Service
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Service Manual

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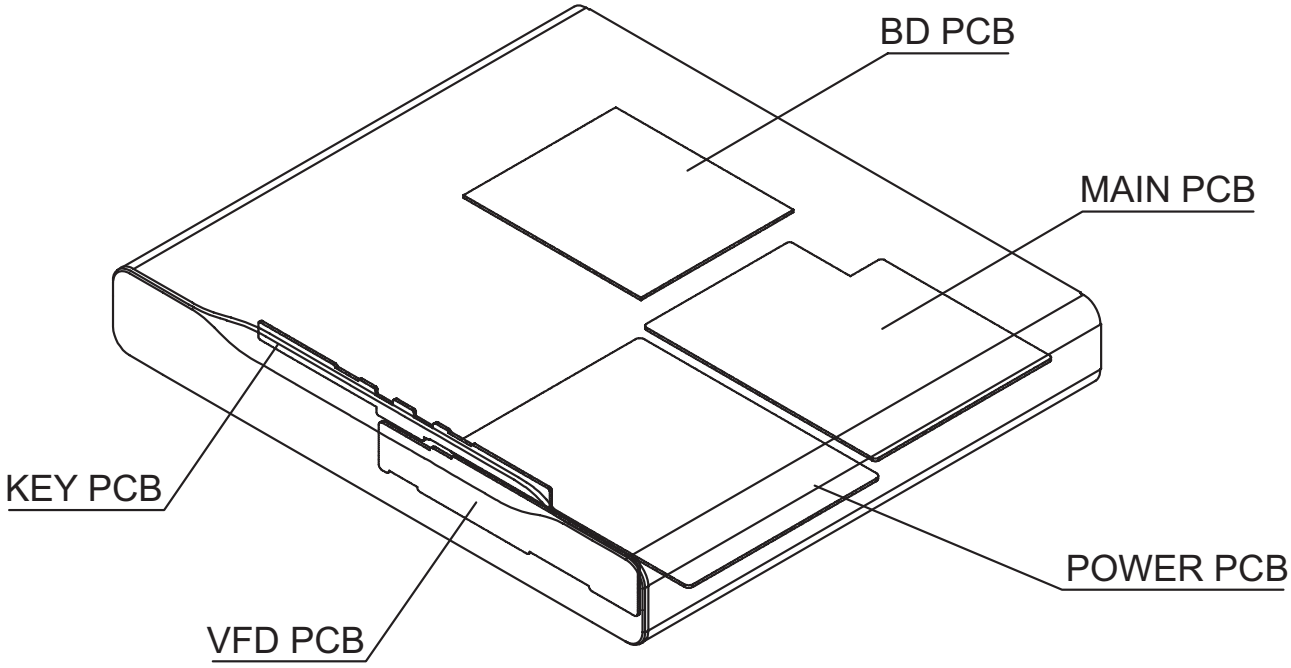
GB 3139 785 35712

Version 1.2

PHILIPS

LOCATION OF PCB BOARDS



VERSION VARIATION:

Type/Versions / Features	HTS3551			
	/12	/51	/55	/78
Output Power - 300W	X	X	X	X
Voltage (220~240V)	X	X	X	X
USB	X	X	X	X
Music iLink	X	X	X	X

SERVICE SCENARIO MATRIX:

Type/Versions / Board in used	HTS3551			
	/12	/51	/55	/78
Main Board	C	C	C	C
Power Board	C	C	C	C
VFD Board	Bd	C	C	C
BD Board	Bd	Bd	Bd	Bd
Key Board	Bd	C	C	C

*Bd= Board Level Replacement
*C = Component Level Repair

SPECIFICATIONS

Media formats

- AVCHD, 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-CD, WMA-CD, DivX (Ultra)-CD, USB storage device

File formats

- Audio: .aac, .mka, .mp3, .wma, .wav
- Video: .avi, .divx, .mp4, .mkv, .asf, .mpg, .mpeg
- Picture: .jpg, .jpeg, .gif, .png

Audio formats

Your home theater supports the following audio files.

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

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	10 Mbps max
	MPEG 1, MPEG 2	20 Mbps (peak 40 Mbps)
	MPEG 4 ASP	10 Mbps max
	H.264/AVC HP@4.1/4.0; MP@3.2/3.1/3.0	20 Mbps (peak 40 Mbps)
	WMV9	20 Mbps

.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	10 Mbps max
	MPEG 1, MPEG 2	20 Mbps (peak 40 Mbps)
	MPEG 4 ASP	10 Mbps 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	20 Mbps (peak 40 Mbps)
	MPEG 4 ASP	10 Mbps max
	H.264/AVC HP@4.1/4.0; MP@3.2/3.1/3.0	20 Mbps (peak 40 Mbps)

.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	20 Mbps (peak 40 Mbps)
	MPEG 4 ASP	10 Mbps max
	H.264/AVC HP@4.1/4.0; MP@3.2/3.1/3.0	20 Mbps (peak 40 Mbps)

.asf files in ASF container

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

.mpg and .mpeg files in PS container

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

Amplifier

- Total output power: 300W RMS (30% THD)
- Frequency response: 20 Hz-20 kHz / ±3 dB
- Signal-to-noise ratio: > 65 dB (CCIR) / (A-weighted)
- Input sensitivity:
  - AUX1, AUX2: 1000 mV (For: /12/51/78)
  - AUX1, AUX2: 500 mV (For: /55)
  - Music i.Link: 500 mV (For: /12/51/78)
  - Music i.Link: 300 mV (For: /55)

Video

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

Audio

- Sampling frequency:
  - MP3: 32 kHz, 44.1 kHz, 48 kHz
  - WMA: 44.1 kHz, 48 kHz
- Constant bit rate:
  - MP3: 32 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 Hz-12.5 kHz / ±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: 220-240 V~, 50 Hz (For: /12/51/78)
- Power supply: 110-240 V~, 50-60 Hz (For: /55)
- Power consumption: 55 W
- Standby power consumption: ≤ 0.9 W
- Dimensions (WxHxD): 360 x 58 x 325 mm
- Weight: 2.7 kg

Subwoofer

- Total output power: 50W RMS (30% THD)
- Impedance: 12 ohm
- Speaker drivers: 165 mm (6.5") woofer
- Frequency response: 20 Hz-150 Hz
- Dimensions (WxHxD): 123 x 309 x 369 (mm)
- Weight: 3.2 kg
- Cable length: 3 m

Speakers

- Center speaker:
  - Total output power: 50W RMS (30% THD)
  - System: full range satellite
  - Speaker impedance: 3 ohm
  - Speaker drivers: 76.2 mm (3") full range
  - Frequency response: 150 Hz-20 kHz
  - Dimensions (WxHxD): 161 x 95 x 92 mm
  - Weight: 0.4 ~ 0.5 kg
  - Cable length: 2 m
- Front/rear speakers:
  - Total output power: 4 x 50W RMS (30% THD)
  - Speaker impedance: 3ohm
  - Speaker drivers: 76.2 mm (3") full range
  - Frequency response: 150 Hz-20 kHz
  - Dimensions (WxHxD): 95 x 161 x 87 mm
  - Weight: 0.4 ~ 0.5 kg/ each
  - Cable length (front speakers): 4 m
  - Cable length (rear speakers): 10 m

Remote control batteries

- 2 x AAA-R03-1.5 V

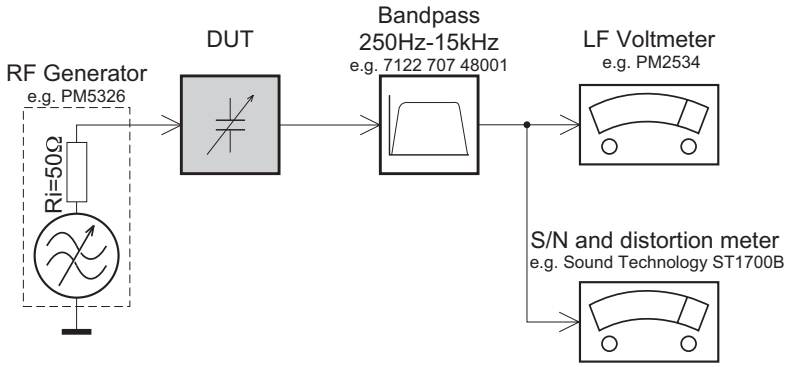
Laser

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

Specifications subject to change without prior notice.

MEASUREMENT SETUP

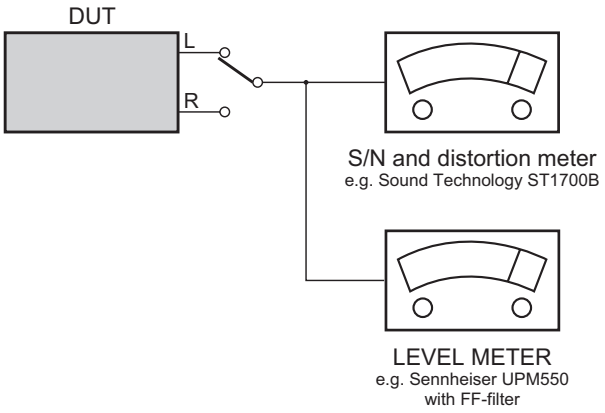
Tuner FM



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

CD

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



SERVICE AIDS

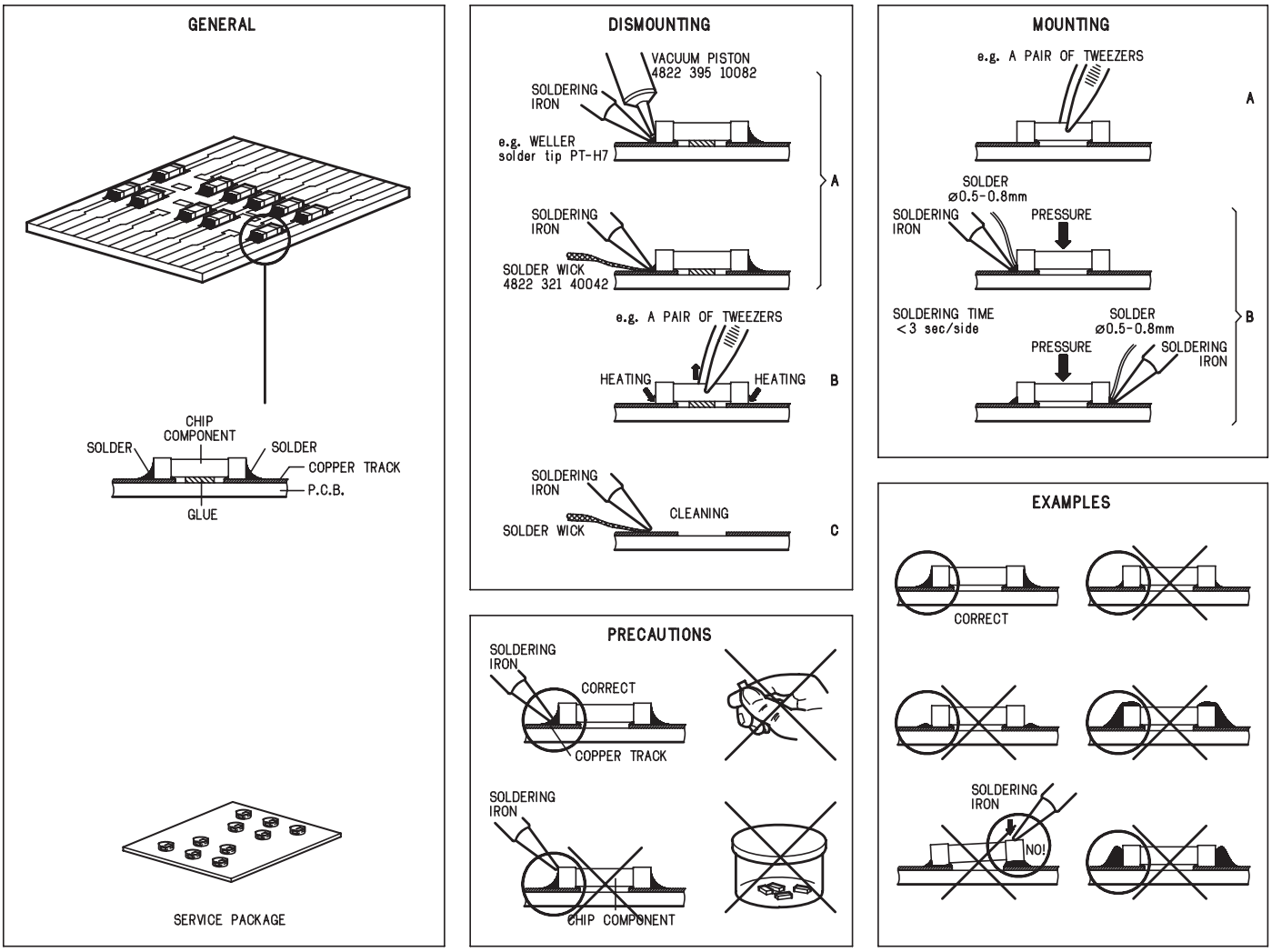
Service Tools:

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.

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.

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).
Unsorgfältige Behandlung im Reparaturfall kan 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.

I **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta 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 ⚠ .

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 ⚠ .

F

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

Less composants de sécurité sont marqués ⚠ .

D

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

Sicherheitsbauteile sind durch das Symbol ⚠ 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.

Componenty di sicurezza sono marcati con ⚠ .

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 spärren är urkopplad. Betrakta ej strålen.

SF **Varoitus !**

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

DK **Advarse !**

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

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.

INDENTIFICATION:
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 un-used 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 de-soldering 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** 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

a) Press “⌂” <Home> button on R/C.
b) Select <Setup>, then press “OK” button on R/C.
c) Select <Advanced>, then press < OK > button on R/C.
d) Select <Restore default settings>,then press <OK> to confirm.

2) Password change

a) Press “⌂” <Home> button on R/C.
b) Select <Setup>, then press “OK” button on R/C.
c) Select <Preference>, then press <OK> button on R/C.
d) Select <Change Password> <Confirm>, then press <OK> button on R/C.
“0000” is default password supplied.

3) Trade mode

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

4) Check software version

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

Model:HTS3551/12/51/55/78
Versions:
System SW:X.XX.XX
Subsystem SW:XX-XX-XX-XX
Ethernet MAC:XX:XX:XX:XX:XX:XX
For more information,frequently asked questions and software updates,please visit philips.com/support

[Close]

e) 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
a) Create a folder named “UPG_ALL” in your USB storage device, and Copy the latest upgrading software into the folder.
b) Connect the USB storage device to the home theater.
c) Press “⌂” <Home> button on R/C, and select <Setup>.
d) Select <Advanced> <Software Update> <USB>.
e) 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]

f) 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:

2 - 1

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%

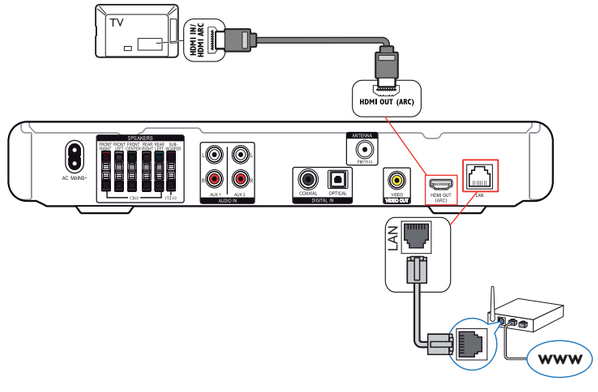
Software Dock: Failed

Software MCU3:

g)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.
a) 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:



b) Press “⌂” <Home> button on R/C, and select <Setup>.
c) Select <Advance Setup> <Software Update> <Network>.
d) 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]

e) 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

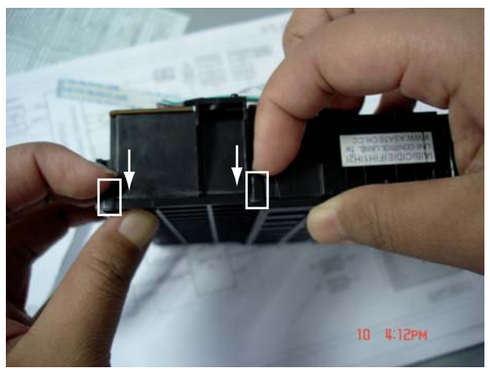
Software MCU3:

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

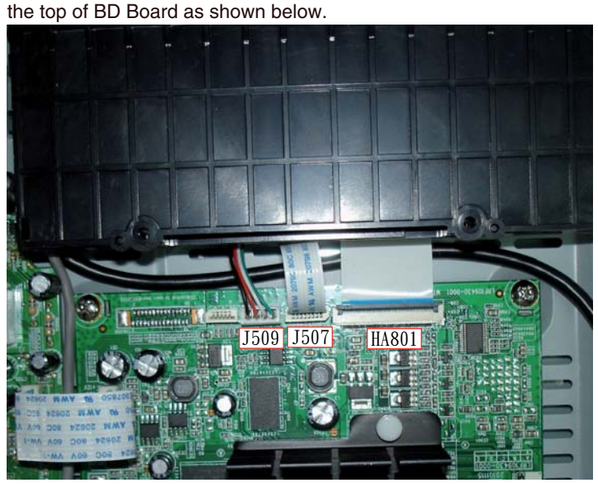
6) How to replace the defective Blu-ray Loader

a) Remove the defective Blu-ray Loader.

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



c) Assembly Blu-ray Loader to connect “J509”,”J507”,”HA801” 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 J509, J507 and HA801 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.

7) Produce to change Tuner grid (only for /51 version)

In some countries, you can switch the FM tuning grid between 50 kHz and 100 kHz. Changing the tuning grid erases all preset radio stations.

a) Press<Radio> button on R/C

b) Press <Stop> button on R/C.

c) Press and hold <Play> until (50 kHz) or (100 kHz) is displayed.

Note: repeaing the same action will toggle back to it previous tunning grid setting.

8) OSD Language setup (only for 51 version)

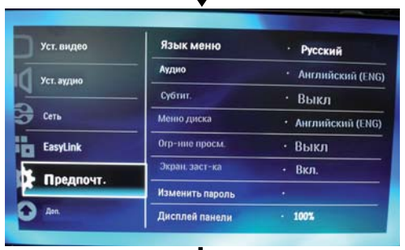
a) Press “ ” <Home> button on R/C.

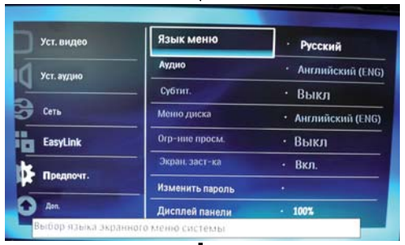
b) Select <Setup>, then press “OK” button on R/C.

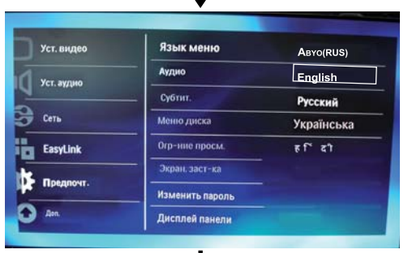
c) Select <Preference>, then press <OK> button on R/C.

d) Select <Menu language>, then press <OK> button on R/C.

C) Select <English>, then press <OK> button on R/C.







CAUTION!

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

2 - 3

REPAIR INSTRUCTIONS-part one

HTS3551REPAIR CHART

A All fuction is not working
B Power supply is not working
C All function is not sound
D Key board is not function
E AUX in is not sound
F MP3 in is not sound
G Coaxial in is not sound
H Optical in is not sound
I Tuner is not sound

A

All fuction is not working
Check all system all cable is loose or bad INT — YE S → Re-insert and fix the cable
NO
Panel starby LED show working or Not — NO → Check back powerPCB F9 1 bad cause damage — BAD → Change F901
OK
Check RB 904 pin11 CN 401 Pin11 approx3.3V — NO → Check +3.3V power supply circuit
YES
Check IC 101.Q106 And Its Conjoint parts — NO → Check repair control PCB Standby circuit
WORK
Check RB 904 pin4 CN 401 Pin4 approx+5V — NO → Check repair switch power circuit (See B)
CORRE CT
Check all Voltage 3.3V and 1.8V give circuit — YE S → Check IC 209 Pin238 pin239 OSC frequency 27MHz) — YES → Repair main pcb between IC 103 IC 201 IC 204 And Its Conjoint parts

B

Power supply is not working
All Voltage No Output — No →
- +31.5V Voltage No Output → Check Q902 IC 905 D916 And Its Conjoint Part
- -27V Voltage No Output → Check D908 Q914 And Its Conjoint Part
- +12V Voltage No Output → Check D912 Q910 And Its Conjoint Part
- +5V Voltage No Output → Check D911 Q907 And Its Conjoint Part
- BK 3V3 Voltage No Output → Check IC 906 And Its Conjoint Part

YE S
Check F901 Bad Cause Damage
No
Check BK 3V3 Working or Not — No → Check Repair IC 901 Q902 IC 906 And Its conn circuit

C

All function is not sound
Yes
Check POWE R IC Voltage +29V — No → See Contents B
OK
Check Power ic Pin 1,21,22,23,44 Voltage 12V — YE S → Check FB 9093 FB 9901 And Its Conjoint Part
OK
Check IC 401 Pin9/15 Pin36/54 Voltage +3.3v — No → Check IC721 R 433 And Its Conjoint Part
OK
Check IC 601 Pin Voltage Pin17/18 osc frequency 27MHz) — No → Check IC 602 And Its Conjoint Part
Yes
Check IC 601 And Its Conjoint Part

D

Key board is not function
Check the cable connect CN 701 loos e or bad INT — YE S → Re-insert and fix the cable
OK
Check IC1 Pin17 Voltage approx +3.3V — No → Check R20 And Its Conjoint parts
OK
Check IC1 Pin9(DAT) Check IC1 Pin18(CLK) — No → Check R 21.R 22 And Their Conjoint Parts
OK
Check IC 1 And Their Conjoint Parts

E

AUX in is not sound
Check JK 101 INT or No — INT → Change this jk101
OK
Check IC171 Pin5/36/46 approx +3.3V Pin14 approx +5.0V Yes or No — No → Check L204/L205/FB9904
Yes
Check IC151 Pin3 /19/22 approx+3.3V — No → Check L 151/L152
OK
See C

F

MP3 in is not sound
Check JK 602 INT or No — INT → Change this jk602
OK
Check IC171 Pin5/36/46 approx +3.3V Pin14 approx +5.0V Yes or No — No → Check L2 4/L2 5/FB9904
Yes
Check IC151 Pin3 /19/22 approx+3.3V — No → Check L 151/L152
OK
See C

G

Coaxial in is not sound
Check JK 102 INT OR NO — INT → REPA IR ok
OK
Check L209 C133 Yes or No — No → REPA IR ok
OK
Check IC151 Pin3 /19/22 approx+3.3V — No → Check L 151/L152
OK
See C

H

Optical in is not sound
Check JK 103 INT OR NO — INT → REPA IR ok
OK
Check JK 103 pin1 approx +3.3V Yes or No — No → Check And Repair R128
OK
Check R 127 C136 f=12MHz
OK
Check IC151 Pin3 /19/22 approx+3.3V — No → Check L 151/L152
OK
See C

I

Tuner is not sound
Check CN 101 Pin4= +5V — No → Check TUNER PACK And Its Conjoint Parts
Yes
Check IC171 And Its Conjoint Parts Affirm Correct — No → Check CN 3 1 Pin5(SCL) Pin6(SDA).Pin9 (TU_CE)
OK
Check IC151 Pin3 /19/22 approx+3.3V — No → Check L 151/L152
OK
See C

2 - 4

REPAIR INSTRUCTIONS-part two

HTS3551 BD Board Repair block diagram(MT8550)

MAIN UNIT REPAIR CHART

- A — BD function is not working
- B — Loading is not DISC
- C — All video is not output
- D — Ethernet is not starting

A — BD function is not working

- Check CN4 cable is loose or bad INT — YES → Re-insert and fix the cable
- NO → Check 1.1V 1.2V 1.5V Yes or No output — NO → Repair BD pcb between L1 U1 L2 U2 U4 circuit
- YES → Check 3.3V Yes or No output — NO → Repair BD pcb between U3 R10 circuit
- YES → Check Y301 Crystal 27MHz Yes or No output — NO → Repair BD pcb between Y301 U100 Circuit
- YES → Check U100 U203 U104 and connect part

B — Loading is not DISC

- Check Y301 crystal 27MHz Freq Yes or NO — NO → supersession 27MHz crystal
- YES → Check Open/Close Working or Not — No → Check J507J509 J508 to BD Loader Cable loose or Bad INT — No → Check U9 And Its conjoint parts
- OK → Check HA801 to BD loader Cable Loose or Bad INT — YES → Re-Insert and fix the cable — YES
- OK → Check BD Loader run Yes or NO — NO → supersession Loader
- YES → Check U203 U104 and connectpart
- OK → Determine Picture Output Yes or No — No → Check U100 And Their Conjoint Parts
- OK → Check U900 U901 Q802 Q804 Q805 And Their Conjoint Parts

C — All video is not output

- Check J300 P502 is loose or bad — loose → Re-insert and fix the JACK
- Bad → supersession JACK
- OK → Check J300 P502 between U100

D — Ethernet is not starting

- Check P401 loose or bad INT — YE S → supersession P401
- NO → Check P503 between L401 and U100 — INT → Repair P401between L401 U100

DISASSEMBLY INSTRUCTIONS

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.

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

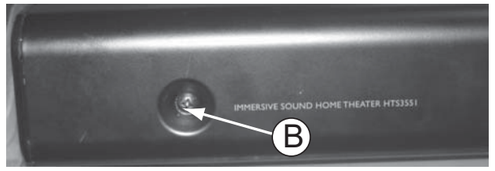


Figure 2

2) Loosen 4 screws “ C “ at the DVD Module as shown in figure 3, then use hands according marking in figure 4 to remove the DVD Door as shown in figure 4, then remove the front panel assemble.
3) According marking in figure 5 widdershins circumrotate gear wheel to open the DISC as shown in figure 5.

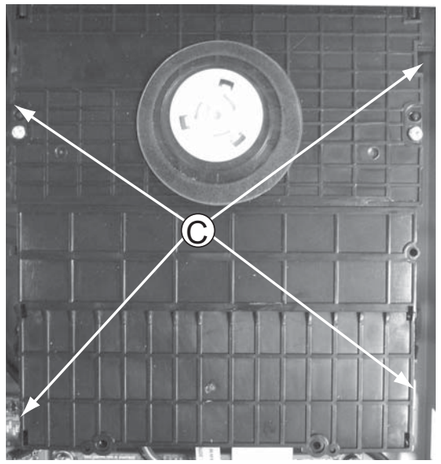


Figure 3

Figure 4

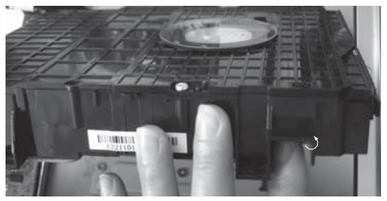


Figure 5

Dismantling of the Key Board

1) Loosen 5 screws “ D “ on the top of key board as shown in figure 6.

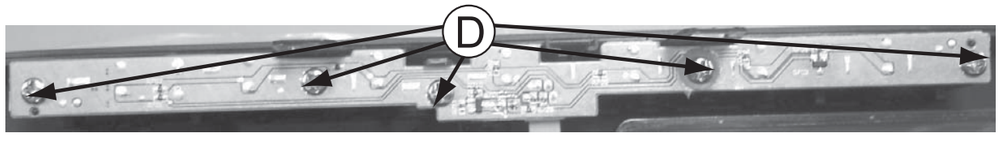


Figure 6

Dismantling of the VFD Board

1) Loosen 3 screws “ E “ on the top of VFD board as shown in figure 7.

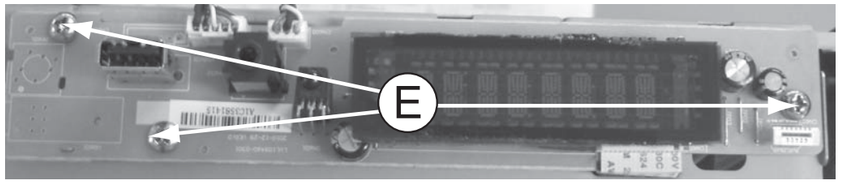


Figure 7

Dismantling of the Power Board

1) Loosen 4 screws “ F “ on the top of power board as shown in figure 8.

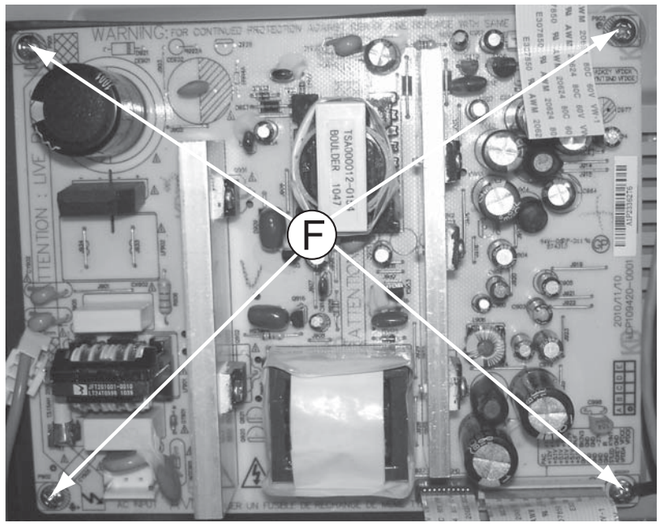


Figure 8

Dismantling of the Main Board

1) Loosen 3 screws “G” on the top of main board as shown in figure 9.
2) Loosen 6 screws “H” at the back panel as shown in figure 10.

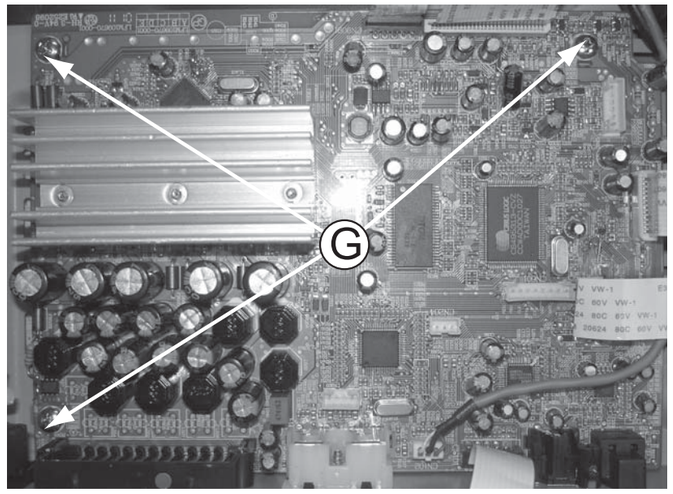


Figure 9

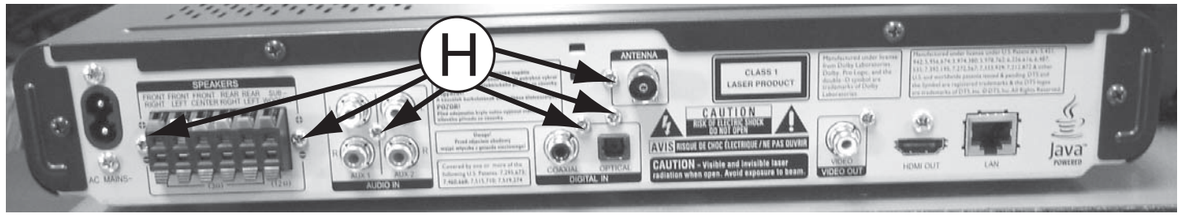


Figure 10

Dismantling of the BD Board

1) Loosen 4 screws “I” on the top of BD board as shown in figure 11.
2) Loosen 2 screws “J” at the back panel as shown in figure 12.

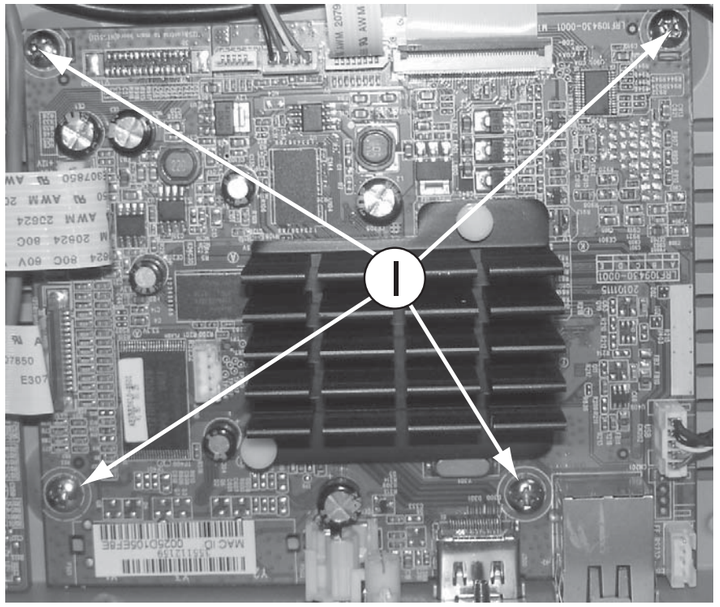


Figure 11

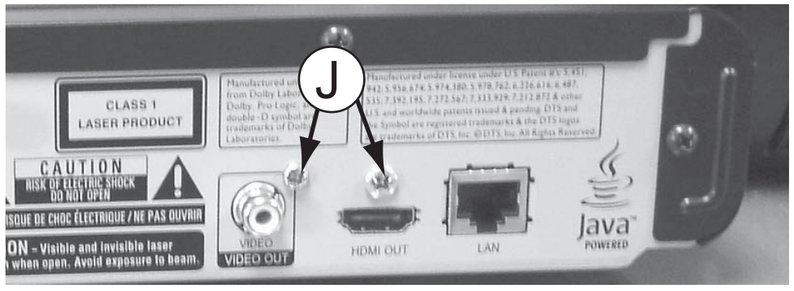
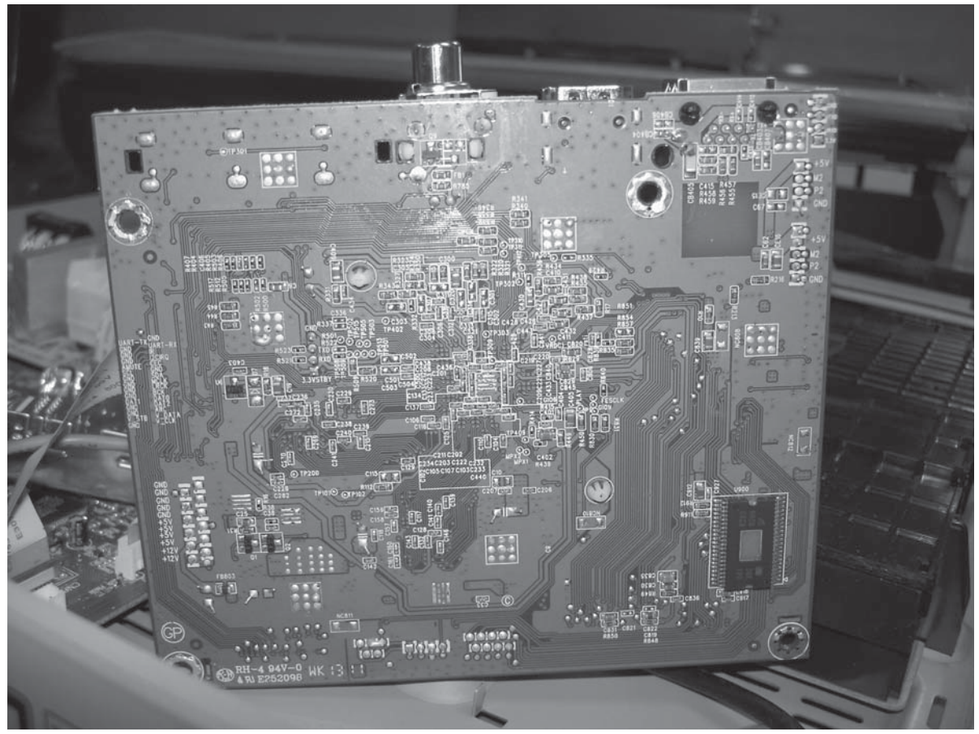


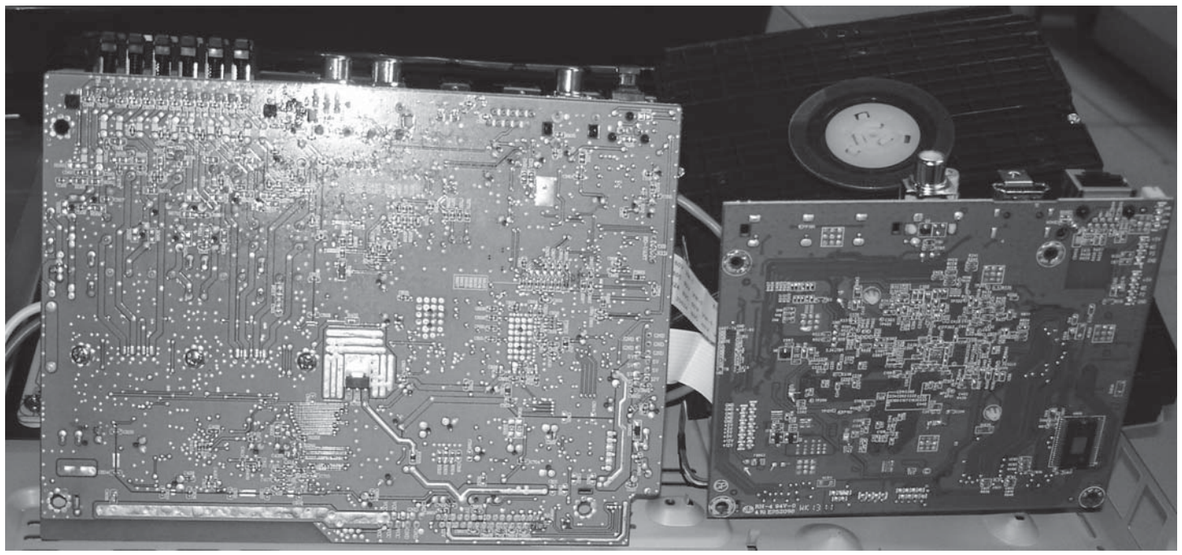
Figure 12

SERVICE POSITIONS

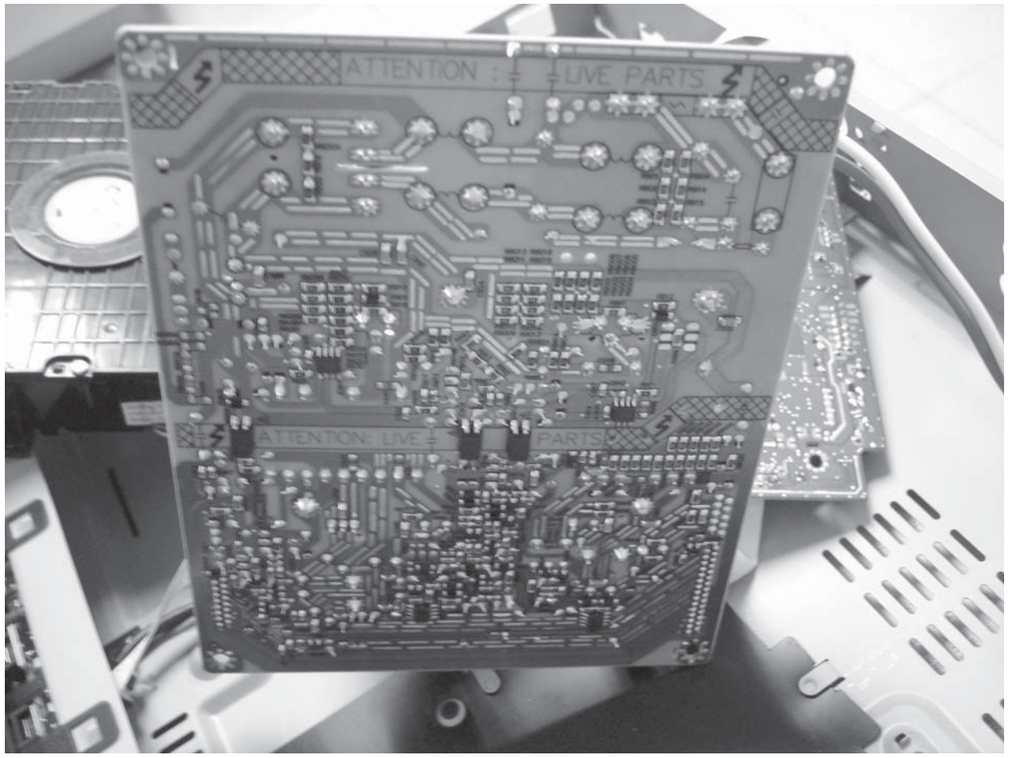
Service Position A - BD Board



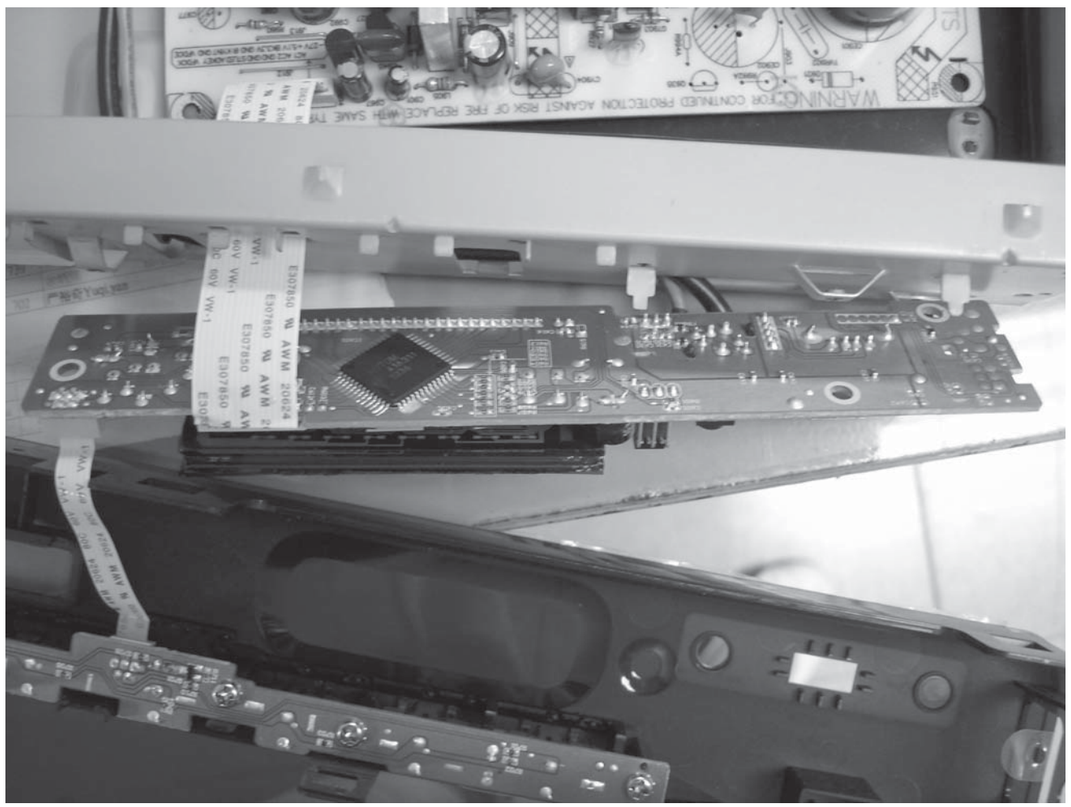
Service Position B - Main & BD Board



Service Position C - Power Board



Service Position D - VFD Board



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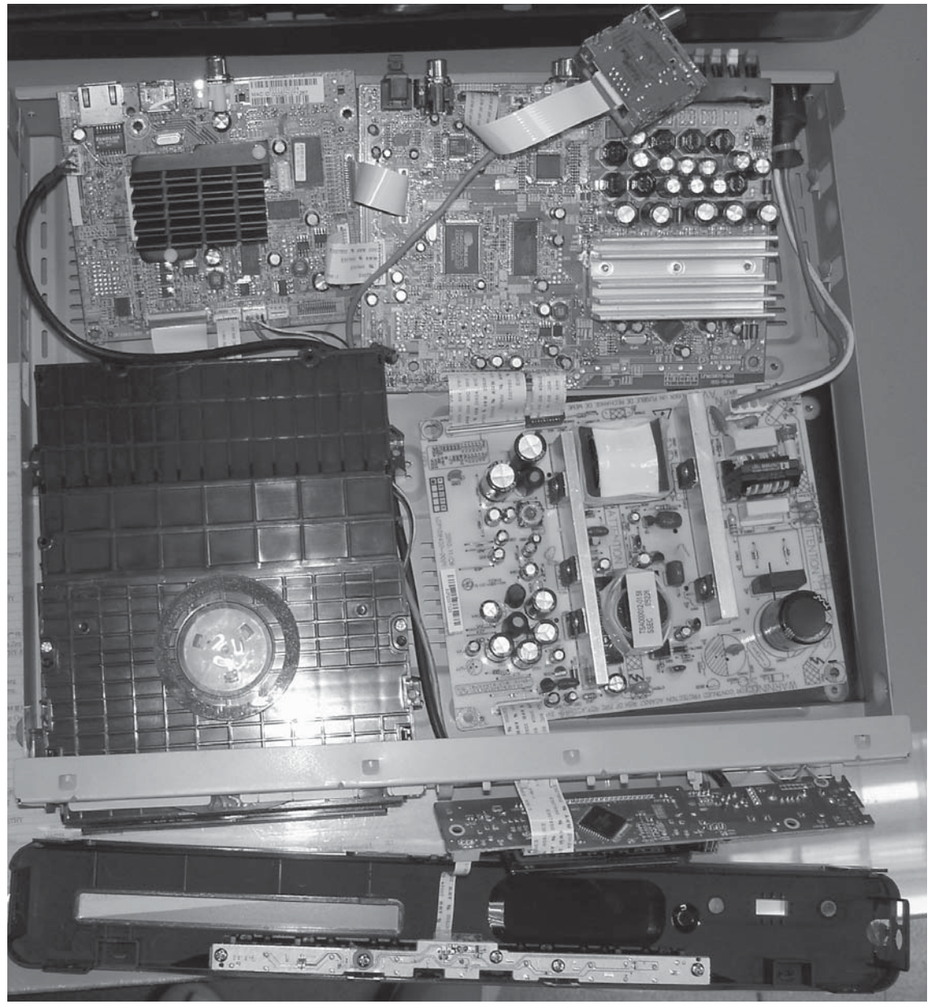
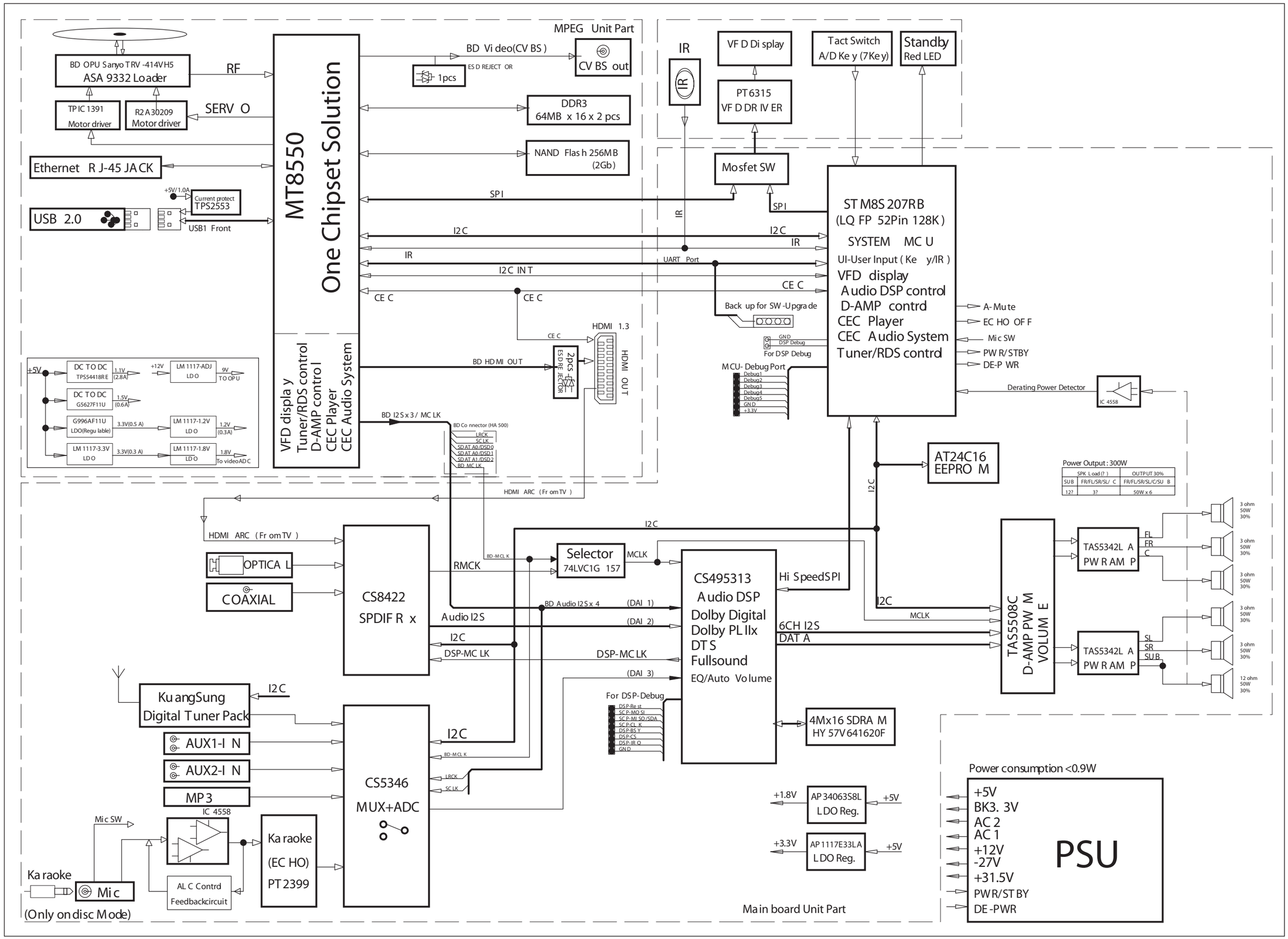
Service Position E - All Board



4 - 1

BLOCK DIAGRAM



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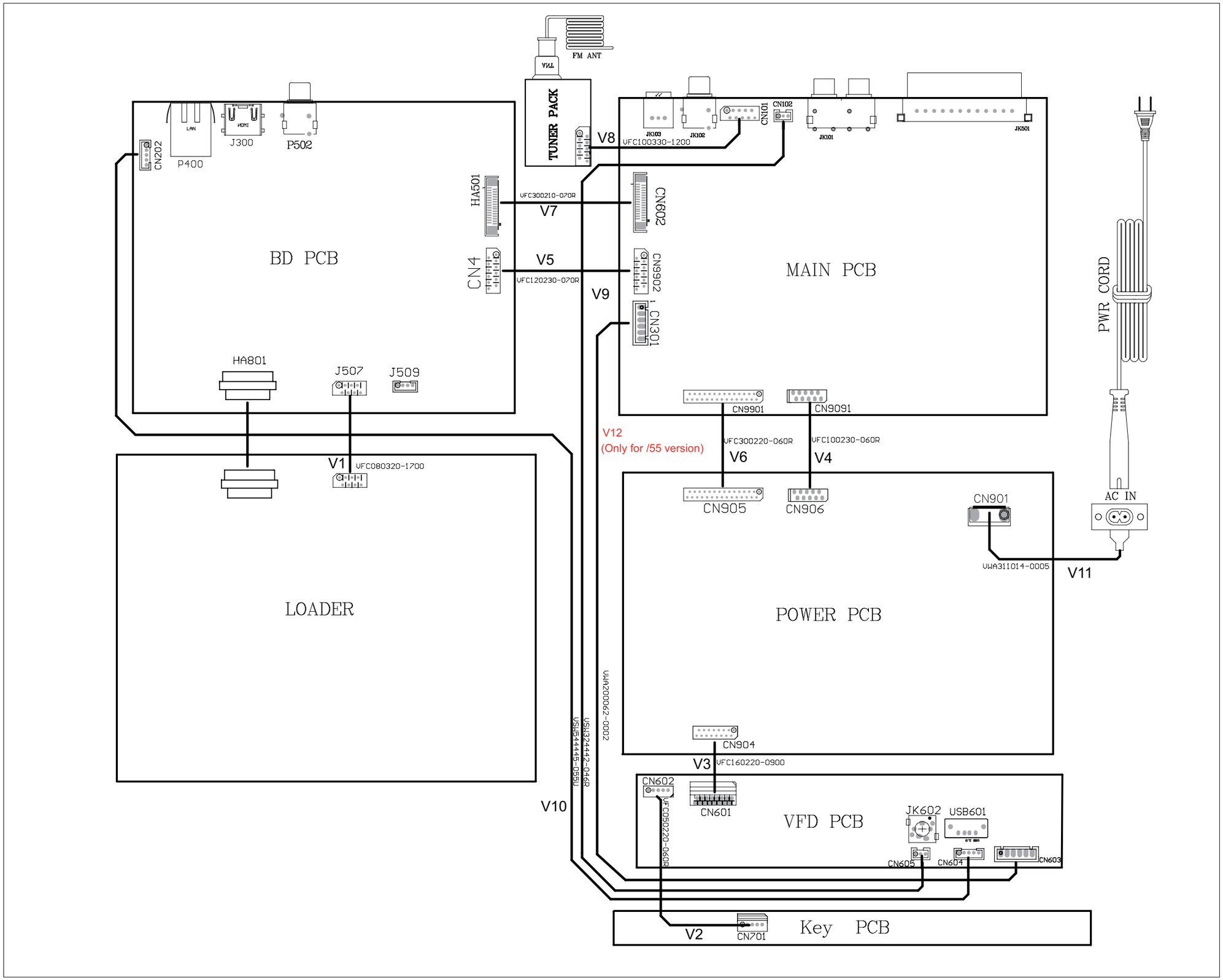
WIRING DIAGRAM



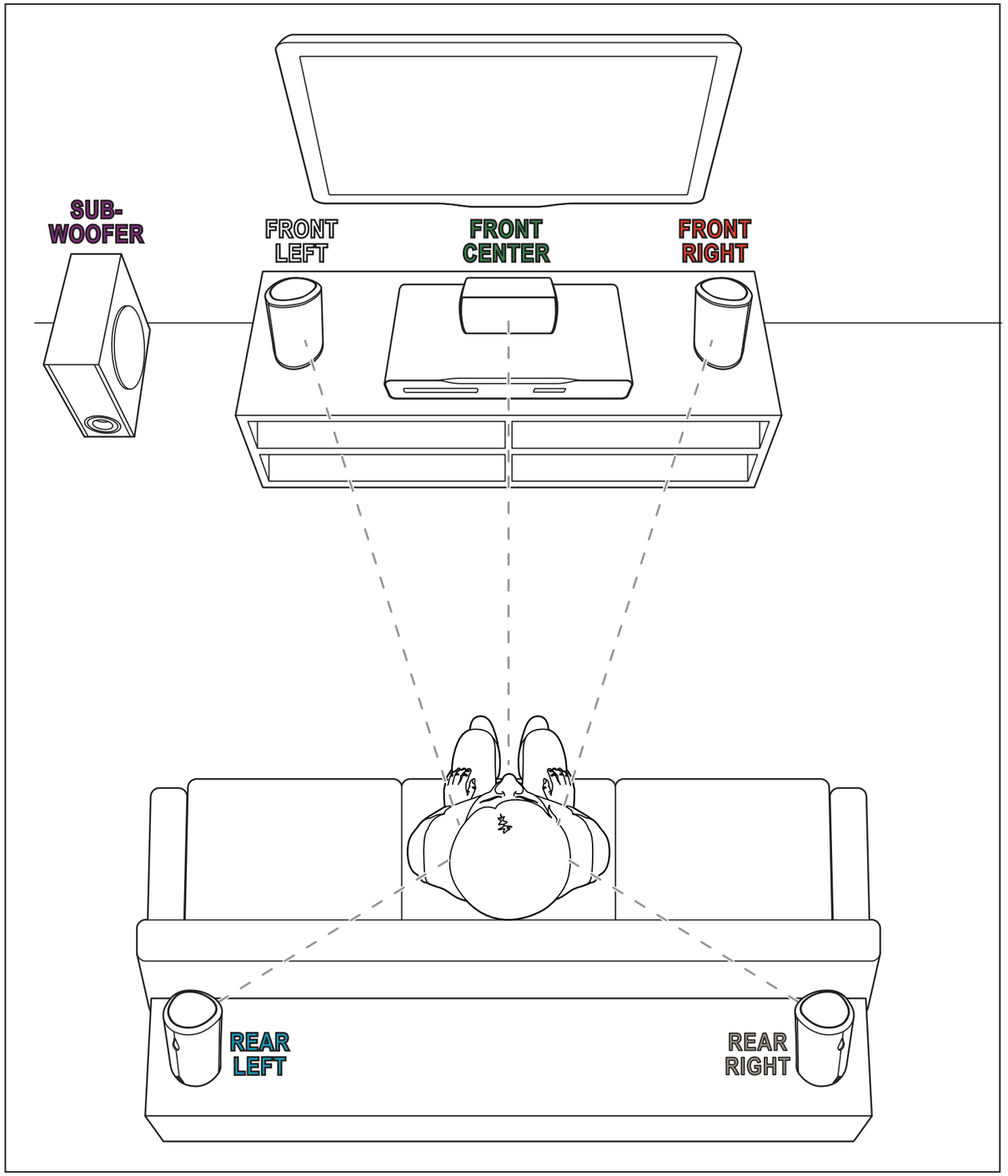
QUICK START GUIDE

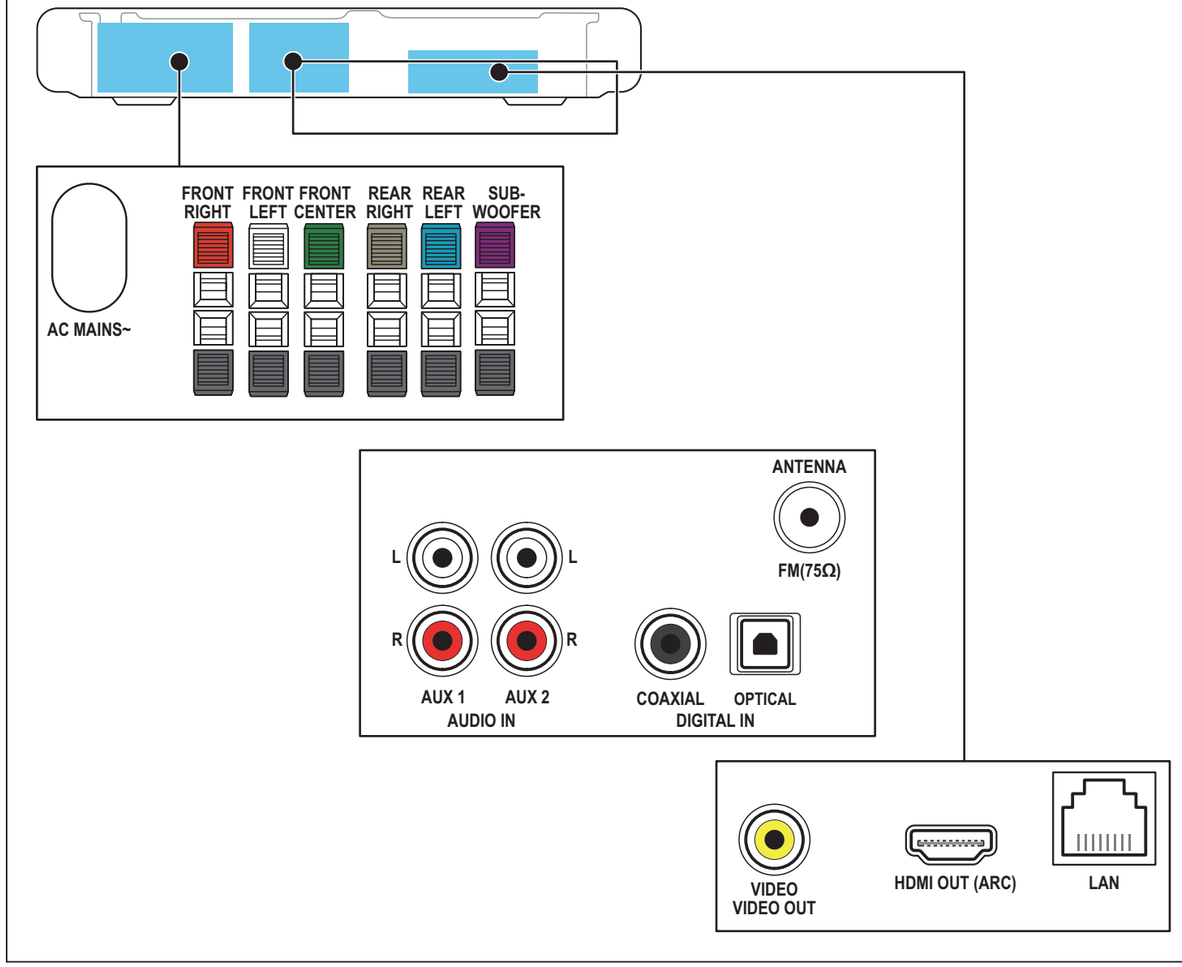
The following excerpt of the QSG/DFU serves as an introduction to the set.

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.

✻ Adaptador fornecido como acessório não deverá ser usado nas redes elétricas do Brasil, seu uso é destinado exclusivamente a outros países da América Latina.

5 - 1

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FM(75Ω)
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AUX 2
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OPTICAL
DIGITAL IN
VIDEO
VIDEO OUT
HDMI OUT (ARC)
LAN

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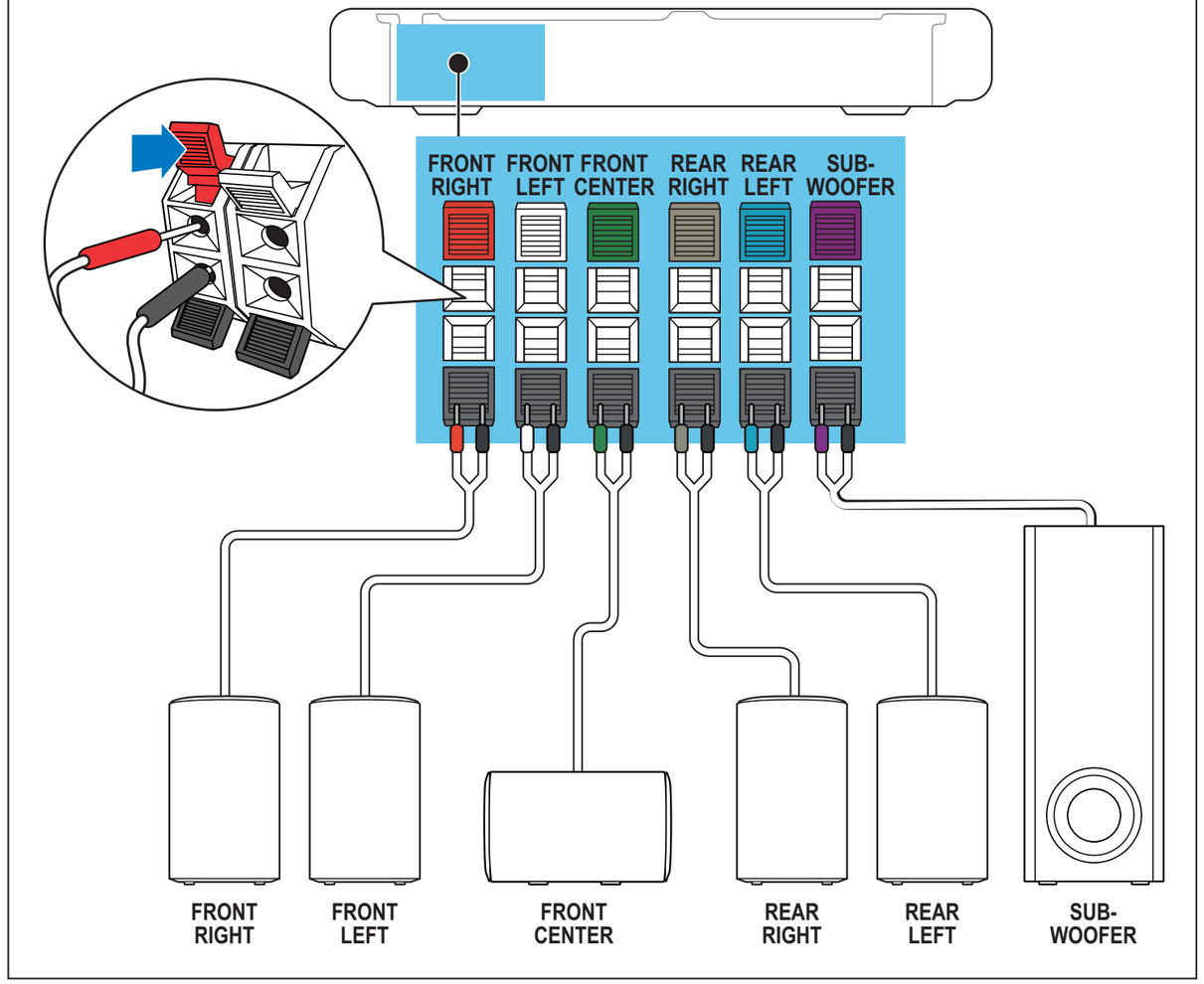
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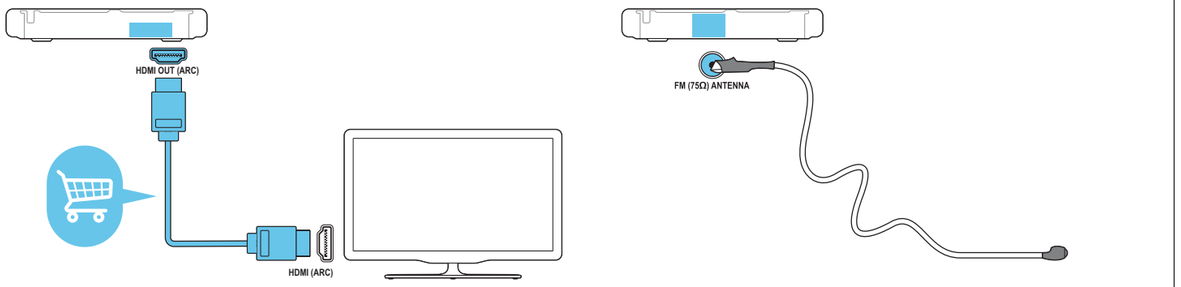
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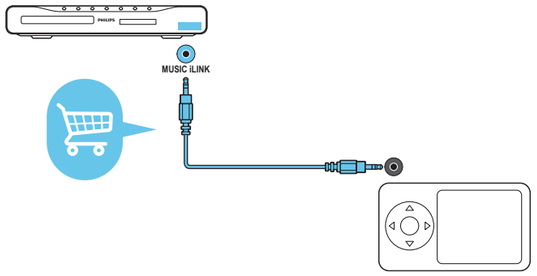
HDMI (ARC)

FM (75Ω) ANTENNA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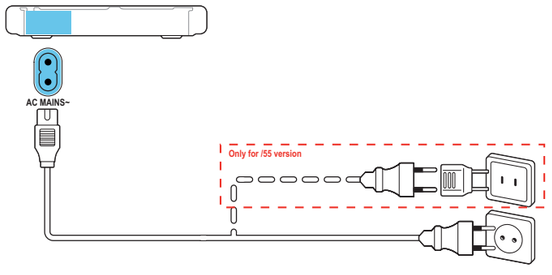
AC MAINS~
Only for /55 version

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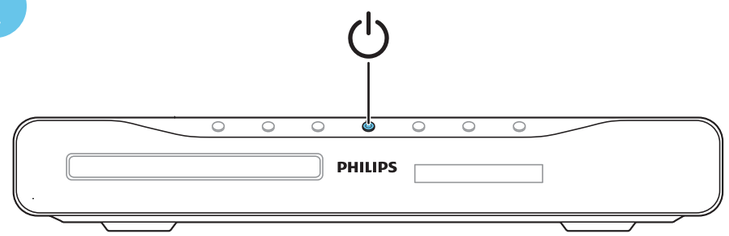
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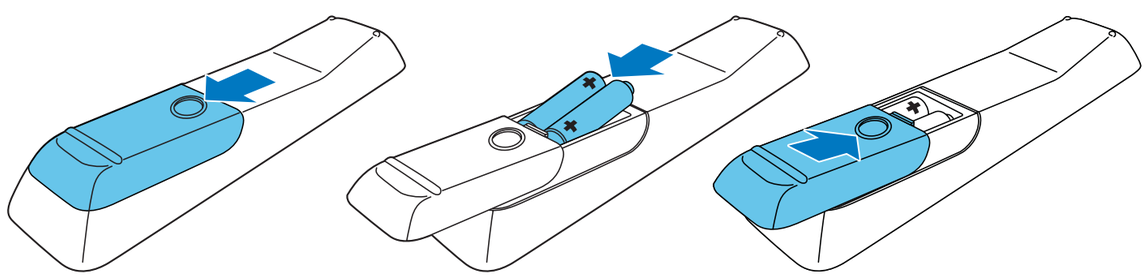

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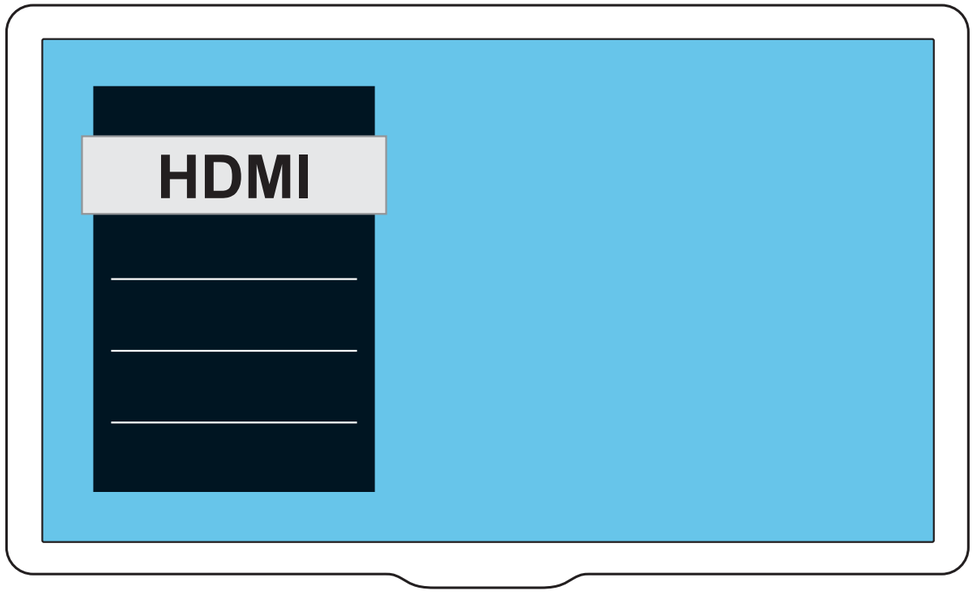
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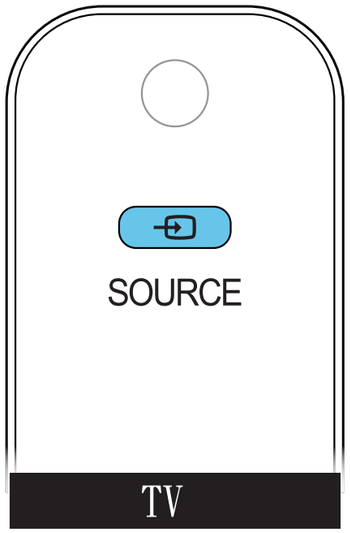
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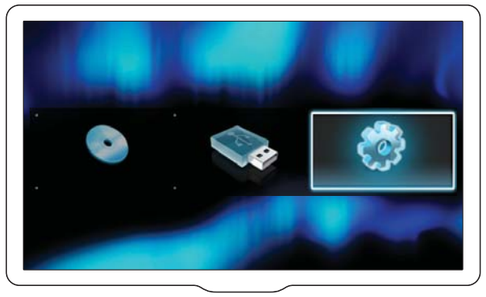

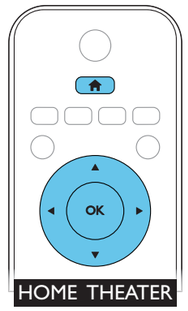
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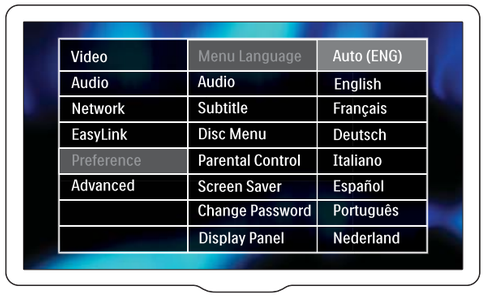
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Advanced
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Screen Saver
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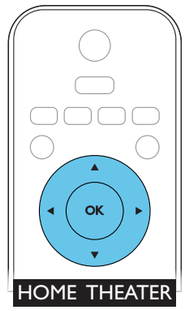
Français
Deutsch
Italiano
Español
Português
Nederland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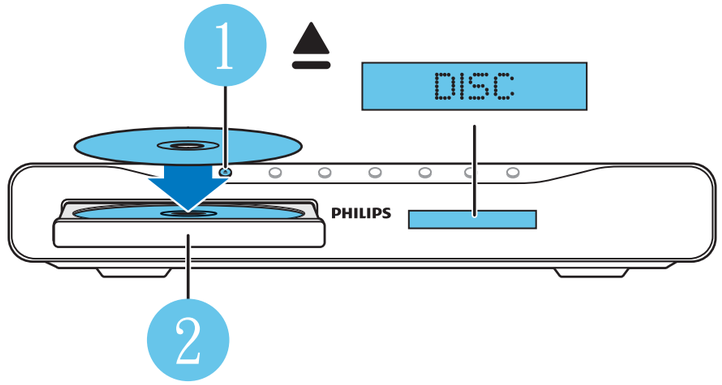
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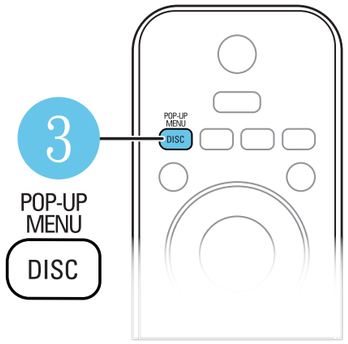
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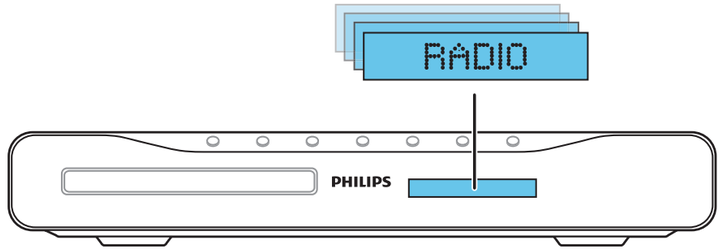
DISC
POP-UP MENU
DISC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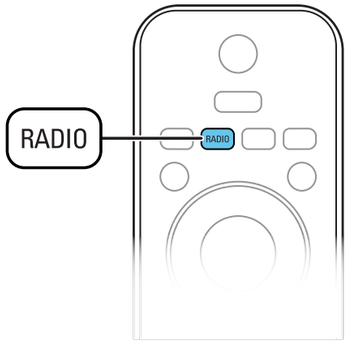
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RADIO

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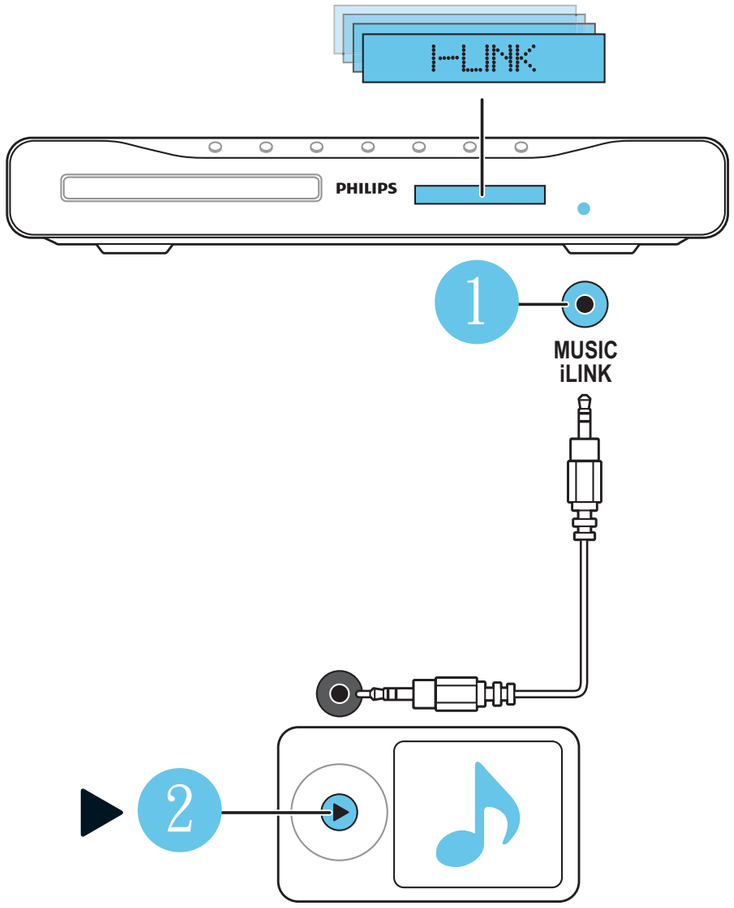
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MUSIC
iLINK
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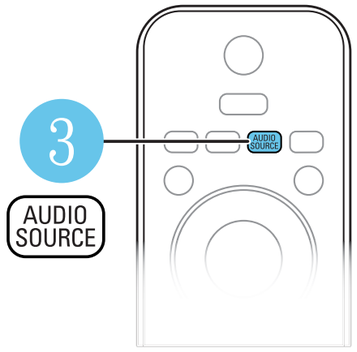
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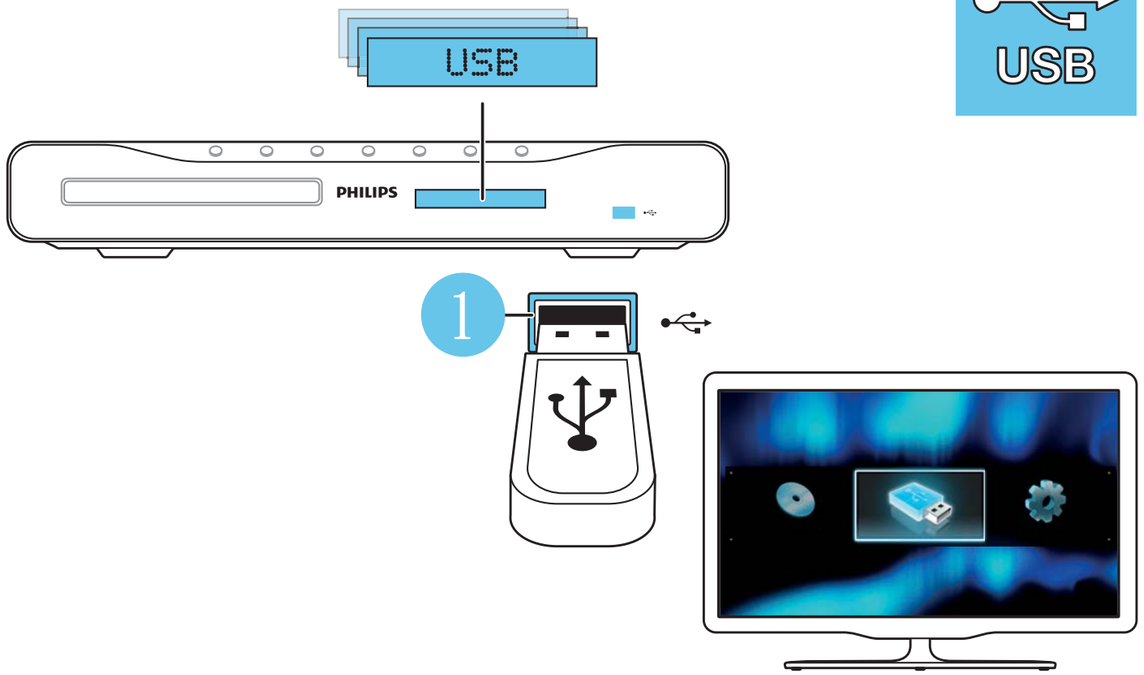
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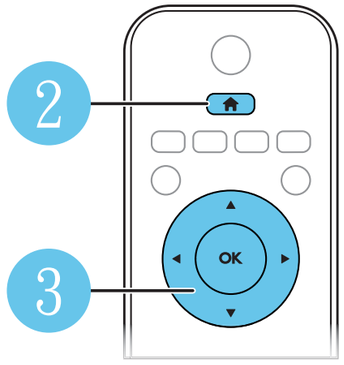
2
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3

MAIN BOARD

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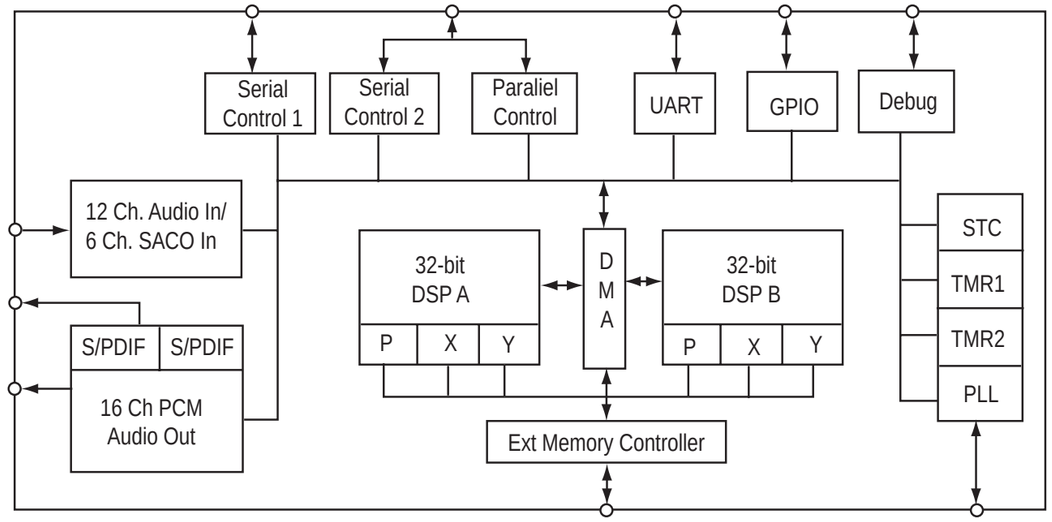
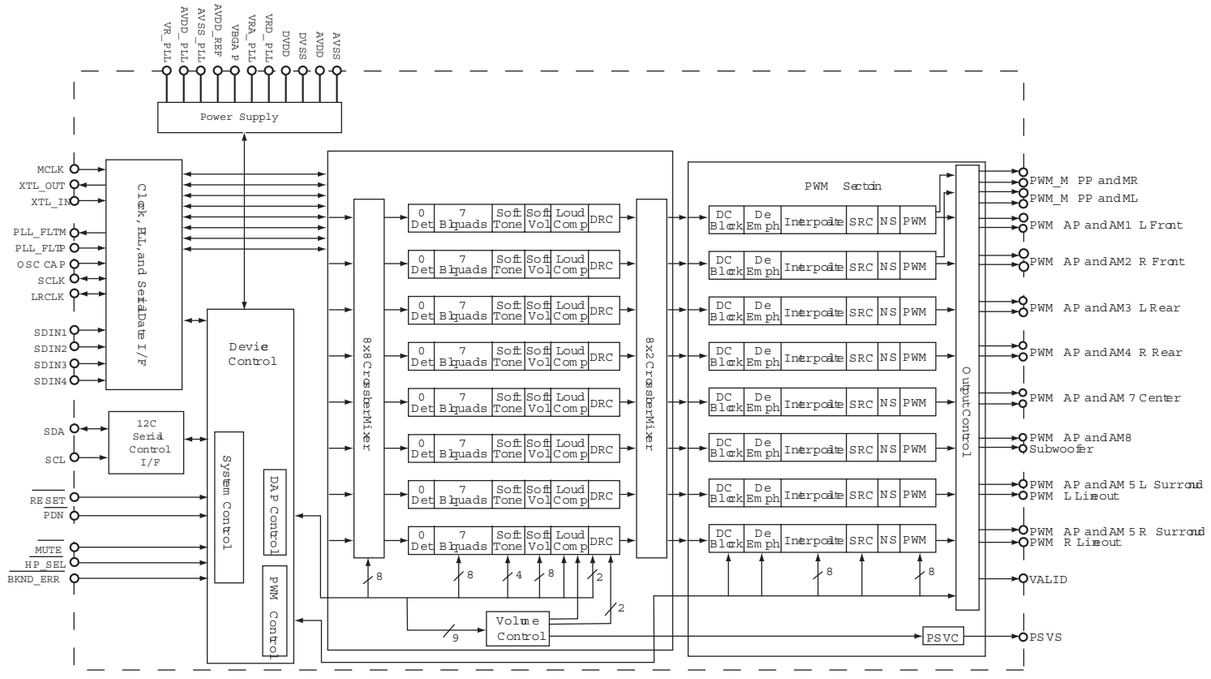
INTERNAL IC DIAGRAM - CS495313-CVZ



INTERNAL IC DIAGRAM - TAS5508BPAG



6 - 2

CIRCUIT DIAGRAM

C101 B1 C129 D1 C171 C1 C210 B3 C312 A2 C352 D1 C418 C4 C502 B3 C526 A3 C551 B4 C576 A4 C5991 A3 C624 D2 C667 B1 C828 D4 C9907 C4 CN9091 D4 FB5004 A3 IC501 B3 L553 A4 R115 C1 R162 D1 R212 C2 R236 B2 R260 B1 R284 B2 R320 A2 R351 D1 R418 C4 R5005 C3 R551 B4 R593 A3 R619 D2 R643 D3 ZD202 D4
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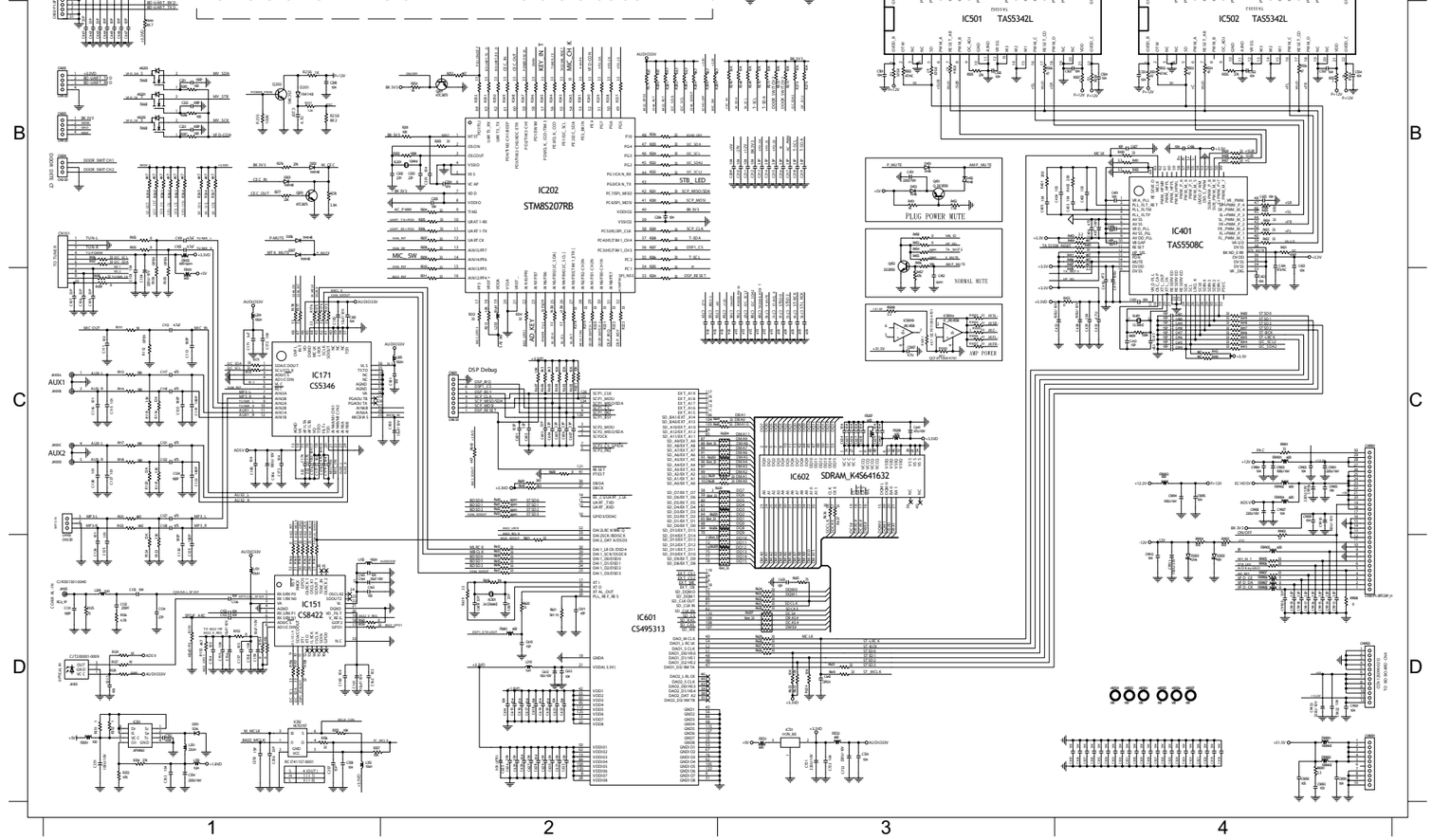
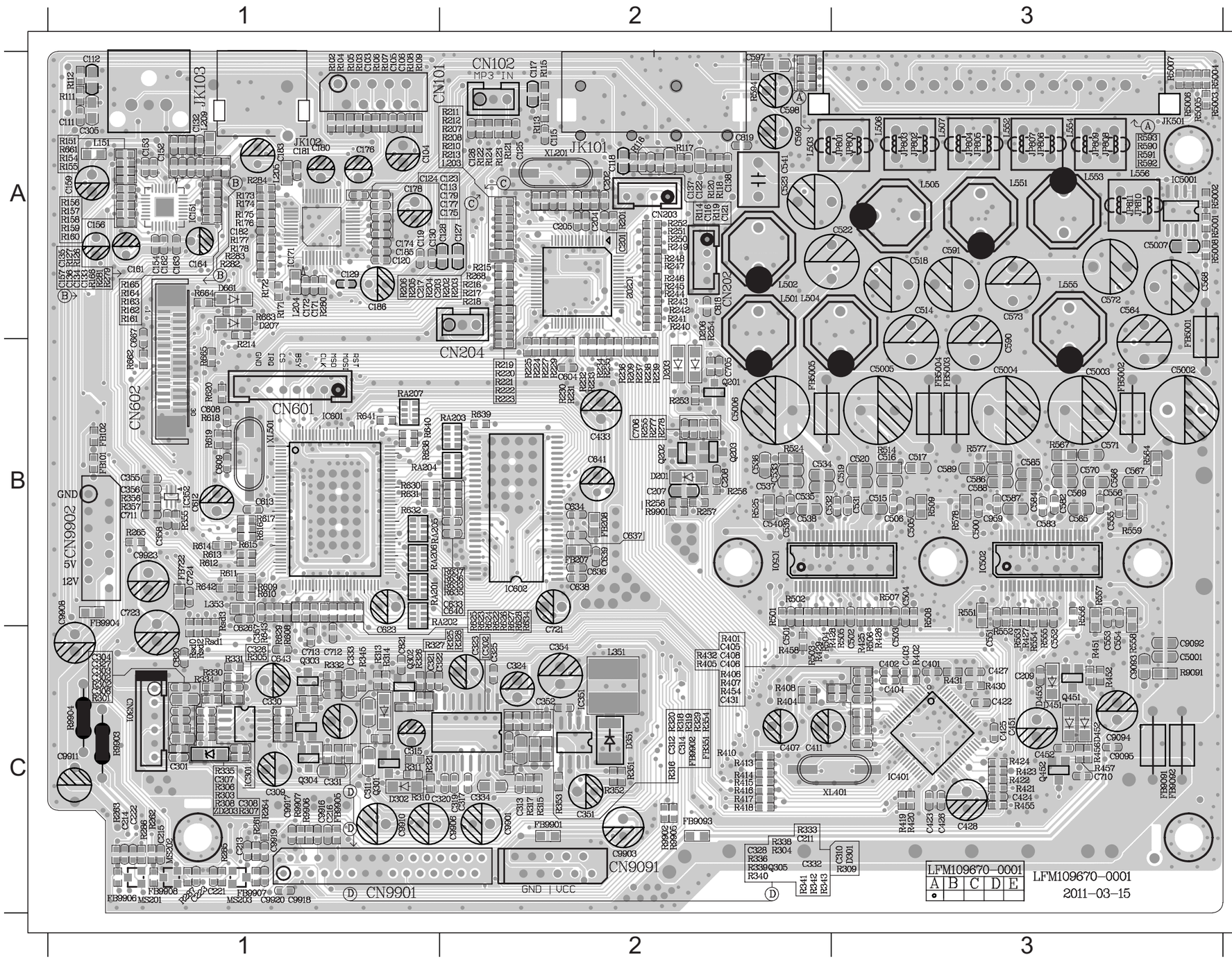


PCB LAYOUT - TOP VIEW



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C113	A2	C325	C2	C585	B3	FB9902	C2	R174	A1	R310	C1	R551	B3
C115	A2	C326	C1	C586	B3	FB9904	B1	R175	A1	R311	C1	R553	C3
C116	A2	C327	C1	C587	B3	FB9905	C1	R176	A1	R313	C1	R554	C3
C117	A2	C328	C2	C588	B3	FB9906	C1	R177	A1	R314	C1	R555	C3
C118	A2	C330	C1	C589	B3	FB9907	C1	R178	A1	R315	C2	R556	B3
C119	A1	C331	C1	C590	A3	FB9908	C1	R201	A2	R316	C2	R557	B3
C120	A1	C332	C2	C591	A3	IC151	A1	R202	A2	R317	C2	R558	C3
C121	A2	C333	C1	C597	A2	IC171	A1	R203	A2	R318	C2	R559	B3
C122	A2	C334	C2	C598	A2	IC202	A2	R204	A1	R319	C2	R564	B3
C123	A2	C351	C2	C599	A2	IC301	C1	R205	A1	R320	C2	R567	B3
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C125	A2	C354	C2	C608	B1	IC351	C2	R207	A2	R325	C2	R578	B3
C126	A2	C355	B1	C609	B1	IC352	B1	R208	A2	R326	C1	R590	A3
C127	A2	C356	B1	C612	B1	IC401	C3	R209	B2	R327	C1	R591	A3
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C129	A1	C358	B1	C623	B1	IC501	B2	R211	A2	R329	C2	R593	A3
C130	A1	C401	C3	C626	B1	IC502	B3	R212	A2	R330	C1	R594	A2
C132	A1	C402	C3	C633	B2	IC601	B1	R213	A2	R331	C1	R608	C1
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C157	A1	C426	C3	C710	C3	L351	C2	R224	B2	R343	C2	R619	B1
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C178	A1	C5006	B2	C9095	C3	Q201	B2	R238	B2	R405	C2	R632	B1
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C181	A1	C502	C3	C9903	C2	Q301	C1	R241	A2	R408	C2	R635	B2
C182	A1	C503	C3	C9906	C2	Q302	C1	R242	A2	R410	C2	R636	B2
C183	A1	C504	B3	C9908	B1	Q303	C1	R243	A2	R413	C2	R637	B2
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C215	C1	C533	B2	CN601	B1	R115	A2	R257	B2	R428	C3	R9903	C1
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C313	C2	C567	B3	FB5001	A3	R160	A1	R287	C1	R503	C2		
C314	C2	C568	A3	FB5002	B3	R161	A1	R301	C1	R504	C2		
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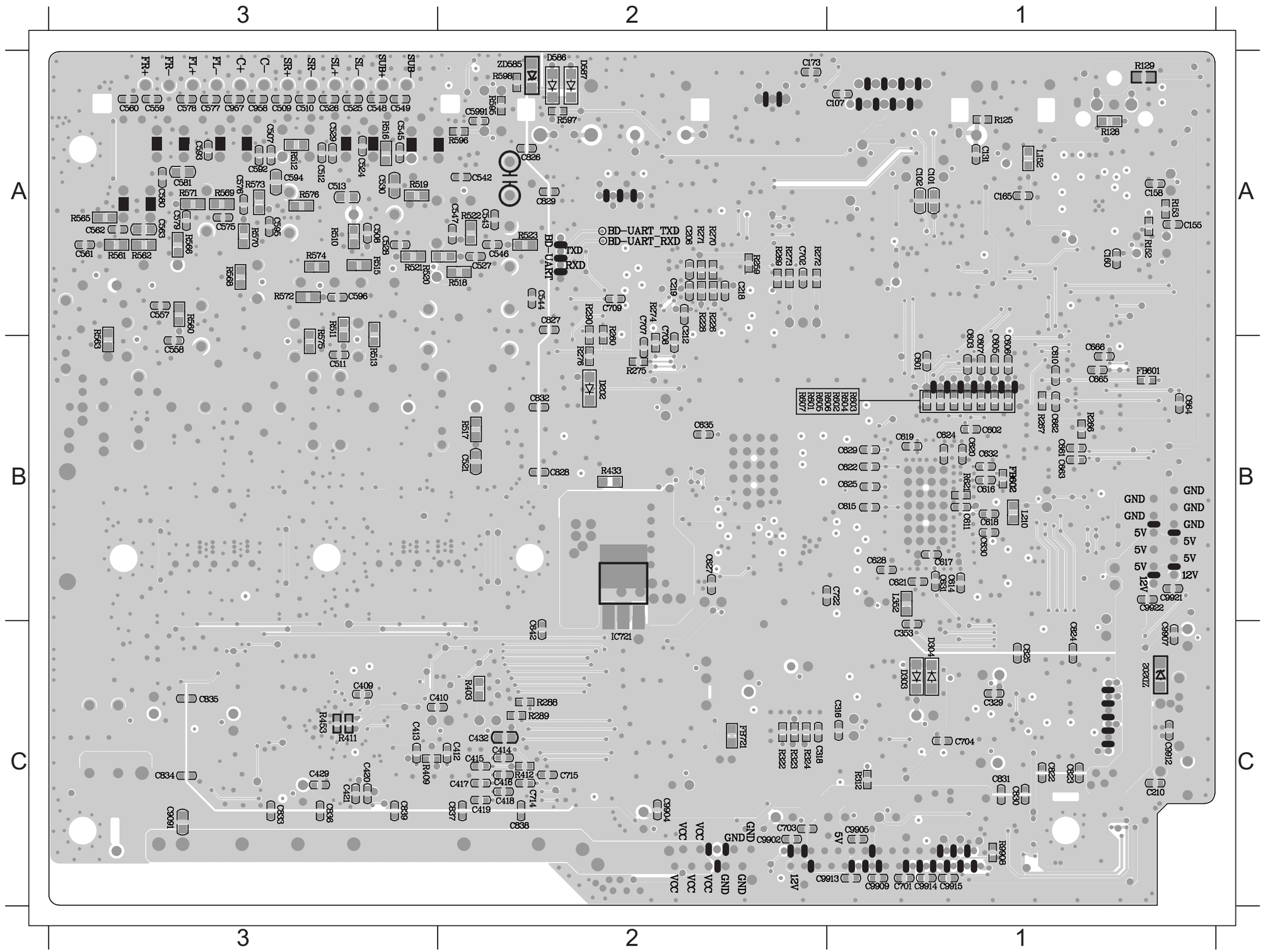
PCB LAYOUT - BOTTOM VIEW



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C410	C3	C5991	A2	C9091	C3	R511	A3
C412	C2	C601	B1	C957	A3	R512	A3
C413	C3	C602	B1	C958	A3	R517	B2
C414	C2	C603	B1	C9902	C2	R519	A3
C415	C2	C605	B1	C9904	C2	R520	A3
C416	C2	C606	B1	C9905	C1	R521	A3
C417	C2	C607	B1	C9907	C1	R522	A2
C418	C2	C610	B1	C9909	C1	R523	A2
C419	C2	C611	B1	C9912	C1	R560	A3
C420	C3	C614	B1	C9913	C2	R561	A3
C421	C3	C615	B1	C9914	C1	R562	A3
C429	C3	C616	B1	C9915	C1	R569	A3
C432	C2	C617	B1	C9921	B1	R570	A3
C507	A3	C618	B1	C9922	B1	R571	A3
C508	A3	C619	B1	D202	B2	R572	A3
C509	A3	C620	B1	D303	C1	R573	A3
C510	A3	C621	B1	D304	C1	R576	A3
C511	B3	C622	B1	D586	A2	R595	A2
C512	A3	C624	B1	D587	A2	R596	A2
C513	A3	C625	B1	FB601	B1	R597	A2
C521	B2	C627	B2	FB721	C2	R598	A2
C524	A3	C628	B1	IC721	C2	R601	B2
C525	A3	C629	B1	L152	A1	R602	B1
C526	A3	C630	B1	L210	B1	R603	B1
C527	A2	C631	B1	L352	B1	R604	B1
C528	A3	C632	B1	R125	A1	R605	B2
C529	A3	C635	B2	R129	A1	R606	B2
C530	A3	C661	B1	R152	A1	R607	B2
C542	A2	C662	B1	R153	A1	R621	B1
C543	A2	C663	B1	R226	A2	R9908	C1
C544	A2	C664	B1	R228	A2	ZD202	C1
C545	A3	C665	B1	R259	A2	ZD585	A2
C546	A2	C666	B1	R260	B2		
C547	A2	C701	C1	R266	B1		
C548	A3	C702	A2	R267	B1		
C549	A3	C703	C2	R269	A2		

POWER BOARD

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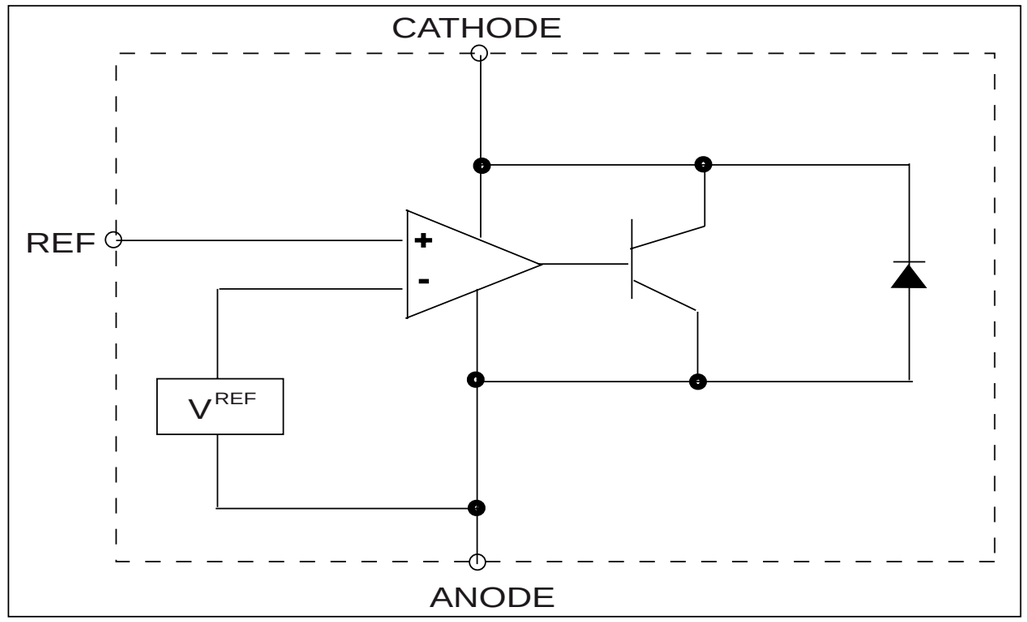
INTERNAL IC DIAGRAM - AZ431



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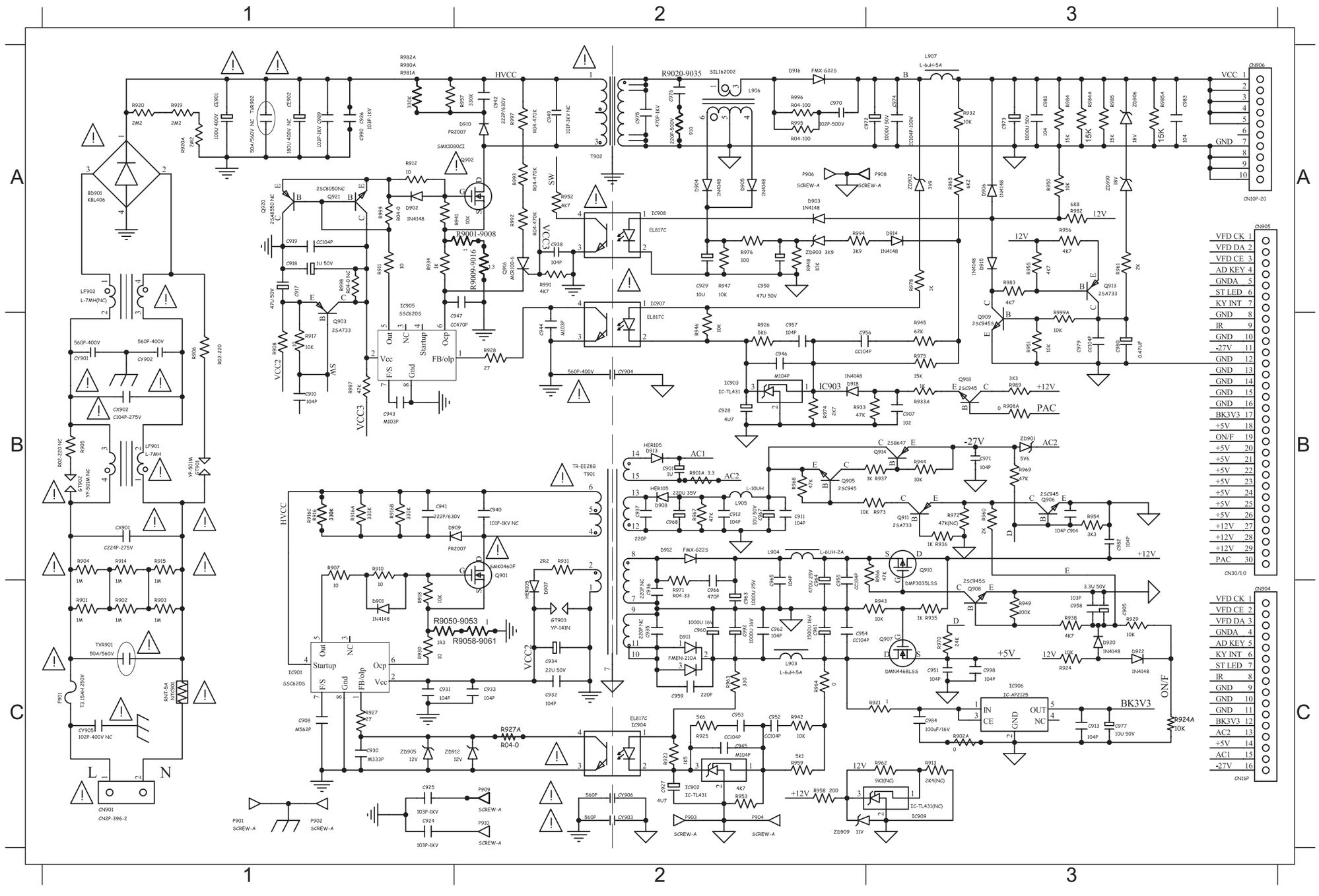
CIRCUIT DIAGRAM

BD901 A1 C919 A1 C938 A2 C954 C2 C966 C2 C981 A3 CN905 A3 D905 A2 D918 B2 IC907 A2 Q905 B2 R9002 A2 R9013 A2 R9026 A2 R904 B1 R908A B3 R919 A1 R930 C1 R943 C3 R955 A3 R968 B2 R982A A1 R995 A2 ZD906 A3
C901 B2 C924 C1 C941 B1 C955 C2 C967 B2 C982 B3 CN906 A3 D906 A3 D920 C3 IC908 A2 Q906 B3 R9003 A2 R9014 A2 R9027 A2 R9050 C1 R910 B1 R920 A1 R931 B2 R944 B3 R956 A3 R969 B3 R983 A3 R996 A2 ZD909 C3
C905 C3 C925 C1 C942 A2 C956 B2 C968 B2 C983 A3 CX901 B1 D907 B2 D922 C3 L903 C2 Q907 C3 R9004 A2 R9015 A2 R9028 A2 R9051 C1 R911 A1 R920A A1 R932 A3 R945 B3 R957 A2 R970 C3 R984 A3 R997 A2 ZD910 A3
C907 B3 C926 A1 C943 B1 C957 B2 C970 A2 C984 C3 CX902 B1 D908 B2 F901 C1 L904 B2 Q908 C3 R9005 A2 R9016 A2 R9029 A2 R9052 C1 R912 A1 R921 C3 R933 B2 R946 B2 R958 C2 R971 C2 R984A A3 R999 A1 ZD912 C1
C908 C1 C927 C2 C944 B2 C958 C3 C971 B3 C989 A1 CY901 B1 D909 B1 GT901 B1 L905 B2 Q909 B3 R9006 A2 R901A B2 R902A C3 R9053 C1 R914 B1 R923 C2 R933A B3 R947 A2 R959 C2 R973 B3 R985 A3 R999A A3
C910 B1 C928 B2 C945 C2 C959 C2 C972 A2 C990 A1 CY902 B1 D910 A2 GT903 C2 L906 A2 Q910 B3 R9007 A2 R902 C1 R903 C1 R9058 C1 R915 B1 R924 C3 R934 A1 R948 A2 R960 B3 R974 B2 R985A A3 T901 B2
C911 B2 C929 A2 C946 B2 C960 C2 C973 A3 C992 C2 CY903 C2 D911 C2 IC901 C1 L907 A3 Q911 B3 R9008 A2 R9020 A2 R9030 A2 R9059 C1 R916 B1 R925 C2 R935 C3 R949 C3 R961 A3 R975 B3 R987 B1 T902 A2
C912 B2 C930 C1 C947 B2 C961 C2 C974 A3 C998 C3 CY904 B2 D912 B2 IC902 C2 LF901 B1 Q913 A3 R9009 A2 R9021 A2 R9031 A2 R906 B1 R916A B1 R926 B2 R936 B3 R950 A3 R963 C2 R976 A2 R989 B3 TVR901 C1
C913 C3 C931 C1 C950 A2 C962 C2 C976 A2 CE901 A1 D901 C1 D913 B2 IC903 B2 NTC901 C1 Q914 B3 R901 C1 R9022 A2 R9032 A2 R9060 C1 R916B B1 R927 C1 R937 B3 R951 B3 R964 C2 R978 A3 R991 A2 ZD901 B3
C914 B3 C932 C2 C951 C3 C963 C2 C977 C3 CE902 A1 D902 A1 D914 A3 IC904 C2 Q901 B2 Q916 A2 R9010 A2 R9023 A2 R9033 A2 R9061 C1 R916C B1 R927A C2 R938 C3 R952 A2 R965 A3 R980A A1 R992 A2 ZD902 A3
C917 A1 C933 C2 C952 C2 C964 C2 C979 B3 CN901 C1 D903 A2 D915 A3 IC905 A1 Q902 A2 Q918 B3 R9011 A2 R9024 A2 R9034 A2 R907 B1 R917 B1 R928 B2 R941 A2 R953 C2 R966 B3 R981A A1 R993 A2 ZD903 A2
C918 A1 C934 C2 C953 C2 C965 C2 C980 B3 CN904 C3 D904 A2 D916 A2 IC906 C3 Q903 B1 R9001 A2 R9012 A2 R9025 A2 R9035 A2 R908 B1 R918 C1 R929 C3 R942 C2 R954 B3 R967 B2 R982 A3 R994 A2 ZD905 C1



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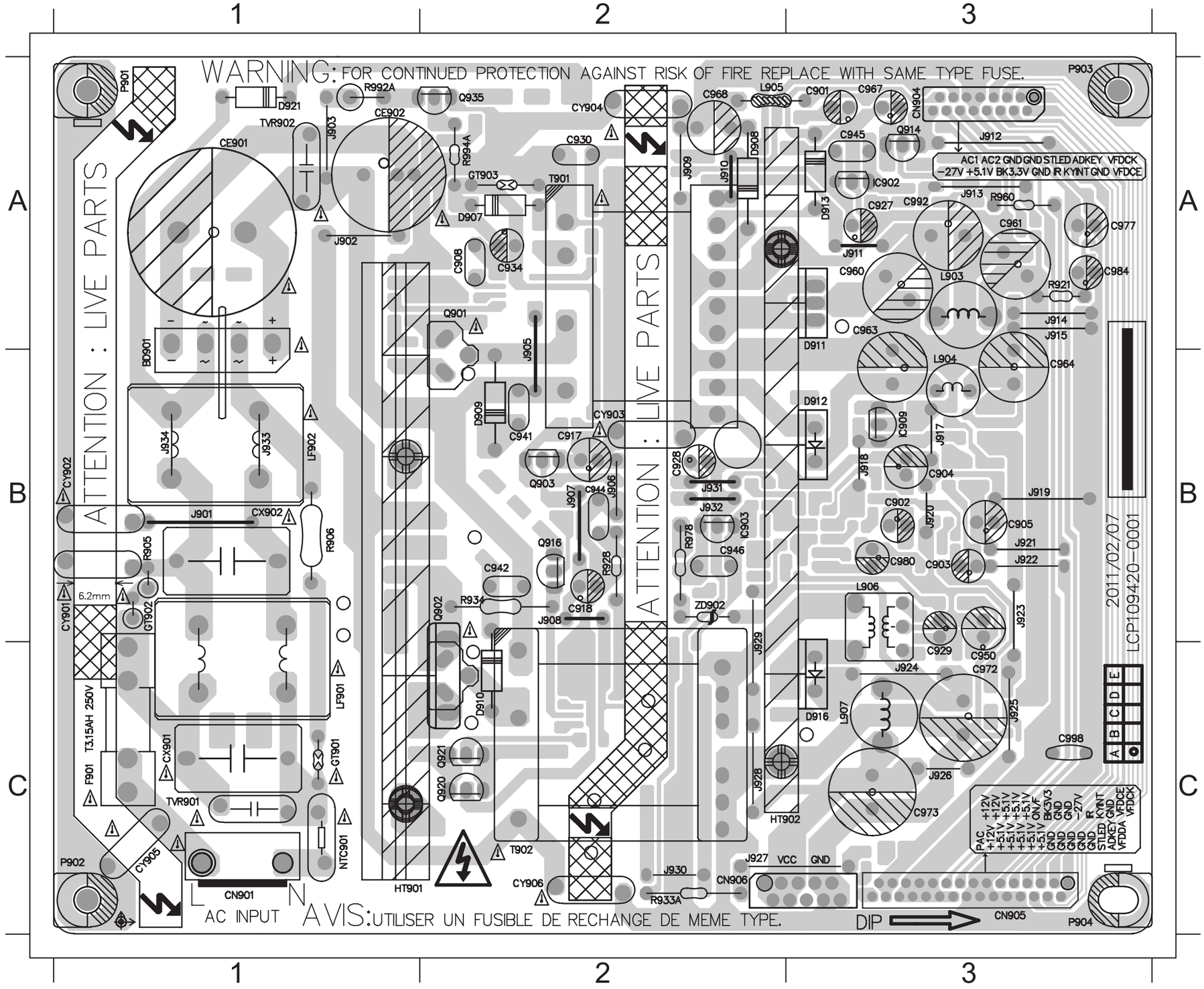
PCB LAYOUT - TOP VIEW

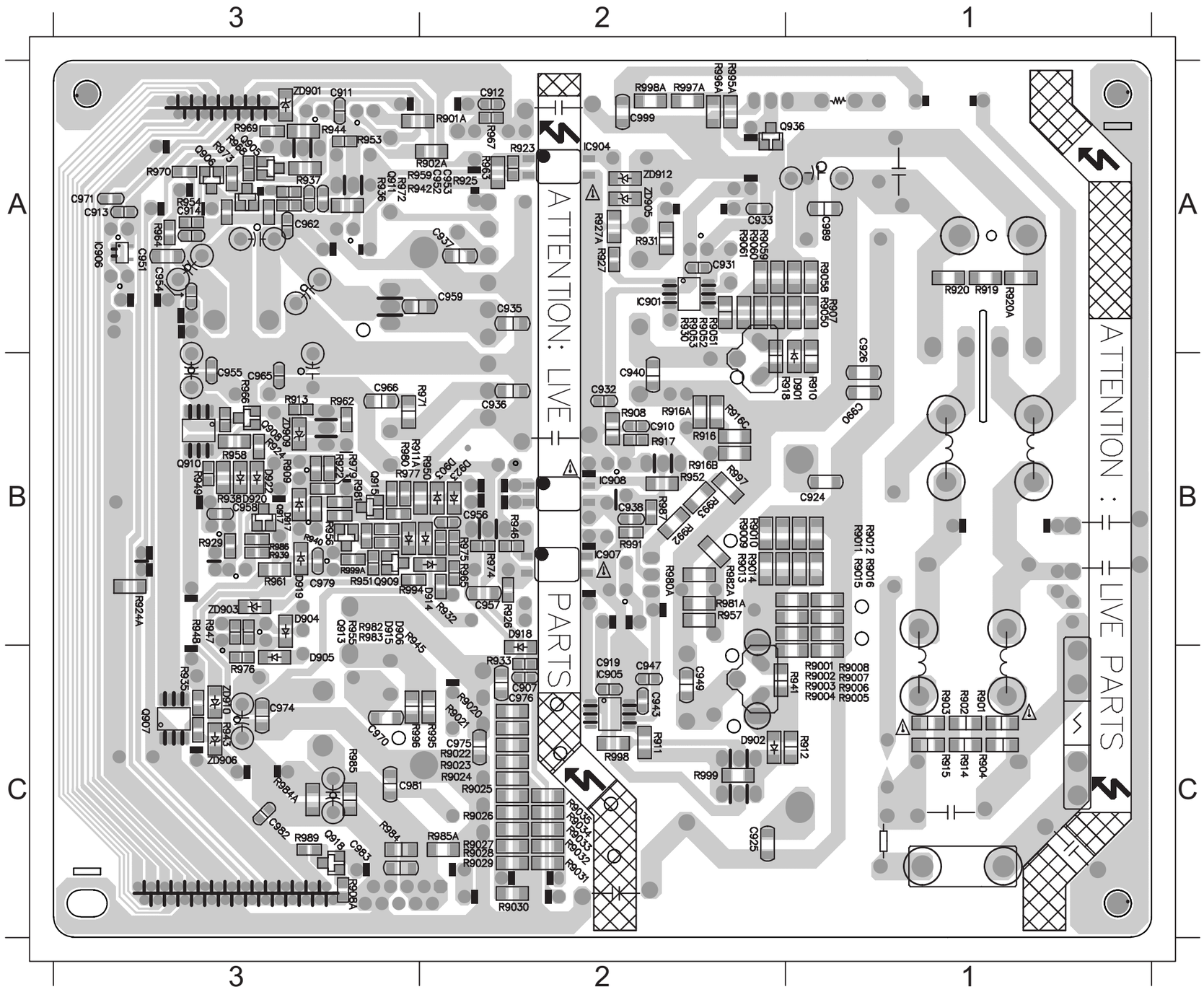
BD901	A1	C908	A2	C930	A2	C946	B2	C967	A3	C984	A3	CN904	A3	CY902	B1	D910	C2	GT901	C1	J905	A2	J911	A3	J918	B3	J924	C3	J930	C2	L904	B3	Q901	A2	R921	A3	T901	A2
C901	A3	C917	B2	C934	A2	C950	C3	C968	A2	C992	A3	CN905	C3	CY903	B2	D911	A3	GT903	A2	J906	B2	J912	A3	J919	B3	J925	C3	J931	B2	L905	A2	Q902	B2	R928	B2	T902	C2
C902	B3	C918	B2	C941	B2	C960	A3	C972	C3	C998	C3	CN906	C2	CY904	A2	D912	B3	IC902	A3	J907	B2	J913	A3	J920	B3	J926	C3	J932	B2	L906	B3	Q903	B2	R933A	C2	TVR901	C1
C903	B3	C927	A3	C942	B2	C961	A3	C973	C3	CE901	A1	CX901	C1	D907	A2	D913	A3	IC903	B2	J908	B2	J914	A3	J921	B3	J927	C2	J933	B1	L907	C3	Q914	A3	R934	B2	ZD902	B2
C904	B3	C928	B2	C944	B2	C963	A3	C977	A3	CE902	A1	CX902	B1	D908	A2	D916	C3	J901	B1	J909	A2	J915	A3	J922	B3	J928	C2	J934	B1	LF901	C1	Q916	B2	R960	A3		
C905	B3	C929	C3	C945	A3	C964	B3	C980	B3	CN901	C1	CY901	B1	D909	B2	F901	C1	J902	A1	J910	A2	J917	B3	J923	B3	J929	B2	L903	A3	NTC901	C1	R906	B1	R978	B2		



7 - 4

PCB LAYOUT - BOTTOM VIEW

C907	C2	C931	A2	C955	B3	C974	C3	D903	B2	D923	B2	Q908	B3	R9003	C1	R9012	B1	R9023	C2	R9031	C2	R9058	A1	R911A	B3	R919	A1	R930	A2	R941	C1	R951	B3	R963	A2	R974	B2	R982A	B2	R992	B2	ZD905	A2
C910	B2	C932	B2	C956	B2	C976	C2	D904	B3	IC901	A2	Q909	B3	R9004	C1	R9013	B2	R9024	C2	R9032	C2	R9059	A2	R912	C1	R920	A1	R931	A2	R942	A3	R952	B2	R964	A3	R975	B2	R983	B3	R993	B2	ZD906	C3
C911	A3	C933	A2	C957	B2	C979	B3	D905	C3	IC904	A2	Q910	B3	R9005	C1	R9014	B2	R9025	C2	R9033	C2	R9060	A2	R914	C1	R920A	A1	R932	B2	R943	C3	R953	A3	R965	B2	R976	C3	R984	C3	R994	B3	ZD909	B3
C912	A2	C938	B2	C958	B3	C981	C3	D906	B3	IC905	C2	Q911	A3	R9006	C1	R9015	B1	R9026	C2	R9034	C2	R9061	A2	R915	C1	R923	A2	R933	C2	R944	A3	R954	A3	R966	B3	R977	B3	R984A	C3	R995	C2	ZD910	C3
C913	A3	C943	C2	C959	A2	C982	C3	D914	B2	IC906	A3	Q913	B3	R9007	C1	R9016	B1	R9027	C2	R9035	C2	R907	A1	R916	B2	R924	B3	R935	C3	R945	B3	R955	B3	R967	A2	R979	B3	R985	C3	R996	C3	ZD912	A2
C914	A3	C947	C2	C962	A3	C983	C3	D915	B3	IC907	B2	Q915	B3	R9008	C1	R901A	A2	R9028	C2	R904	C1	R908	B2	R916A	B2	R925	A2	R936	A3	R946	B2	R956	B3	R968	A3	R980	B3	R985A	C2	R997	B2		
C919	C2	C951	A3	C965	B3	C989	A1	D917	B3	IC908	B2	Q917	B3	R9009	B2	R902	C1	R9029	C2	R9050	A1	R908A	C3	R916B	B2	R926	B2	R937	A3	R947	B3	R957	B2	R969	A3	R980A	B2	R986	B3	R999	C2		
C924	B1	C952	A2	C966	B3	C990	B1	D918	B2	Q905	A3	Q918	C3	R901	C1	R9020	C2	R902A	A2	R9051	A2	R909	B3	R916C	B2	R927	A2	R938	B3	R948	B3	R958	B3	R970	A3	R981	B3	R987	B2	R999A	B3		
C925	C2	C953	A2	C970	C3	D901	B1	D920	B3	Q906	A3	R9001	C1	R9010	B2	R9021	C2	R903	C1	R9052	A2	R910	B1	R917	B2	R927A	A2	R939	B3	R949	B3	R959	A3	R971	B2	R981A	B2	R989	C3	ZD901	A3		
C926	A1	C954	A3	C971	A3	D902	C2	D922	B3	Q907	C3	R9002	C1	R9011	B1	R9022	C2	R9030	C2	R9053	A2	R911	C2	R918	B1	R929	B3	R940	B3	R950	B2	R961	B3	R973	A3	R982	B3	R991	B2	ZD903	B3		



BD BOARD

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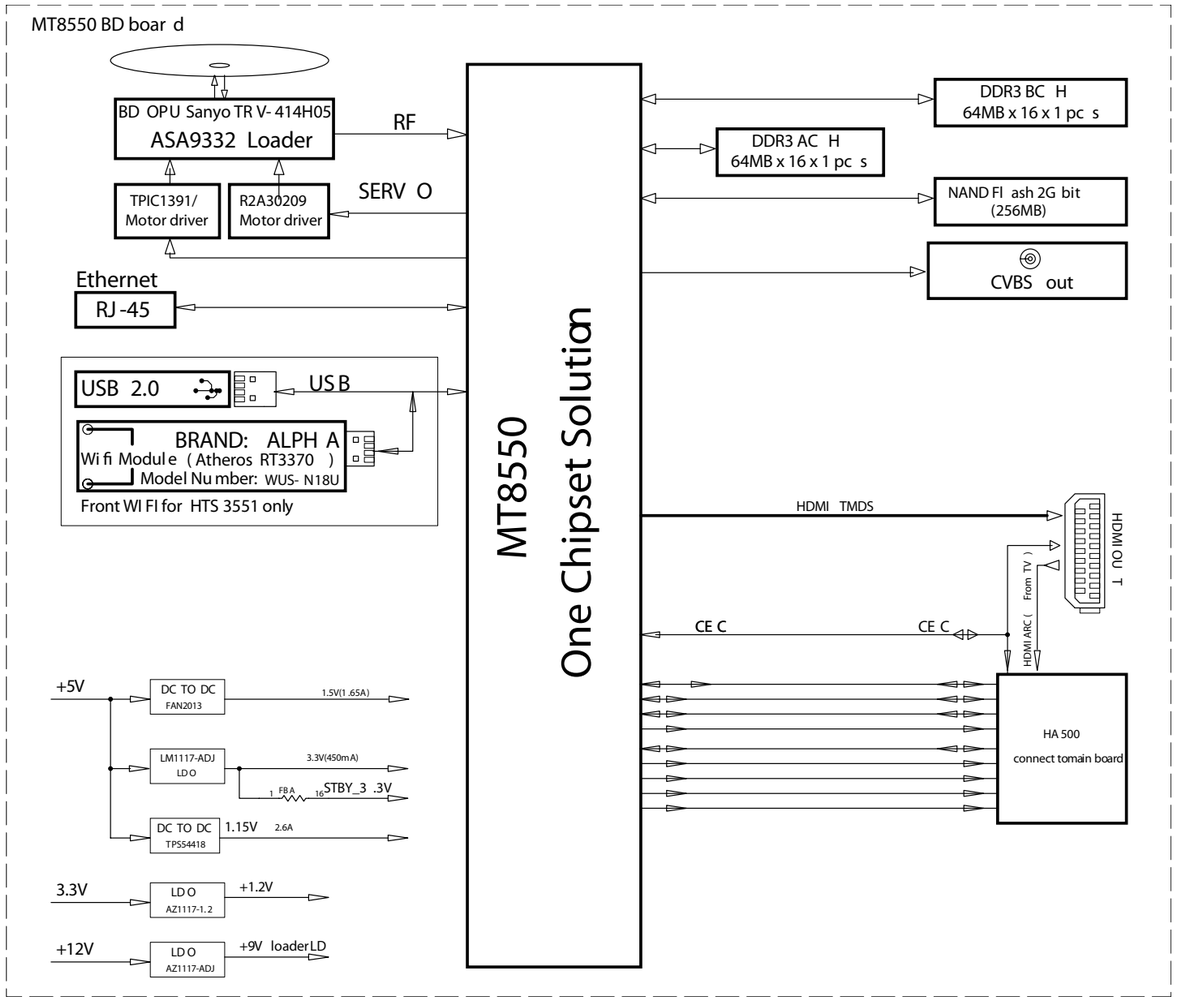
BLOCK DIAGRAM



8 - 2

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	GND	
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	GND	
25	HDMI_ARC	
26	GND	
27	V_DATA	N/A
28	V_STB	N/A
29	V_SCLK	N/A
30	GND	

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

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

3. J507 --->>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

4. HA801--->>from BD board connect to BD loader(SERVO use)

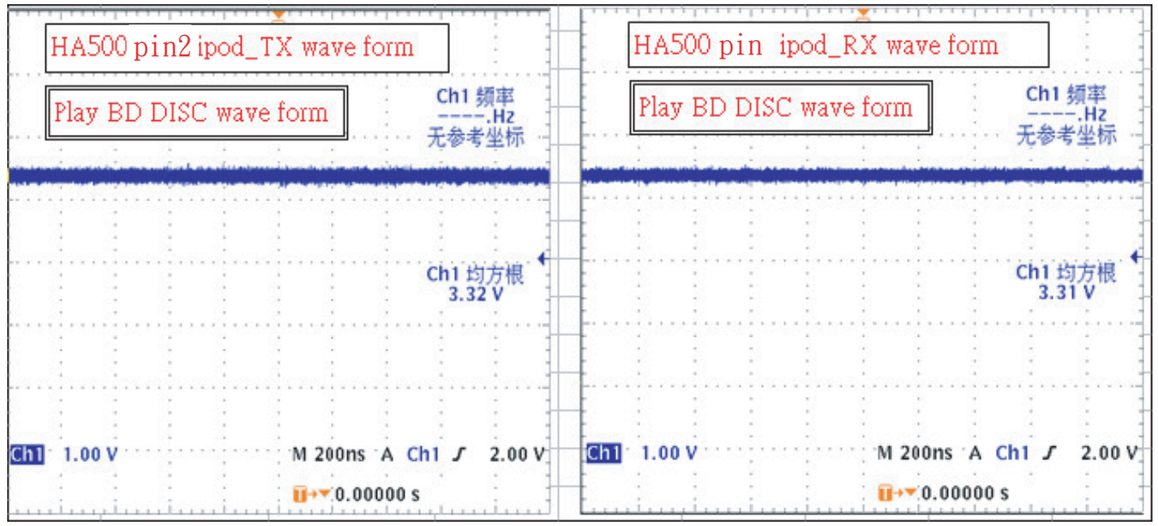
PIN NO	PIN Assign	Remarks		
Disc type voltage		CD	DVD	BD
1	FOC2+	2.66V	2.4V	2.68v
2	FOC2-	2.49V	2.8V	2.52v
3	TR-	2.58V	2.59V	2.55v
4	FOC1+	2.66V	2.59V	2.7v
5	TR+	2.59V	2.62V	2.58v
6	FOC1-	2.48V	2.66V	2.52v
7	A-	0.49V	0.26V	0.48v
8	B-	0.49V	0.35V	0.4v
9	A+	0.72V	0.26V	0.42v
10	B+	0.72V	0.35V	0.4v
11	GND	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		

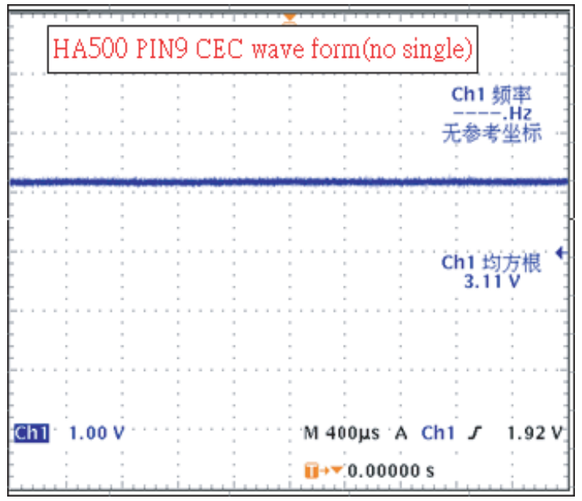
5. J508 --->>from BD board connect to BD loader(SERVO use)

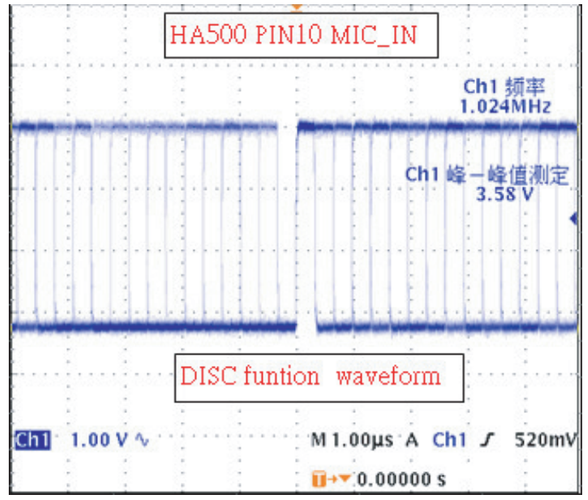
PIN NO	PIN Assign	Remarks
1	LOAD-	0.65V
2	LOAD+	0.65V
3	GND	GND
4	TRAY_IN	0V-->>open/close 3.3V
5	TRAY_OUT	N/A

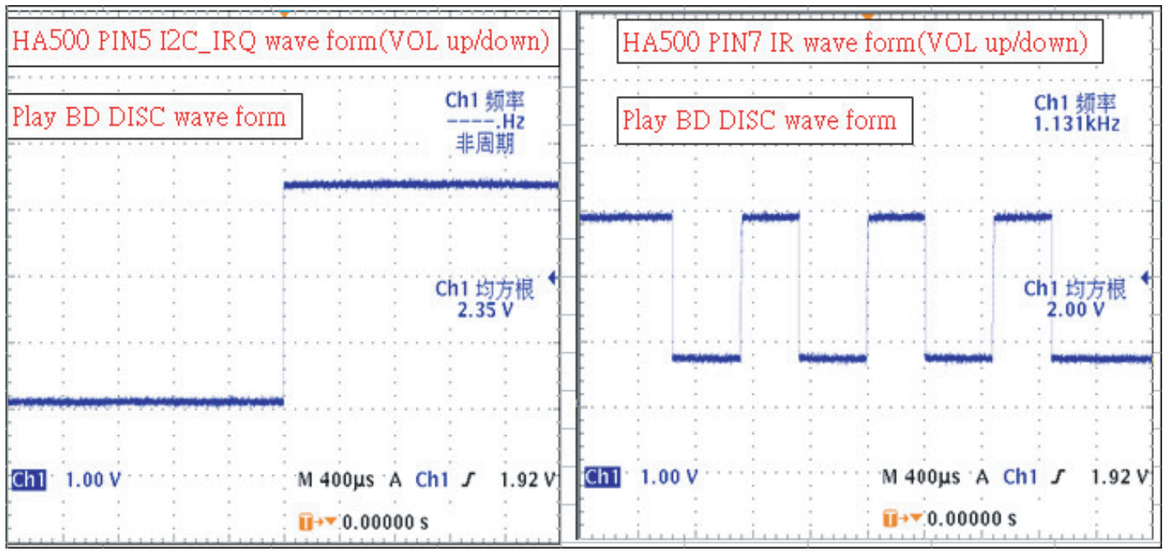
8 - 3

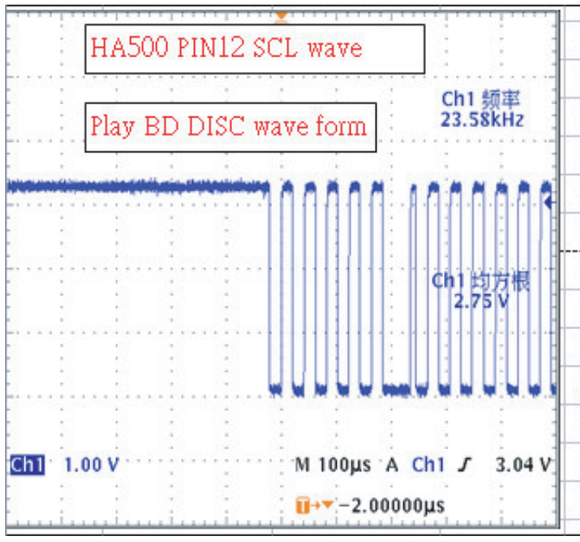
Waveforms for measure point

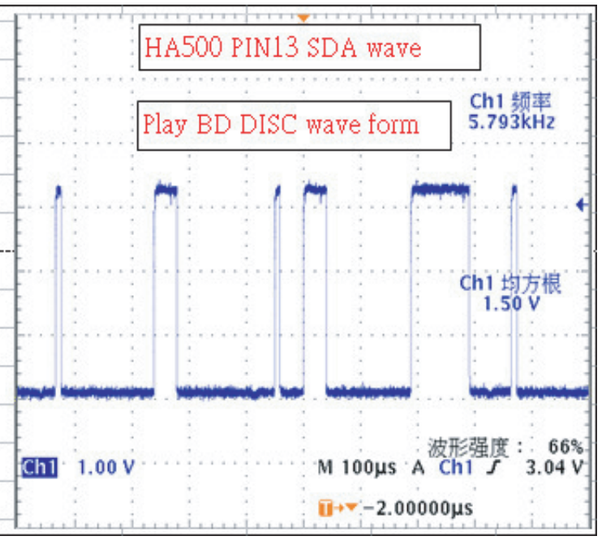


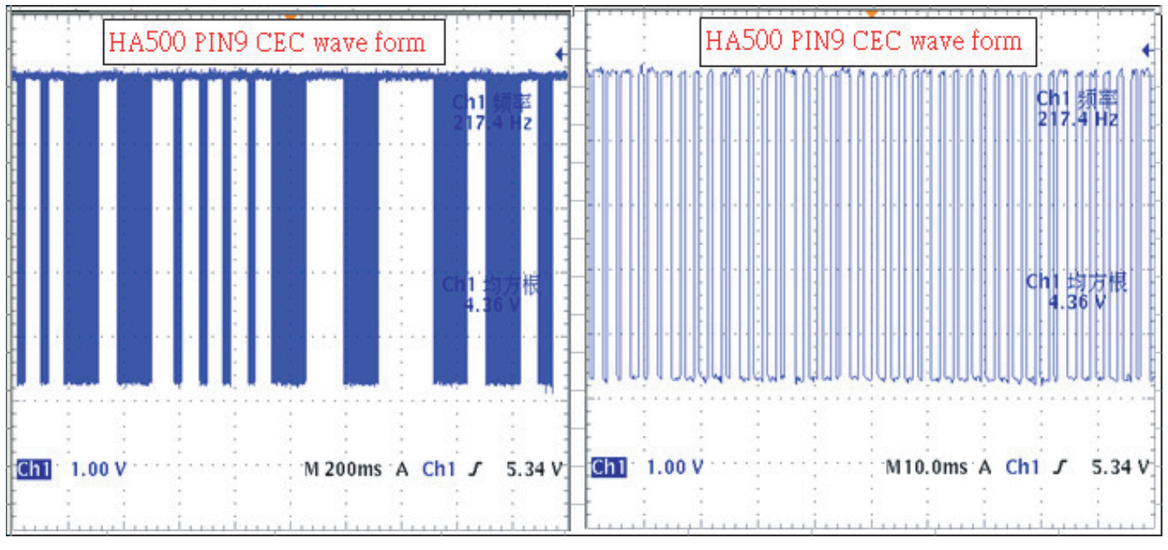


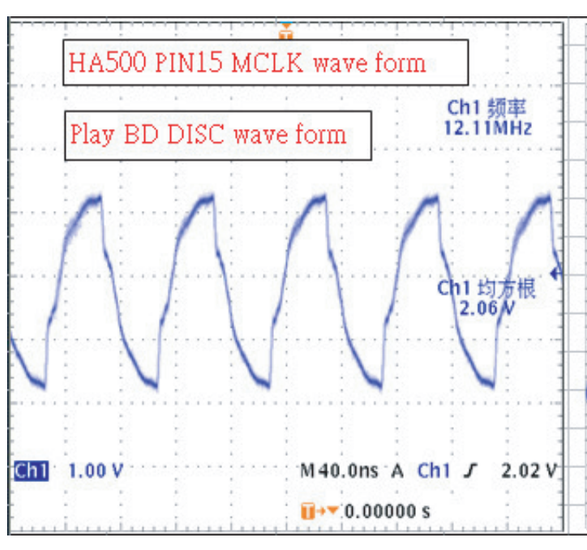


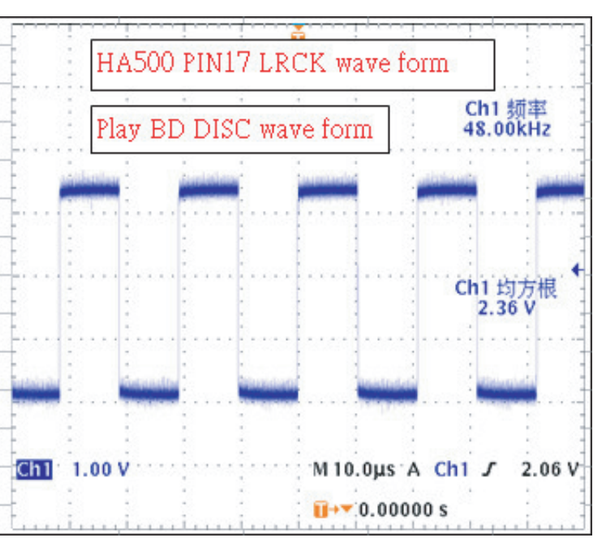




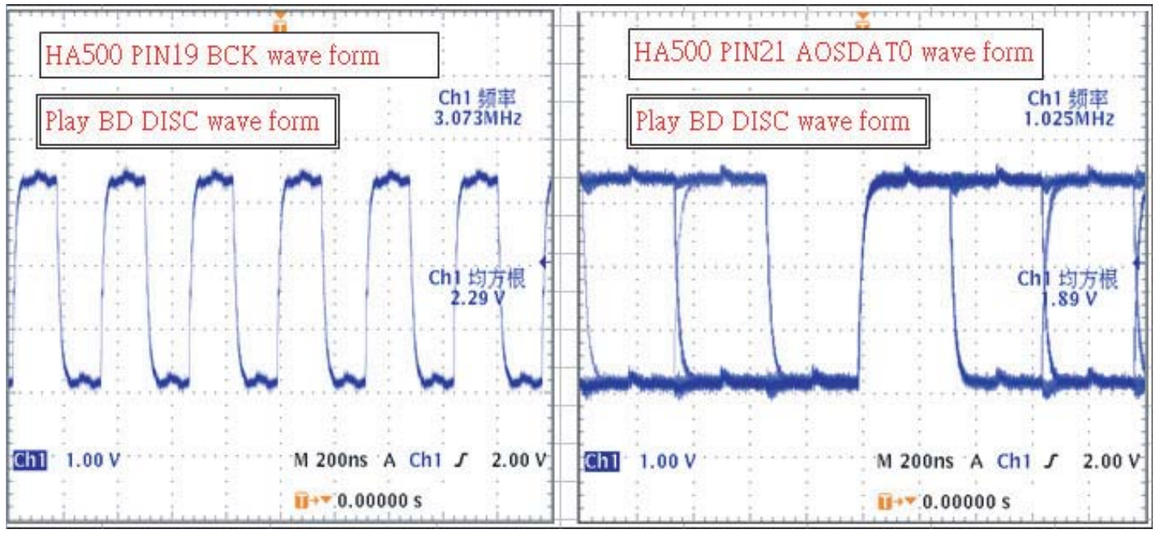


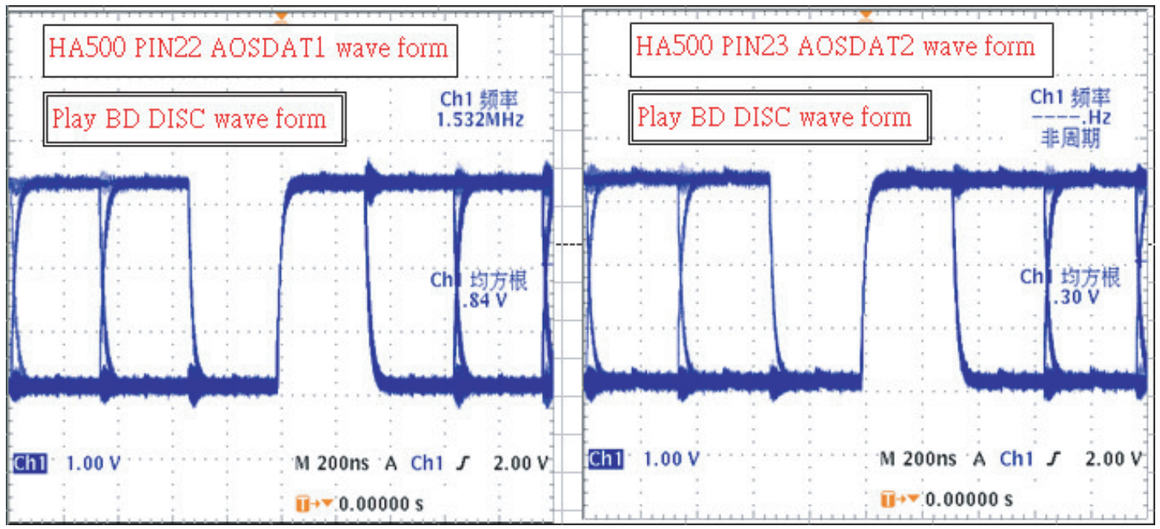


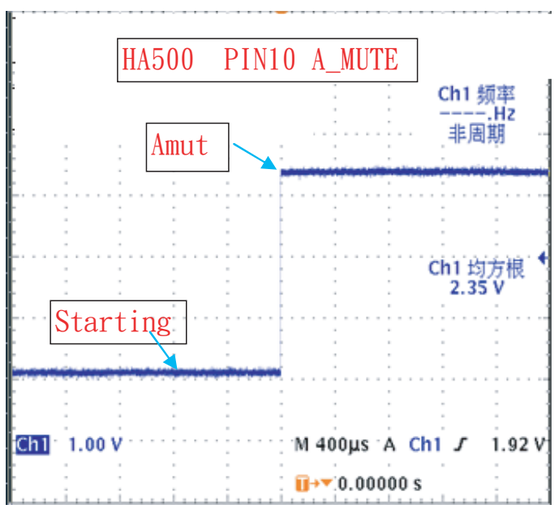


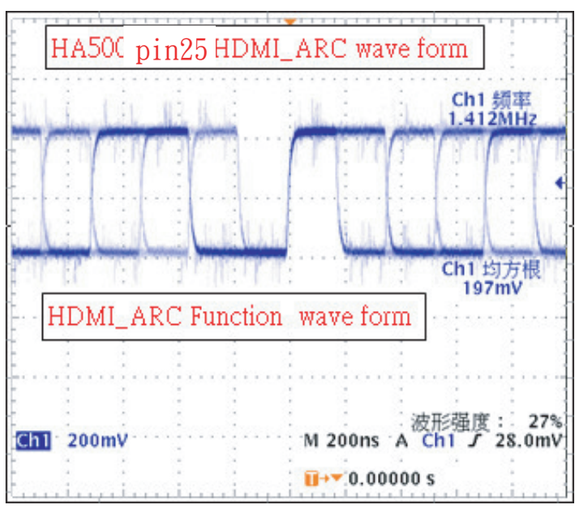


Waveforms for measure point









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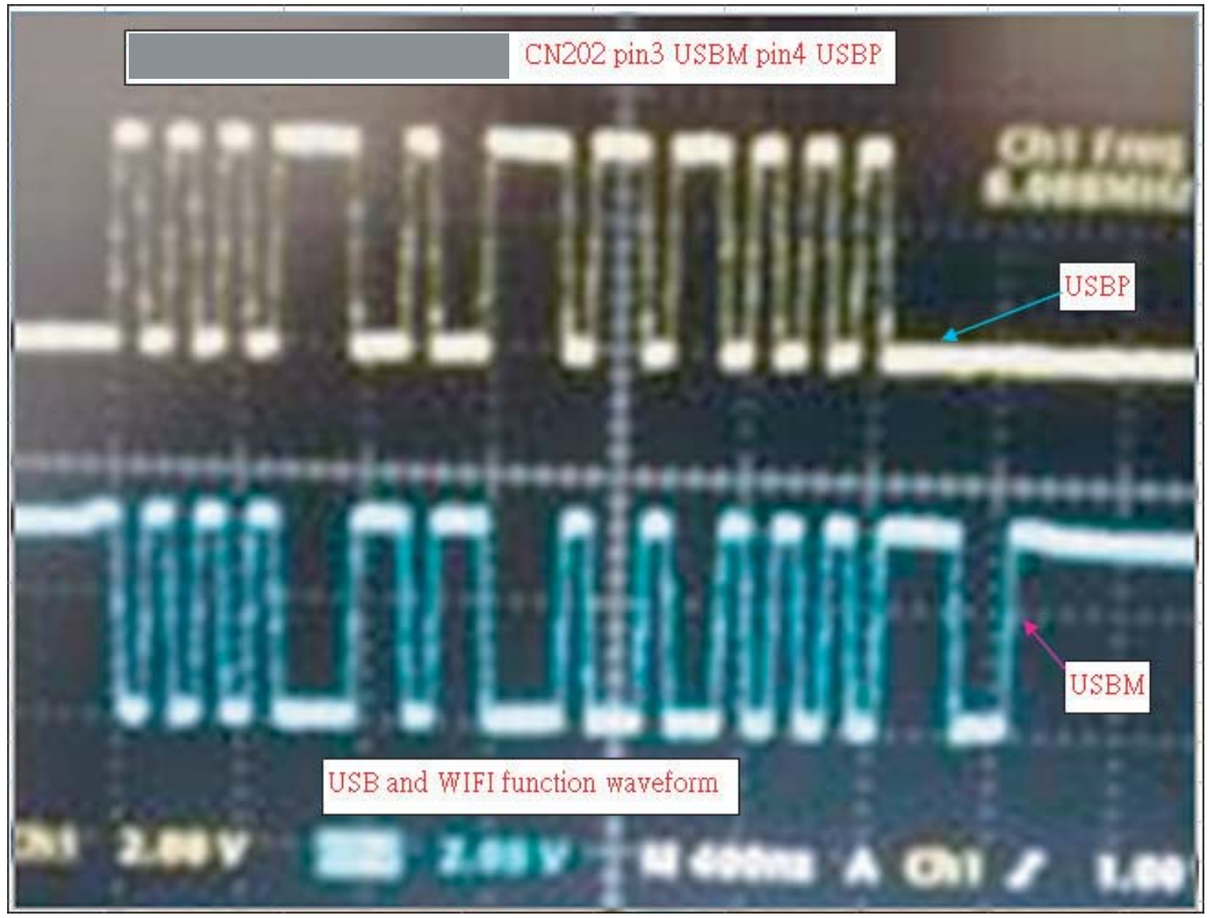

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KEY BOARD

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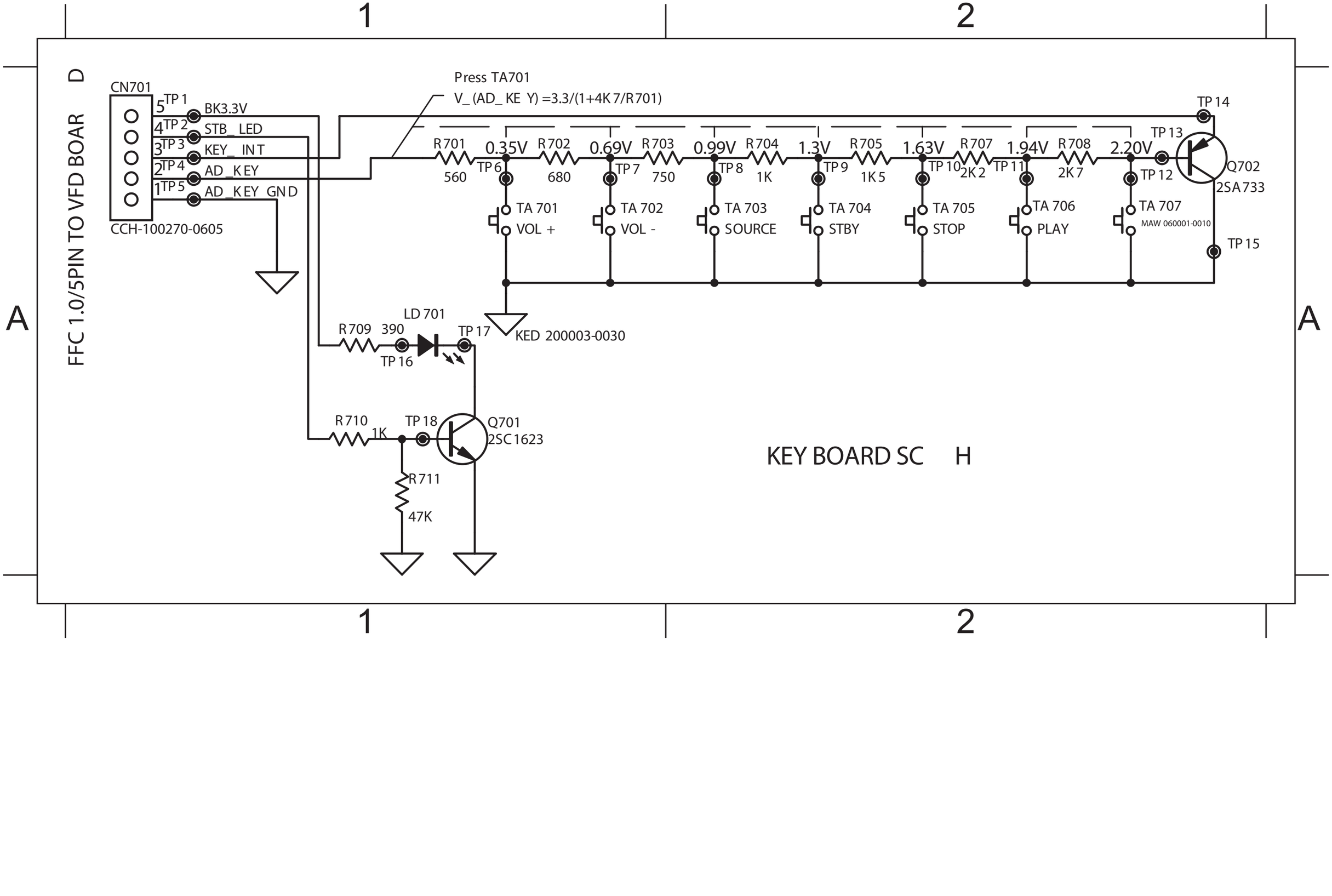
CIRCUIT DIAGRAM

CN701 A1 LD701 A1 Q701 A1 Q702 A2 R701 A1 R702 A1 R703 A1 R704 A2 R705 A2 R707 A2 R708 A2 R709 A1 R710 A1 R711 A1 TA701 A1 TA702 A1 TA703 A2 TA704 A2 TA705 A2 TA706 A2 TA707 A2



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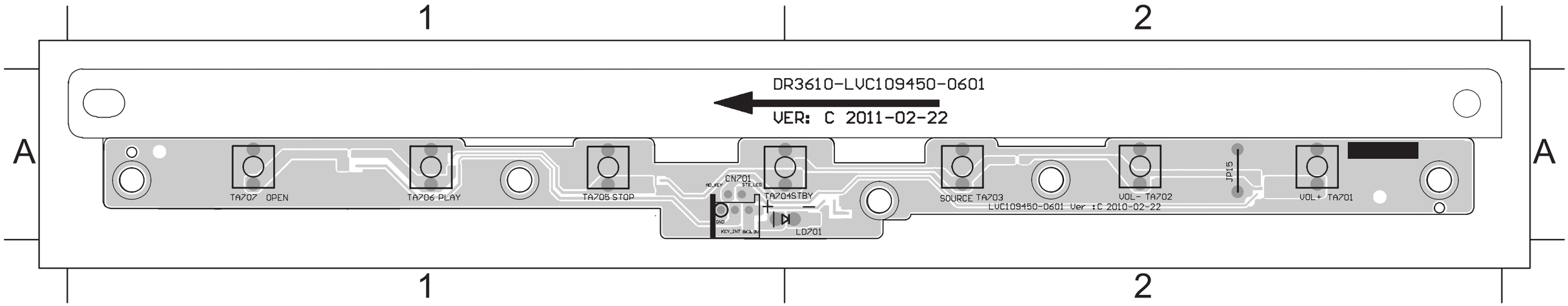
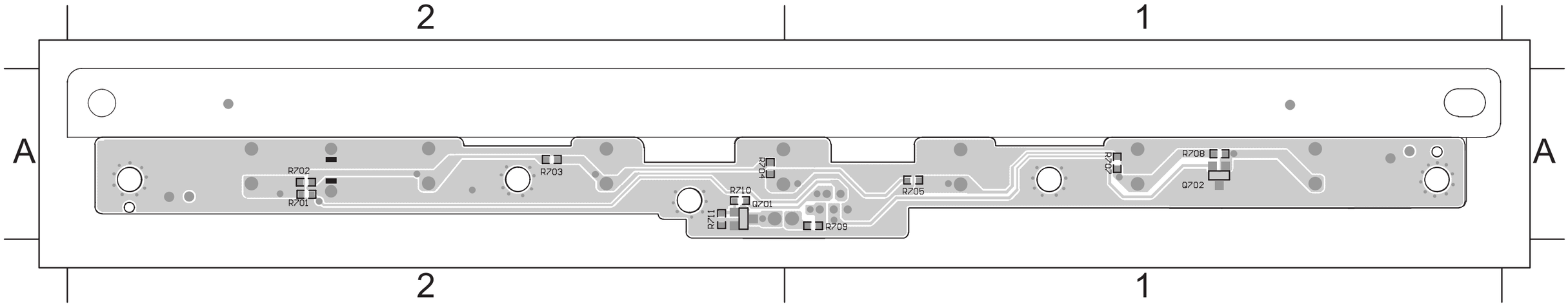
PCB LAYOUT - TOP VIEW

TA707 A1 TA706 A1 TA705 A1 TA704 A1 TA703 A2 TA702 A2 TA701 A2 LD701 A2 JP15 A2 CN701 A1



PCB LAYOUT - BOTTOM VIEW

Q701 A2 Q702 A1 R701 A2 R702 A2 R703 A2 R704 A2 R705 A1 R707 A1 R708 A1 R709 A1 R710 A2 R711 A2



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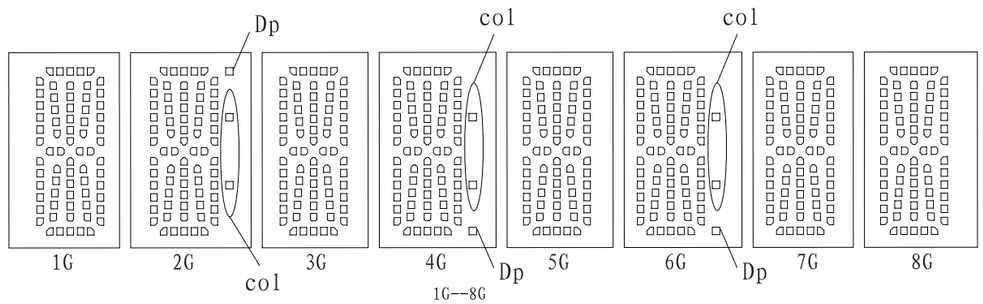
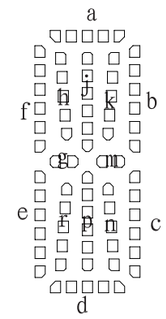
FTD DISPLAY PIN ASSIGNMENT





	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)

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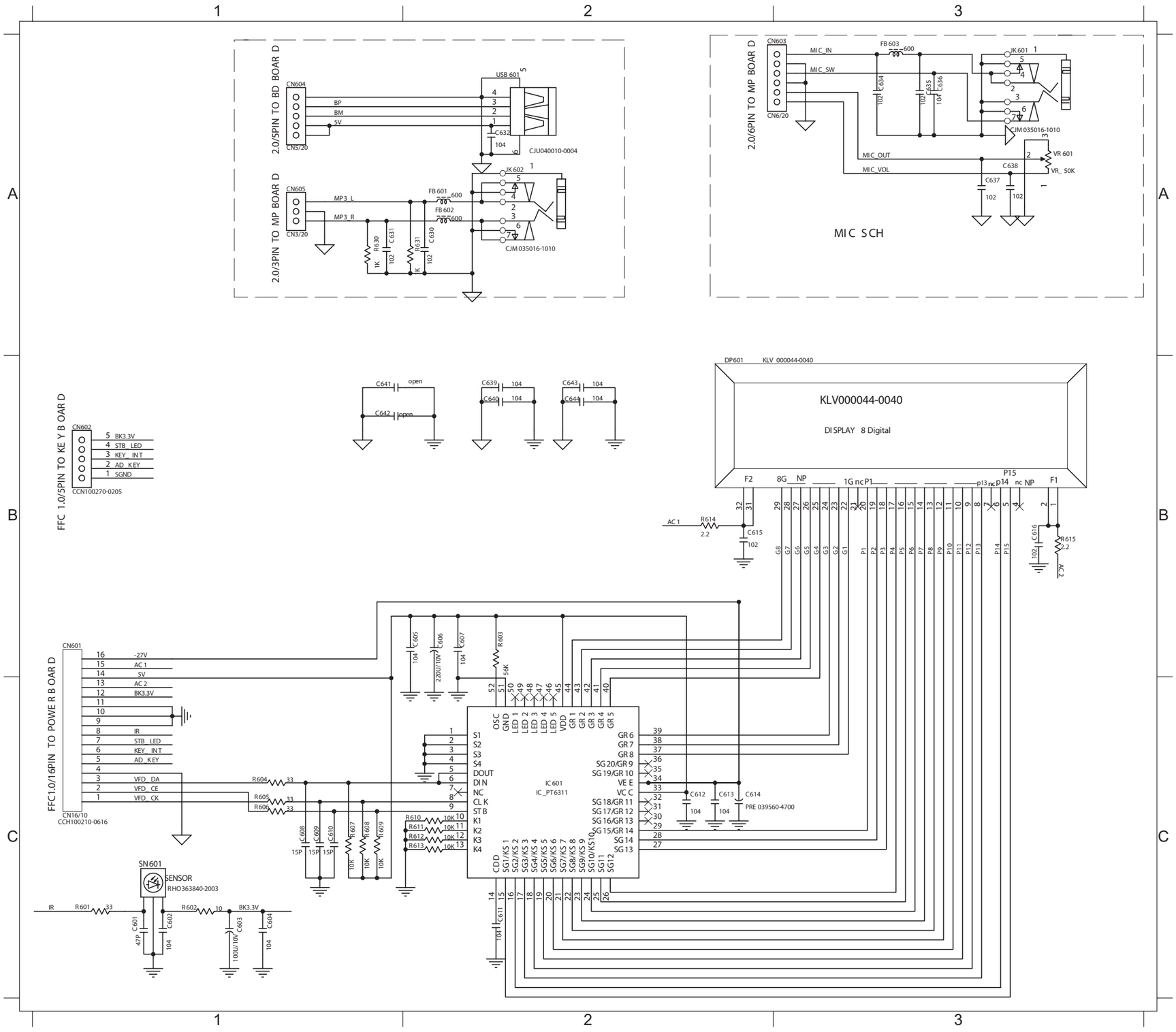
CIRCUIT DIAGRAM

C601 C1 C604 C1 C607 B2 C610 C1 C613 C2 C616 B3 C632 A2 C643 B2 CN602 B1 DP601 B2 FB603 A3 R601 C1 R604 C1 R607 C1 R610 C2 R613 C2 R630 A1 USB601 A2 C636 A3 C641 B1 VR601 A3
C602 C1 C605 B2 C608 C1 C611 C2 C614 C2 C630 A2 C639 B2 C644 B2 CN604 A1 FB601 A2 IC601 C2 R602 C1 R605 C1 R608 C1 R611 C2 R614 B2 R631 A2 C634 A3 C637 A3 C642 B1
C603 C1 C606 B2 C609 C1 C612 C2 C615 B2 C631 A1 C640 B2 CN601 B1 CN605 A1 FB602 A2 JK602 A2 R603 B2 R606 C1 R609 C1 R612 C2 R615 B3 SN601 C1 C635 A3 C638 A3 JK601 A3



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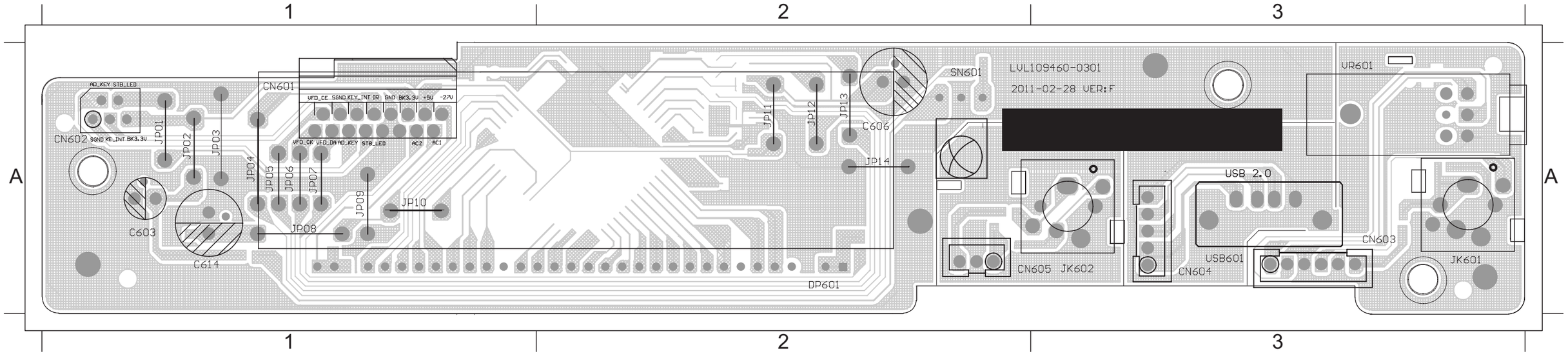
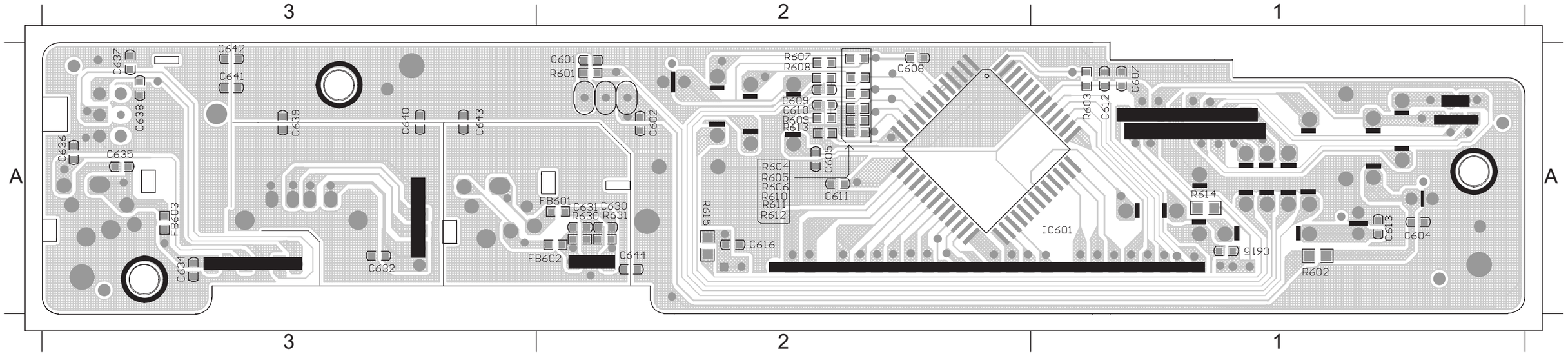
PCB LAYOUT - TOP VIEW

C603	A1	C614	A1	CN602	A1	CN605	A2	JK602	A3	JP02	A1	JP04	A1	JP06	A1	JP08	A1	JP10	A1	JP12	A2	JP14	A2	USB601	A3	VR601	A3
C606	A2	CN601	A1	CN604	A3	DP601	A2	JP01	A1	JP03	A1	JP05	A1	JP07	A1	JP09	A1	JP11	A2	JP13	A2	SN601	A2	JK601	A3		



PCB LAYOUT - BOTTOM VIEW

C601	A2	C605	A2	C609	A2	C612	A1	C616	A2	C632	A3	C643	A3	FB602	A2	R601	A2	R604	A2	R607	A2	R610	A2	R613	A2	R630	A2	C635	A3	C638	A3
C602	A2	C607	A1	C610	A2	C613	A1	C630	A2	C639	A3	C644	A2	FB603	A3	R602	A1	R605	A2	R608	A2	R611	A2	R614	A1	R631	A2	C636	A3	C641	A3
C604	A1	C608	A2	C611	A2	C615	A1	C631	A2	C640	A3	FB601	A2	IC601	A1	R603	A1	R606	A2	R609	A2	R612	A2	R615	A2	C634	A3	C637	A3	C642	A3



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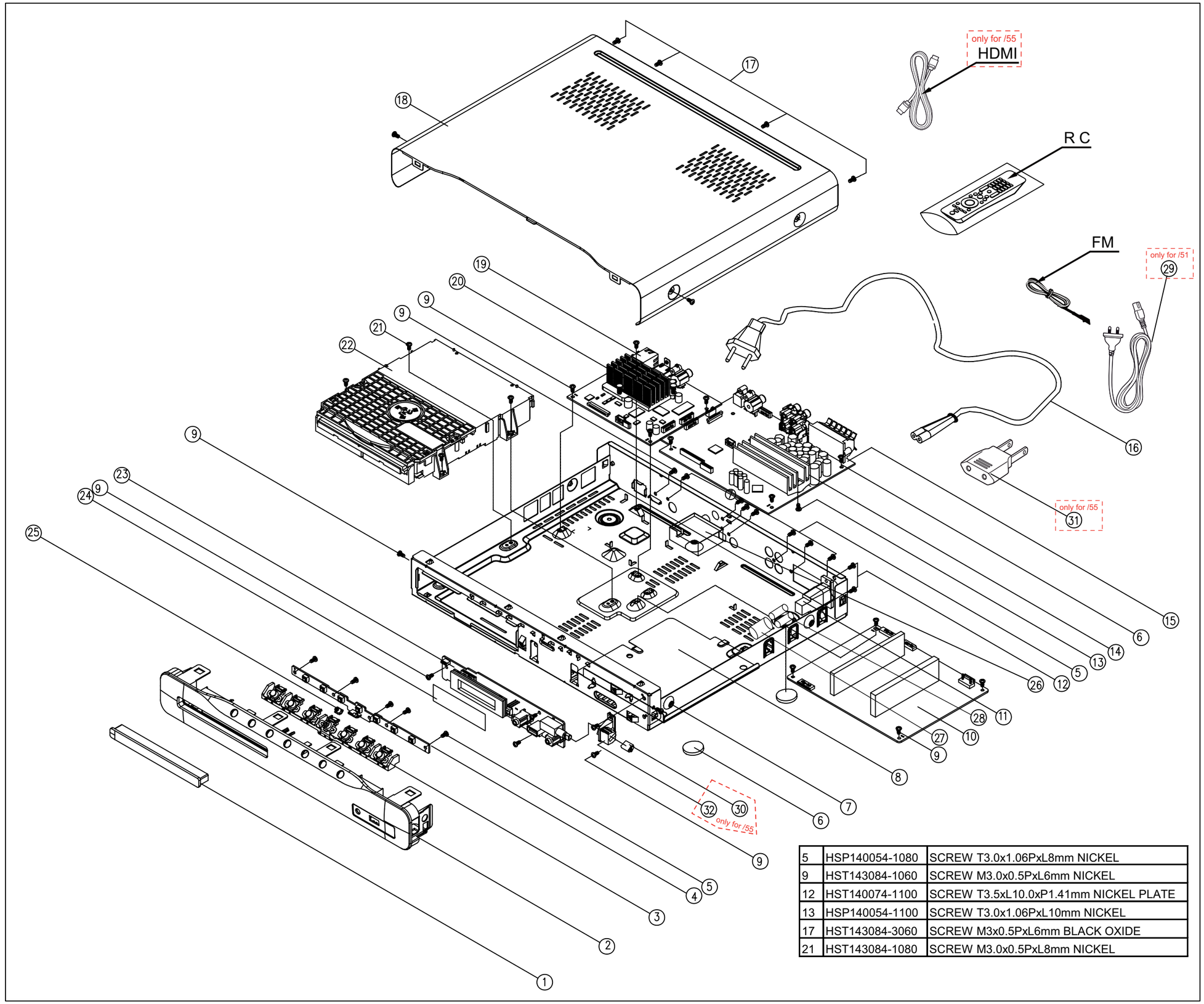
Mechanical Exploded View



5	HSP140054-1080	SCREW T3.0x1.06PxL8mm NICKEL
9	HST143084-1060	SCREW M3.0x0.5PxL6mm NICKEL
12	HST140074-1100	SCREW T3.5xL10.0xP1.41mm NICKEL PLATE
13	HSP140054-1100	SCREW T3.0x1.06PxL10mm NICKEL
17	HST143084-3060	SCREW M3x0.5PxL6mm BLACK OXIDE
21	HST143084-1080	SCREW M3.0x0.5PxL8mm NICKEL

REVISION LIST

Version 1.0
*Initial release

Version 1.1
*HTS3551/78/51 combine with HTS3551/12

Version 1.2

*Updated to include /55 version.