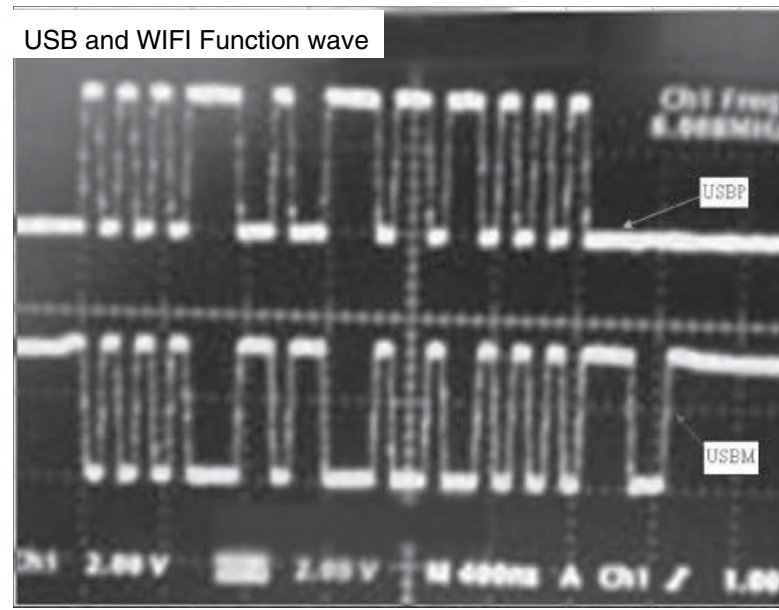


# Waveforms for measure point

HA501 PIN16\_ADC\_RST



CN203 Pin3 USBM pin4 USBP



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# TOUCH BOARD

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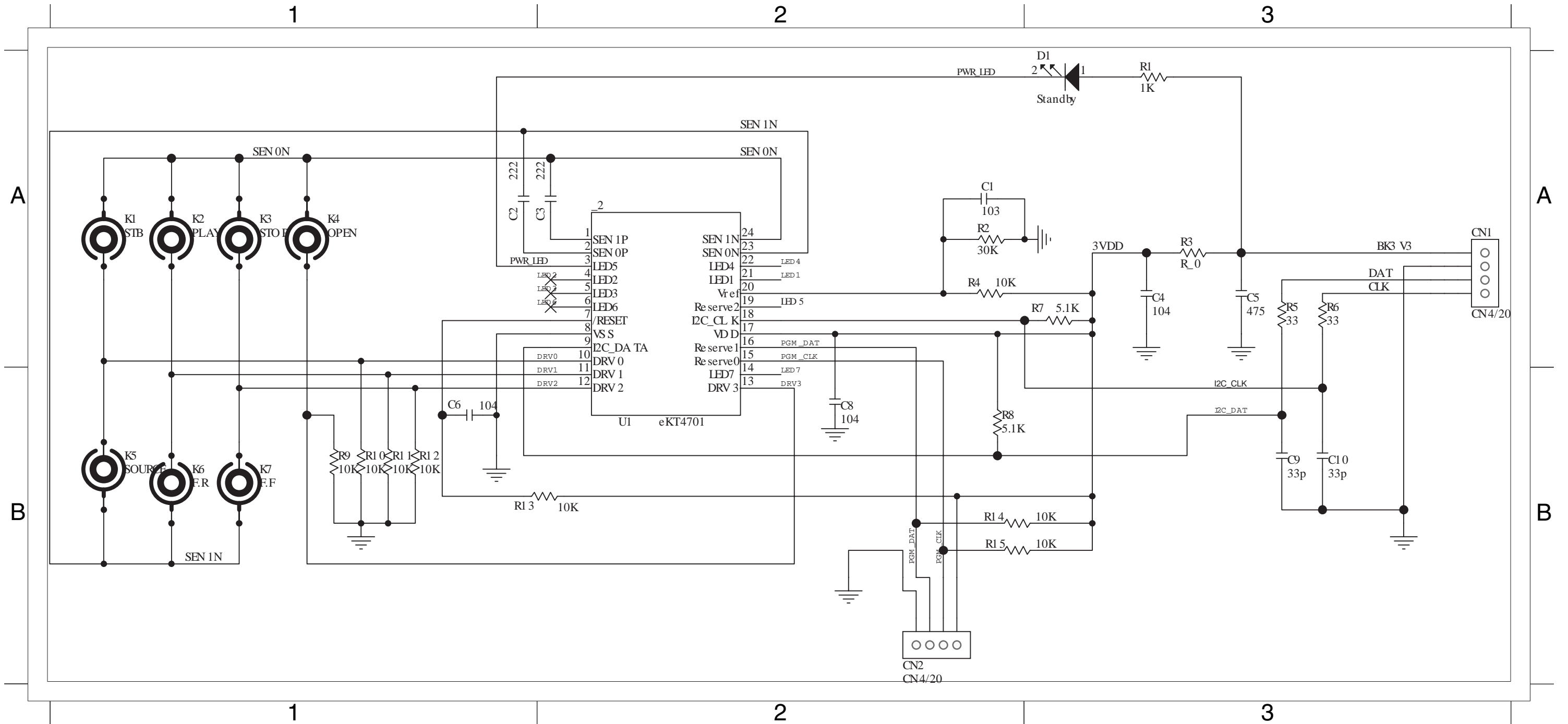
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PCB Layout Top & Bottom View..... 9-3

# CIRCUIT DIAGRAM

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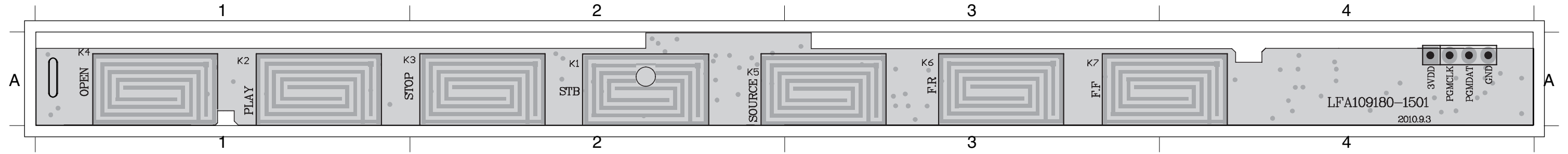
C1 A2 C2 A1 C4 A3 C6 B1 C9 B3 R1 A3 R11 B1 R13 B1 R15 B2 R3 A3 R5 A3 R7 A3 R9 B1  
 C10 B3 C3 A2 C5 A3 C8 B2 D1 A3 R10 B1 R12 B1 R14 B2 R2 A2 R4 A2 R6 A3 R8 B2 U1 B2



# PCB LAYOUT - TOP VIEW

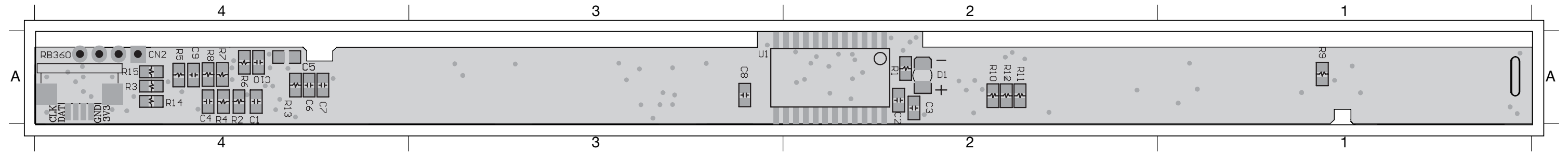
9 - 3

9 - 3



# PCB LAYOUT - BOTTOM VIEW

- |     |    |    |    |    |    |    |    |    |    |    |    |     |    |     |    |     |    |    |    |    |    |    |    |    |    |       |    |
|-----|----|----|----|----|----|----|----|----|----|----|----|-----|----|-----|----|-----|----|----|----|----|----|----|----|----|----|-------|----|
| C1  | A4 | C2 | A2 | C4 | A4 | C6 | A4 | C8 | A3 | D1 | A2 | R10 | A2 | R12 | A2 | R14 | A4 | R2 | A4 | R4 | A4 | R6 | A4 | R8 | A4 | RB360 | A4 |
| C10 | A4 | C3 | A2 | C5 | A4 | C7 | A4 | C9 | A4 | R1 | A2 | R11 | A2 | R13 | A4 | R15 | A4 | R3 | A4 | R5 | A4 | R7 | A4 | R9 | A1 | U1    | A3 |



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# WIRELESS JACK BOARD

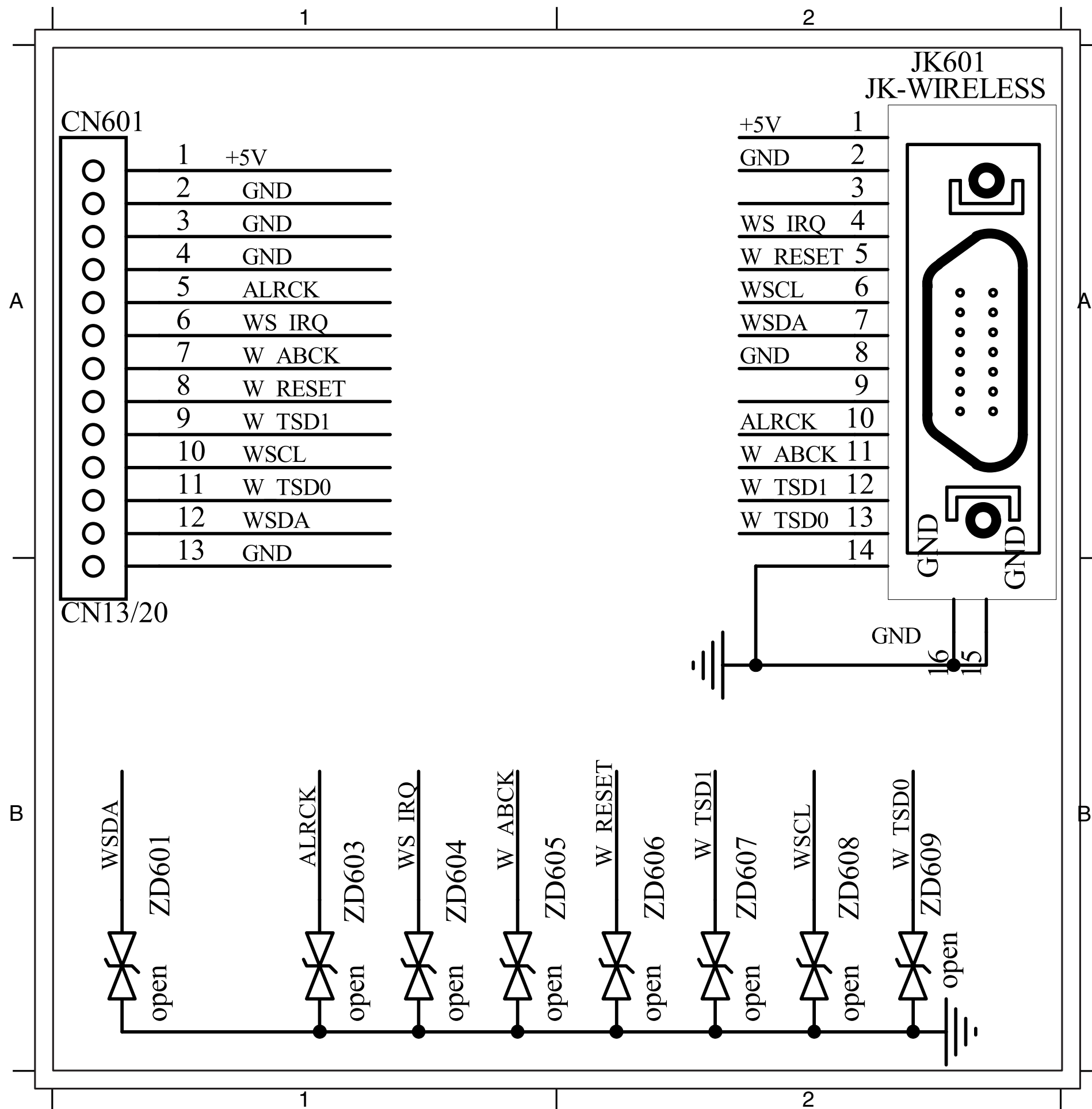
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# CIRCUIT DIAGRAM

CN601 A1 JK601 A1

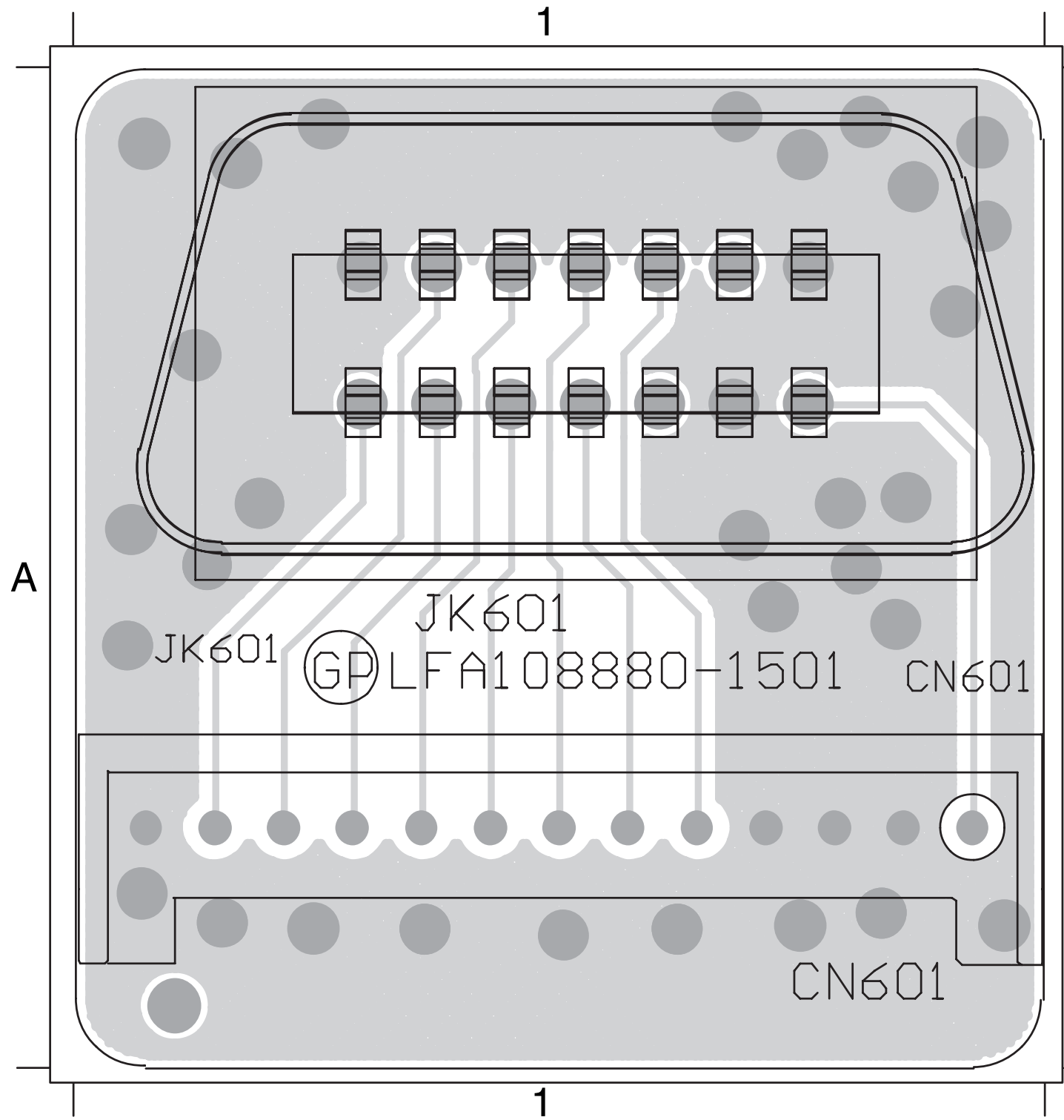




PCB LAYOUT - TOP VIEW

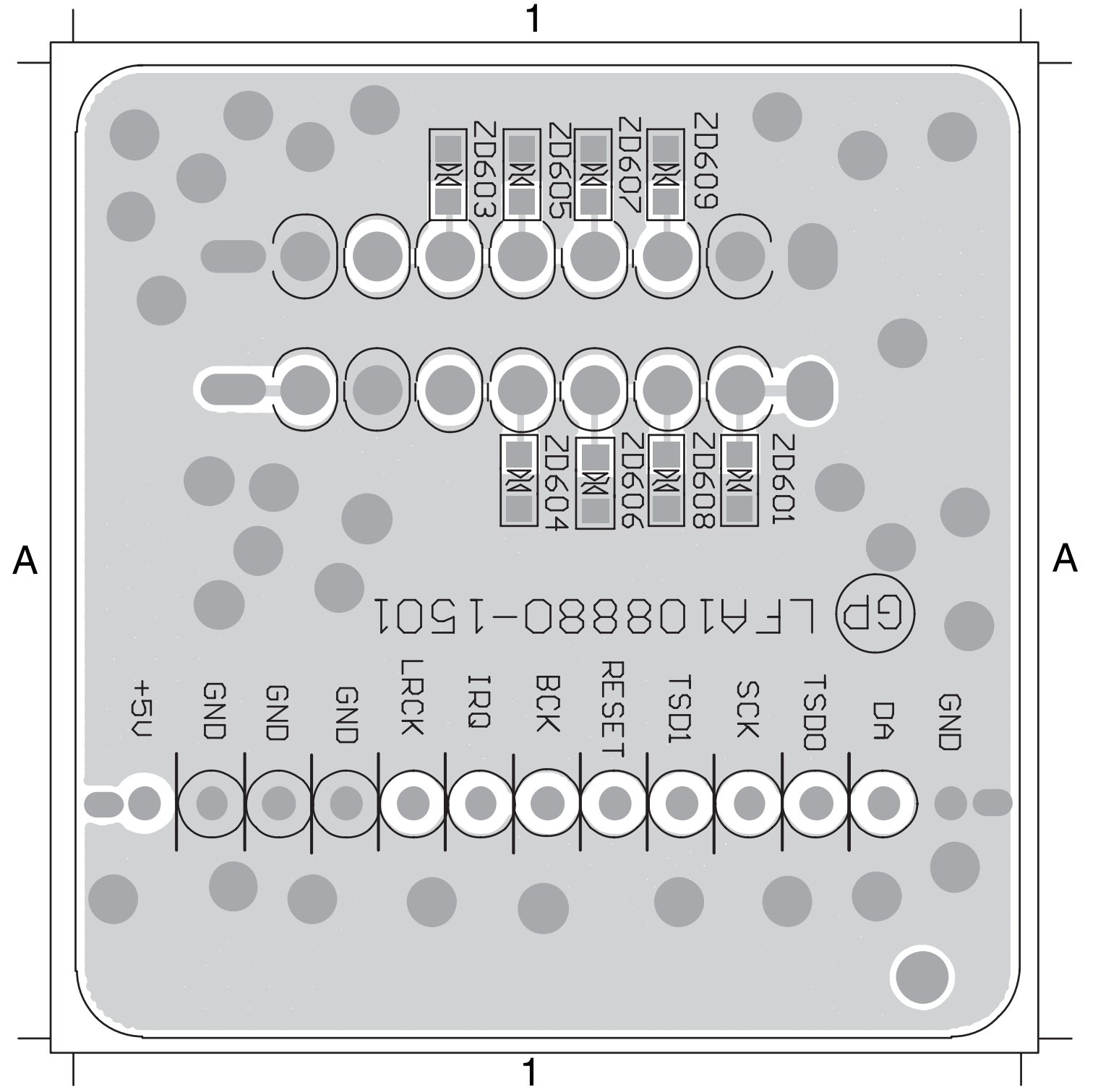
10-3

CN601 A1 JK601 A1



PCB LAYOUT - BOTTOM VIEW

10-3

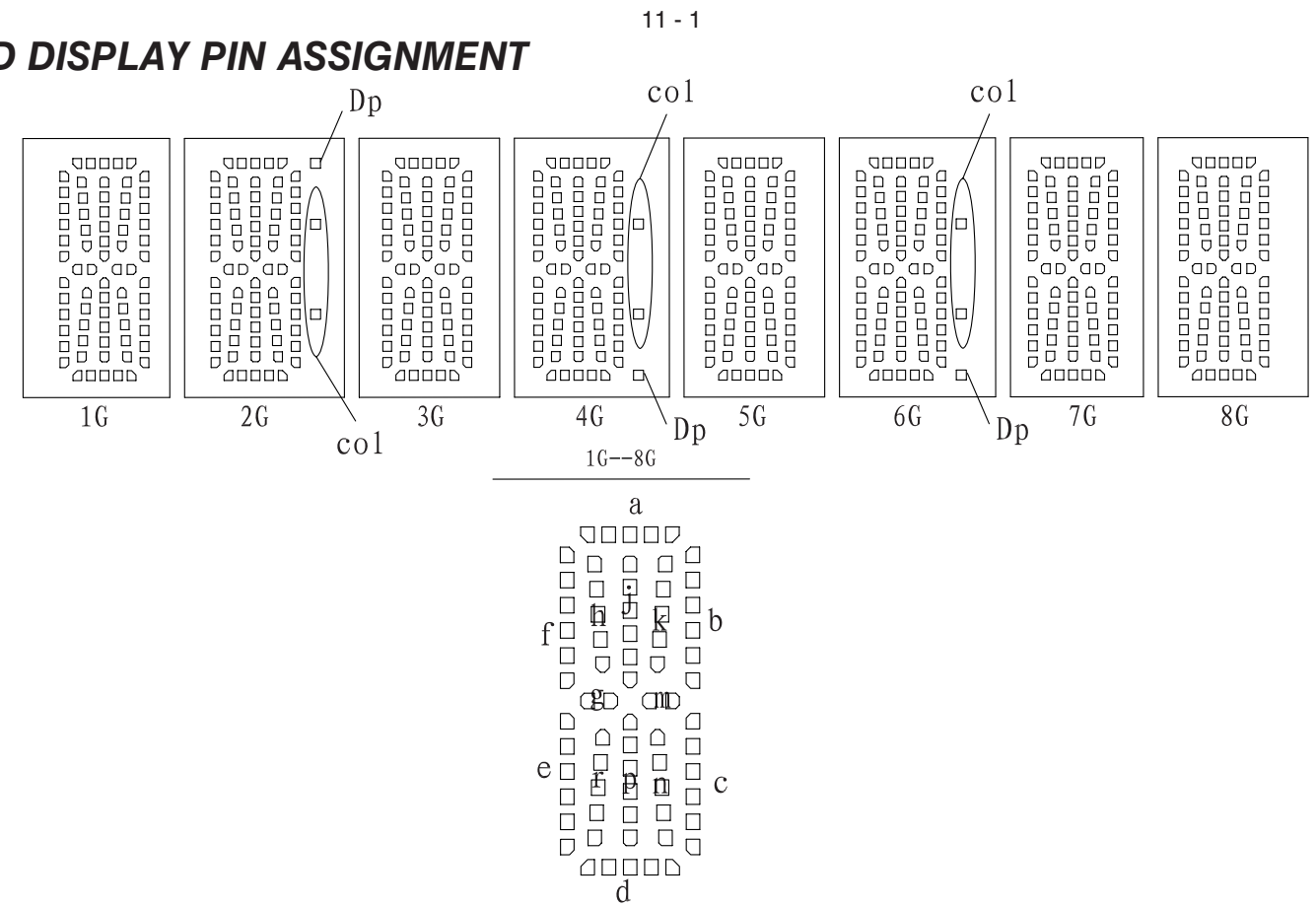


# VFD+USB+MP3+AUX BOARD

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FTD Display Pin Assignment..... 11-1  
 Circuit Diagram ..... 11-2  
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## FTD DISPLAY PIN ASSIGNMENT



	1G	2G	3G	4G	5G	6G	7G	8G
P1	a	a	a	a	a	a	a	a
P2	j, p	j, p	j, p	j, p	j, p	j, p	j, p	j, p
P3	h	h	h	h	h	h	h	h
P4	k	k	k	k	k	k	k	k
P5	b	b	b	b	b	b	b	b
P6	f	f	f	f	f	f	f	f
P7	m	m	m	m	m	m	m	m
P8	g	g	g	g	g	g	g	g
P9	c	c	c	c	c	c	c	c
P10	e	e	e	e	e	e	e	e
P11	r	r	r	r	r	r	r	r
P12	n	n	n	n	n	n	n	n
P13	d	d	d	d	d	d	d	d
P14	/	col	/	col	/	col	/	/
P15	/	Dp	/	Dp	/	Dp	/	/

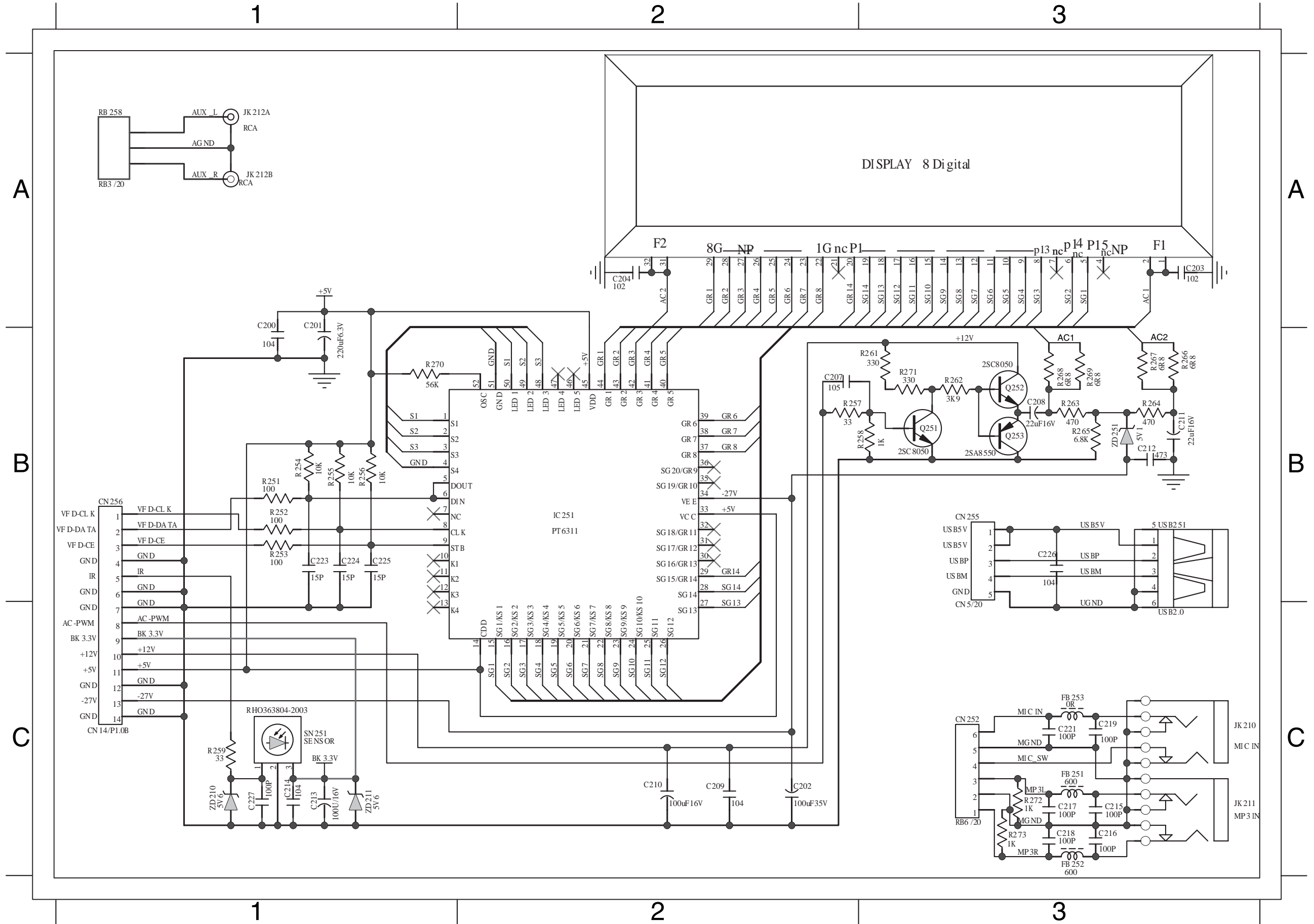
PIN CONNECTION

(Pin NO.)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
(Connection)	F1	F1	NP	NC	P15	P14	NC	P13	P12	P11	P10	P9	P8	P7	P6	P5
(Pin NO.)	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
(Connection)	P4	P3	P2	P1	NC	1G	2G	3G	4G	5G	6G	7G	8G	NP	F2	F2

(Notes) : Fn : (Filament Pin)      nG : (Grid Pin)  
 Pn : (Anode Pin)                      NP : (No Pin)  
 NC : (No connection Pin)

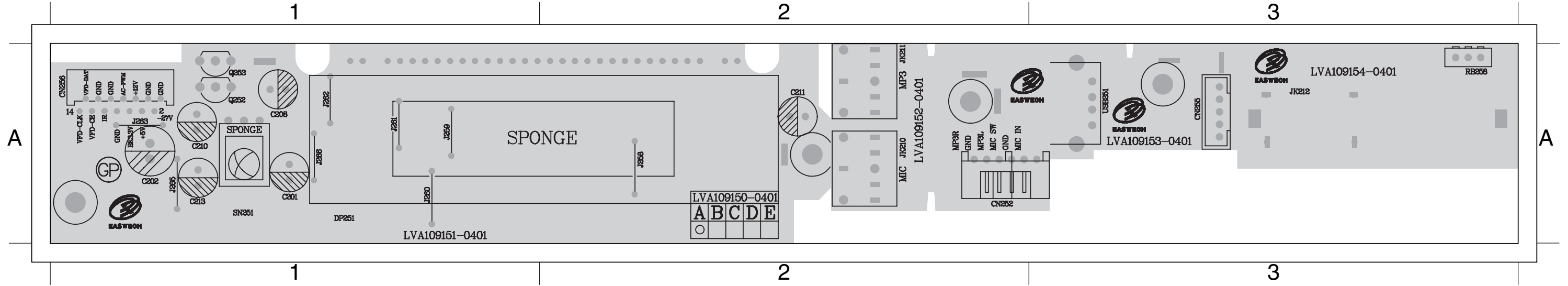
# CIRCUIT DIAGRAM

C200	A1	C204	A2	C210	C2	C214	C1	C218	C3	C226	B3	CN256	B1	IC251	B2	Q251	B3	R252	B1	R256	B1	R261	B3	R265	B3	R269	B3	R273	C3	ZD210	C1
C201	A1	C207	B2	C211	B3	C215	C3	C223	B1	C227	C1	DP251	A2	IC251	B2	Q252	B3	R253	B1	R257	B2	R262	B3	R266	B3	R270	B1	RB258	A1	ZD211	C1
C202	C2	C208	B3	C212	B3	C216	C3	C224	B1	CN252	C3	FB251	C3	JK211	C3	Q253	B3	R254	B1	R258	B2	R263	B3	R267	B3	R271	B3	SN251	C1	ZD251	B3
C203	A3	C209	C2	C213	C1	C217	C3	C225	B1	CN255	B3	FB252	C3	JK212	A1	R251	B1	R255	B1	R259	C1	R264	B3	R268	B3	R272	C3	USB251	B3		



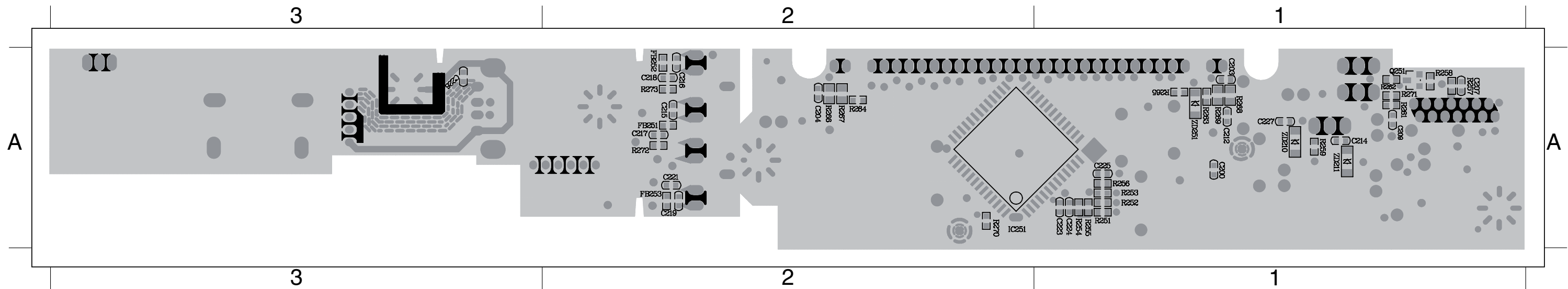
### PCB LAYOUT - TOP VIEW

C201	A1	C208	A1	C211	A2	CN252	A2	CN256	A1	J258	A2	J260	A1	J262	A1	J265	A1	JK211	A2	Q252	A1	RB258	A3	USB251	A3		
C202	A1	C210	A1	C213	A1	CN255	A3	DP251	A1	J259	A1	J261	A1	J263	A1	J266	A1	JK212	A3	Q253	A1	SN251	A1				



### PCB LAYOUT - BOTTOM VIEW

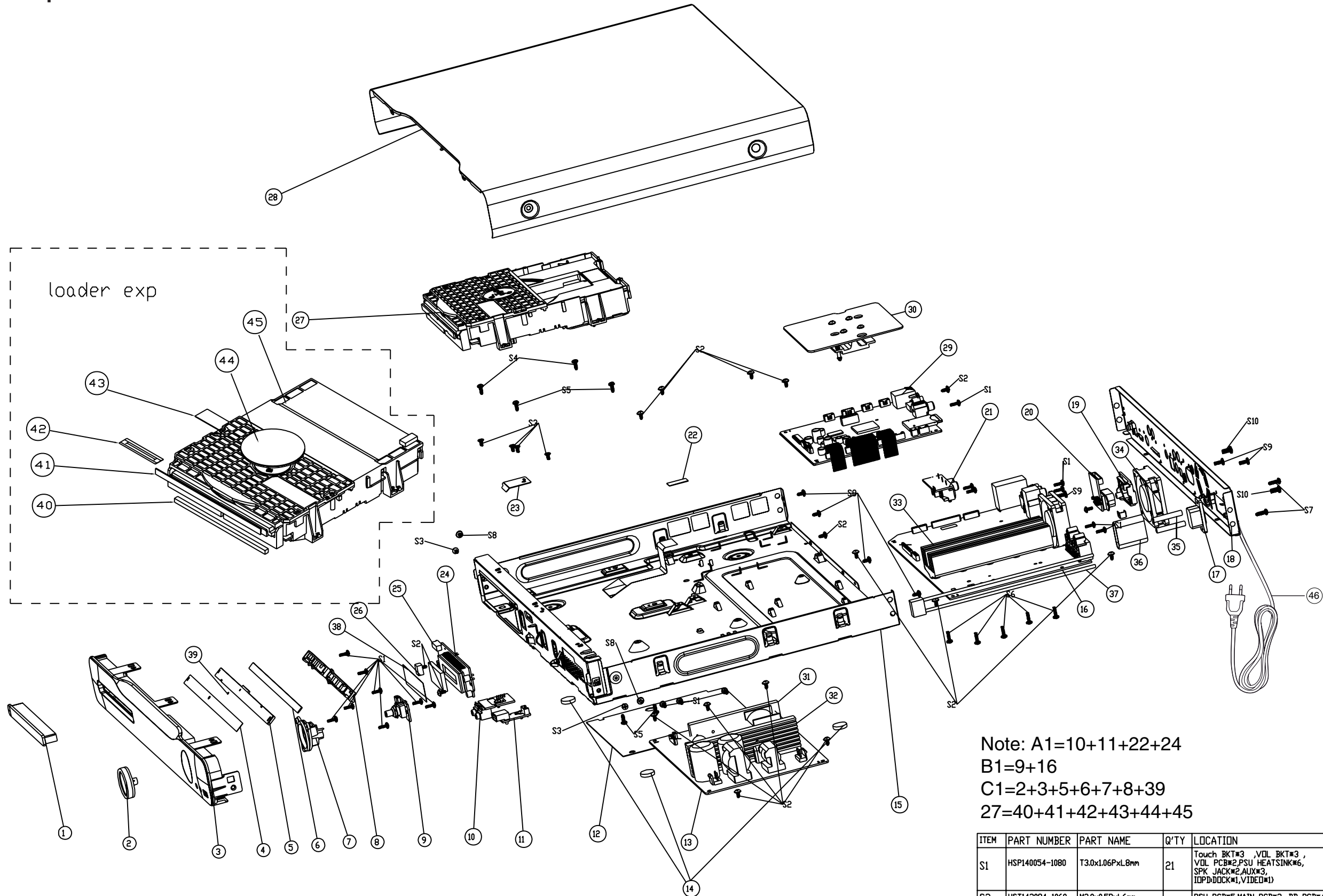
C200	A1	C207	A1	C214	A1	C217	A2	C224	A1	C227	A1	IC251	A2	R251	A1	R254	A1	R257	A1	R261	A1	R264	A2	R267	A2	R270	A2	R273	A2	ZD251	A1
C203	A1	C209	A1	C215	A2	C218	A2	C225	A1	FB251	A2	IC251	A2	R252	A1	R255	A1	R258	A1	R262	A1	R265	A1	R268	A1	R271	A1	ZD210	A1		
C204	A2	C212	A1	C216	A2	C223	A1	C226	A3	FB252	A2	Q251	A1	R253	A1	R256	A1	R259	A1	R263	A1	R266	A2	R269	A1	R272	A2	ZD211	A1		



# Mechanical Exploded View

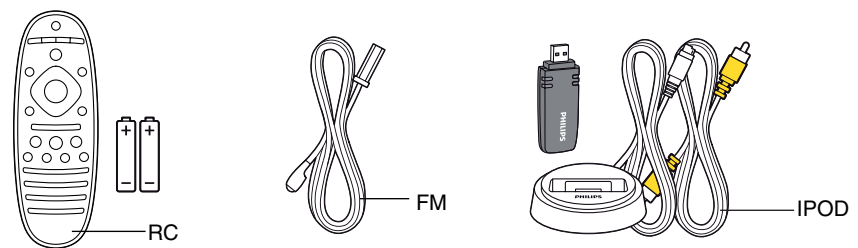
12 - 1

12 - 1



Note: A1=10+11+22+24  
 B1=9+16  
 C1=2+3+5+6+7+8+39  
 27=40+41+42+43+44+45

ITEM	PART NUMBER	PART NAME	Q'TY	LOCATION
S1	HSP140054-1080	T3.0x1.06PxL8mm	21	Touch BKT#3 ,VCL BKT#3 , VCL PCB#2,PSU HEATSINK#6, SPK JACK#2,AUX#3, IOPD:DOCK#1,VVIDEO#1)
S2	HST143084-1060	M3.0x0.5PxL6mm	19	PSU PCB#5,MAIN PCB#3 ,BD PCB#4, BACK#1,TUNER#1,HDMI#1,VFD PCB#2, MP3 PCB#1,USB PCB#1)
S3	HSF143084-1060	M3xP0.5xL6mm	6	FRONT PANEL#5 PVC#1
S4	HSW053085-1080	M3xL8mm WASHER	2	LOADER LEFT#2
S5	HST143084-1080	M3.0x0.5PxL8mm	4	LOADER RIGHT#2,AC CHANGE#2(FDR 93/98)
S6	HSP140054-1100	T3.0x1.06PxL10mm	5	AMP HEATSINK#5
S7	HST140074-1100	T3.5xL10.0	2	AC SOCKET#2
S8	HST143084-3060	M3x0.5PxL6mm BLACK	6	FDR TOP COVER#6
S9	HSD140054-1080	T3.0xP1.06xL8mm	3	FDR WIRELESS PCB #2, OPTICAL JACK#1
S10	HSP140132-1100	T5.0xP2.12xL10mm	2	FDR FAN#2



# REVISION LIST

Version 1.0

\*Initial release

Version 1.1

\*Chapter 8 has updated