

2. Safety Information, General Notes & Lead Free Requirements

2.1 Safety Instructions

2.1.1 General Safety

Safety regulations require that during a repair:

- Connect the unit to the mains via an isolation transformer.
- Replace safety components, indicated by the symbol ▲, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.

Safety regulations require that after a repair, you must return the unit in its original condition. Pay, in particular, attention to the following points:

- Route the wires/cables correctly, and fix them with the mounted cable clamps.
- Check the insulation of the mains lead for external damage.
- Check the electrical DC resistance between the mains plug and the secondary side:
 1. Unplug the mains cord, and connect a wire between the two pins of the mains plug.
 2. Set the mains switch to the 'on' position (keep the mains cord unplugged!).
 3. Measure the resistance value between the mains plug and the front panel, controls, and chassis bottom.
 4. Repair or correct unit when the resistance measurement is less than 1 MΩ.
 5. Verify this, before you return the unit to the customer/user (ref. UL-standard no. 1492).
 6. Switch the unit 'off', and remove the wire between the two pins of the mains plug.

2.1.2 Laser Safety

This unit employs a laser. Only qualified service personnel may remove the cover, or attempt to service this device (due to possible eye injury).

Laser Device Unit

Type	: Semiconductor laser GaAlAs
Wavelength	: 650 nm (DVD) 780 nm (VCD/CD)
Output Power	: 20 mW (DVD+RW writing) 0.8 mW (DVD reading) 0.3 mW (VCD/CD reading)
Beam divergence	: 60 degree



Figure 2-1

Note: Use of controls or adjustments or performance of procedure other than those specified herein, may result in hazardous radiation exposure. Avoid direct exposure to beam.

2.2 Warnings

2.2.1 General

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD, ▲). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are at the same potential as the mass of the set by a wristband with resistance. Keep components and tools at this same potential. Available ESD protection equipment:
 - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
 - Wristband tester 4822 344 13999.
- Be careful during measurements in the live voltage section. The primary side of the power supply, including the heatsink, carries live mains voltage when you connect the player to the mains (even when the player is 'off!'). It is possible to touch copper tracks and/or components in this unshielded primary area, when you service the player. Service personnel must take precautions to prevent touching this area or components in this area. A 'lightning stroke' and a stripe-marked printing on the printed wiring board, indicate the primary side of the power supply.
- Never replace modules, or components, while the unit is 'on'.

2.2.2 Laser

- The use of optical instruments with this product, will increase eye hazard.
- Only qualified service personnel may remove the cover or attempt to service this device, due to possible eye injury.
- Repair handling should take place as much as possible with a disc loaded inside the player.
- Text below is placed inside the unit, on the laser cover shield:

CAUTION VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING
ADVARSEL SYNLIG OG USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNEK UNNGÅ EKSPONERING FOR STRÅLEN
VARNING SYNLIG OCH OSYNLIG LASERSTRÅLING NÅR DENNA DEL ÅR ÖPPNAD BETRÄKTA EJ STRÅLEN
VARO! AVATTAESSA OLET ALTTIINA NÄKYVÄLLE JA NÄKYMÄTTÖMÄLLE LASER SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN
VORSICHT SICHTBARE UND UNSICHTBARE LASERSTRALHUNG WENN ABDECKUNG GEOFFNET NICHT DEM STRAHL AUSSETZEN
DANGER VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
ATTENTION RAYONNEMENT LASER VISIBLE ET INVISIBLE EN CAS D'OUVERTURE EXPOSITION DANGEREUSE AU FAISCEAU

Figure 2-2

2.3 Lead Free Requirement

Information about Lead-free produced sets

Philips CE is starting production of lead-free sets from 1.1.2005 onwards.

IDENTIFICATION:

Regardless of special logo (not always indicated)



One must treat all sets from **1 Jan 2005** onwards, according next rules.

Example S/N:



Bottom line of typeplate gives a 14-digit S/N. Digit 5&6 is the year, digit 7&8 is the week number, so in this case 1991 wk 18

So from 0501 onwards = from 1 Jan 2005 onwards

Important note: In fact also products of year 2004 must be treated in this way as long as you avoid mixing solder-alloys (lead-free/ 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.

1. Firmware Upgrading

1.1. Preparation to upgrade firmware

- Download the latest software release package.
- Extract the files from ZIP archive (Do not rename the filename).
- Start the CD Burning Software and create a new CD project (data disc) with the following settings:
 - File System: Joliet
 - Format: MODE 1
 - Recording Mode: SINGLE SESSION (TRACK-AT-ONCE), FINALIZE CD

Note: Long file name is necessary for the preparation of the upgrade disc.

- Place the extracted file into the root directory of the new CD project.
- Burn the data onto the CDRs or CD-RWs.

Notes: Burn **ALL** the extracted files onto a single blank CD-R or CD-RW disc for firmware upgrade

1.2. Procedures to apply the System Software Upgrade and Loader Software Upgrade

There are 2 upgrade processes supported:

- Normal Upgrade (Software Downgrade is NOT possible) and
- Forced Download (Software Downgrade is possible).

1.2.1. Normal Upgrade (All existing settings will remain the same after software upgrade)

- For normal upgrading, power up the set, open the tray, insert the upgrade disc, close the tray and follow the on screen instructions.
- VFD will show " *VERIFY -> ERASE -> UPGRADE*".
- After upgrading the set, the Disc will be ejected.
- Remove the disc and close the tray.
- Then the set will go to standby.
- Waking up again from standby, the set will reboot from upgraded flash.

1.2.2. Forced Upgrade (All the settings will be reset to default /58 version)

Notes: After Forced Upgrade, the procedures described in 1.4 must be proceeded to restore the stroke version.

- Press and Hold **Rec** key on front Panel.
- Power ON the set
- VFD will show "*FRC DWLD*"
- Open the tray and insert the upgrade disc.
- Close the tray and the sets will start upgrading:-VFD will show " *VERIFY -> ERASE -> UPGRADE*"
- After upgrading the set, the Disc will be ejected.
- Disc tray remains open for 5 minutes and closes after time out without user action. Or, if the tray is closed by the user, then the set goes to standby and boots from upgraded flash. (Time out of 5 mins or user action, whichever is earlier, causes the set to go to standby.)

Note: Do not press any buttons or interrupt the mains supply during the upgrading process, otherwise the set may become defective.

1.3. How to read out the firmware version to confirm set has been upgraded

- Press "HOME" button on remote control and navigate to Settings -> Setup -> Version Info.
- Press the blue button on remote control for OSD to display the Detail Version Info:
- Figure 1 shows the version info displayed by DVDR5500 EU running 49.0a backend software and drive firmware is 51.05.02.17.

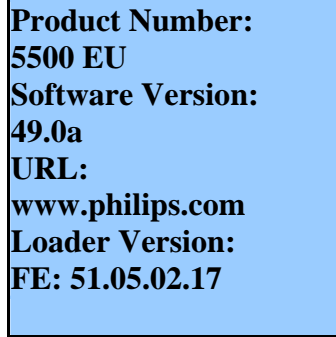


Figure 1 : Firmware Information shown by DVDR5500

1.4. Restore the Dynamic Stroke Version

It is important to restore the Dynamic Stroke version of the set before returning the repaired set back to the customer. Restoring this stroke version will ensure that the set is correctly set for the region.

Recorders are configured to a desired stroke version by entering a pre-defined RC key sequence.

The RC key sequence is made up of 2 parts: <XXXX> + <YY>, where <XXXX> refers to a platform and <YY> refers to the stroke version. Follow the steps below to change dynamic stroke versions:

- Close DVD tray with no disc
- Make sure the OSD to display the home menu.
- Enter the following RC sequence:
 - <5> <5> <0> <0> <0> <5> <OK> for /05
 - <5> <5> <0> <0> <3> <1> <OK> for /31
 - <5> <5> <0> <0> <5> <8> <OK> for /58
- While entering the RC sequence, the VFD will display the entered keys
- The VFD will display “WRNGSTRK” if the incorrect sequence is entered.
- If the correct RC sequence is entered and <OK> is pressed the VFD will display “STROKEYY”
- Press standby button to go to standby mode or power off the mains to complete the process

Note:It is essential to standby or power off the set for the stroke version restoration to take effect. The set will then start in the Virgin Mode.

1. Mechanical Instructions

Note: The position numbers given here refers to the Exploded view in chapter 8.

1.1. Dismantling of the DVD Tray cover manually

- 1) Insert a screwdriver into the slot provided at the bottom of the set and push in the direction as shown in Figure 1 to unlock before sliding the Tray cover 110 out.

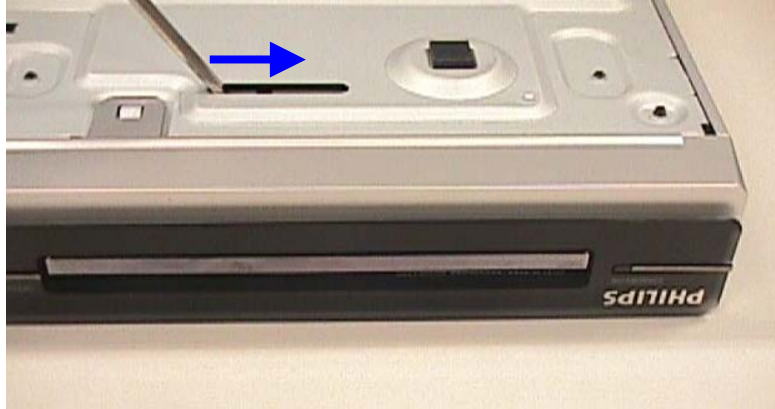


Figure 1- unlock the tray loader

- 2) Remove the Tray cover 110 as shown in Figure 2.



Figure 2 - remove the tray cover

1.2. Dismantling of the Front Panel

- 1) Remove 7 screws to loosen Top cover 240.
- 2) Remove the screws to detach the Front Panel and loosen the Front Loader Plate 190 as shown in Figure 3. The Front Panel Service Position as shown in Figure 4.

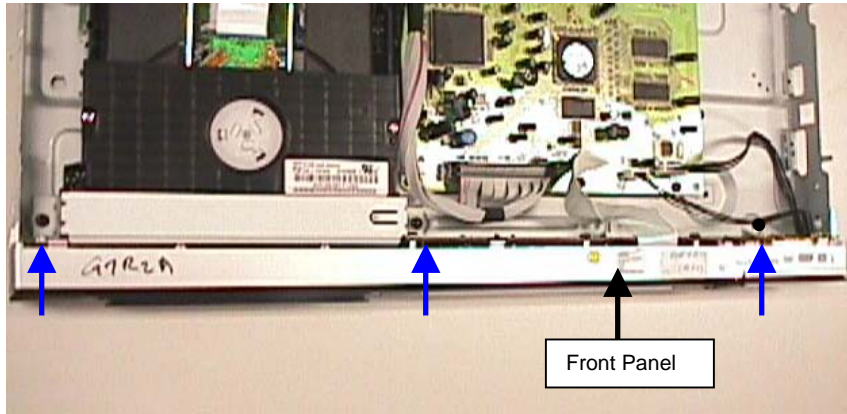


Figure 3 - detach the front panel

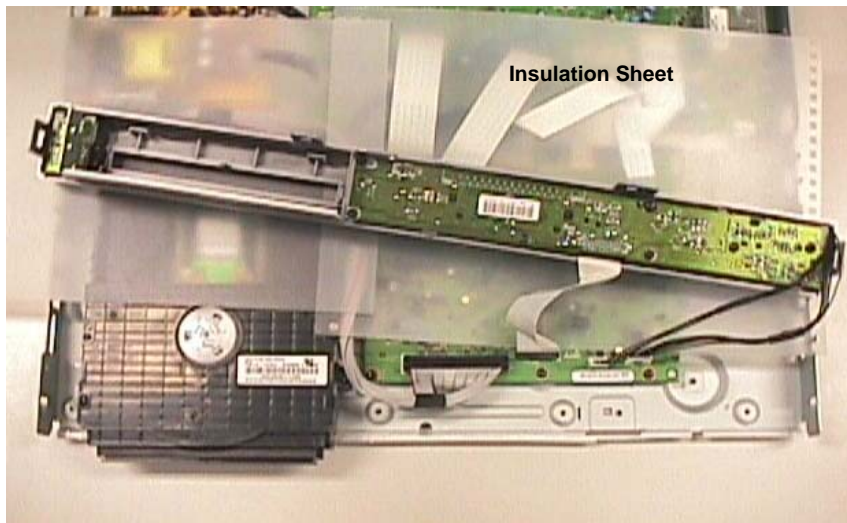


Figure 4 - Front Panel Service Position

1.3. Dismantling of the Basic Engine

- 1) To dismantle the Basic Engine without interference, it is necessary to detach the Front Panel together with the Plate Front Loader. Remove 4 mounting screw as shown in Figure 5 to detach the Basic Engine Assembly 1004 from the Frame 162.

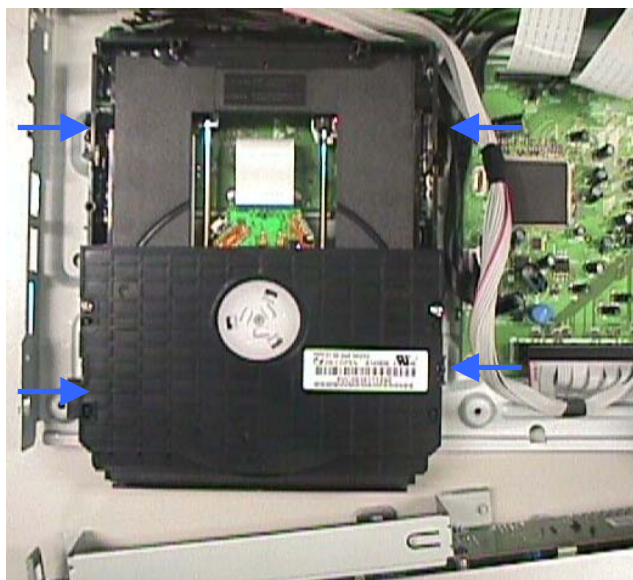


Figure 5 - Basic Engine mounting screw

- 2) Flip the Basic Engine over to remove 4 screws from the PCB protection plate. Service Position of the Basic Engine is shown in Figure 6.

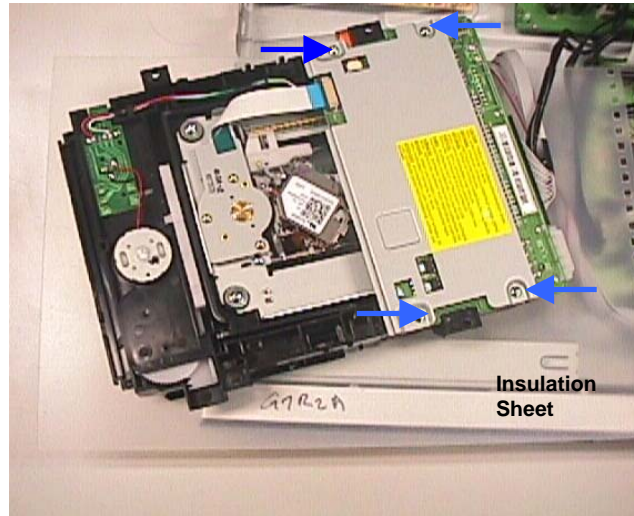


Figure 6 - Basic Engine Service Position

1.4. Dismantling of the PSU Board

- 1) Remove 3 screws and detach the PSU Board 1005 as shown in Figure 7.

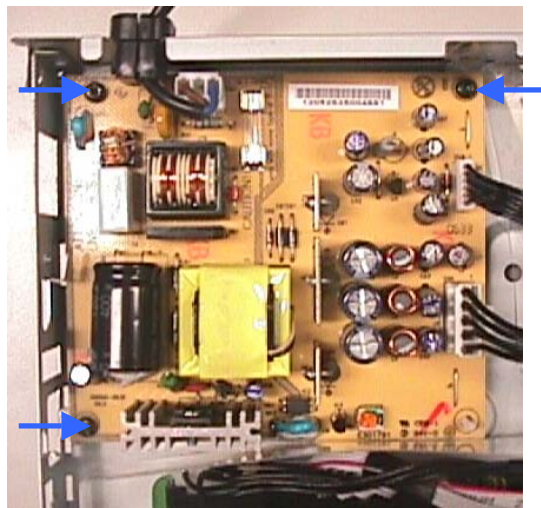


Figure 7 - PSU remove mounting screws

- 2) Service position for PSU Board is given in Figure 8.

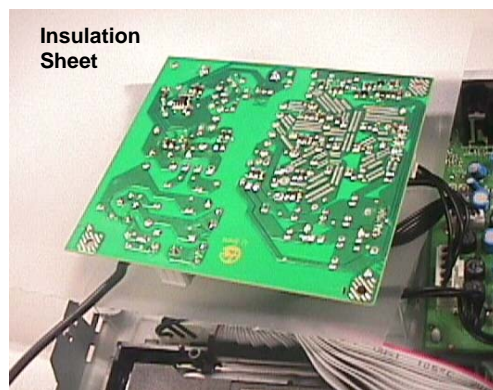


Figure 8 - PSU Board Service Position

1.5. Dismantling of the Digital Board

- 1) Remove 5 screws to loosen the Digital Board 1002 as shown in Figure 9.

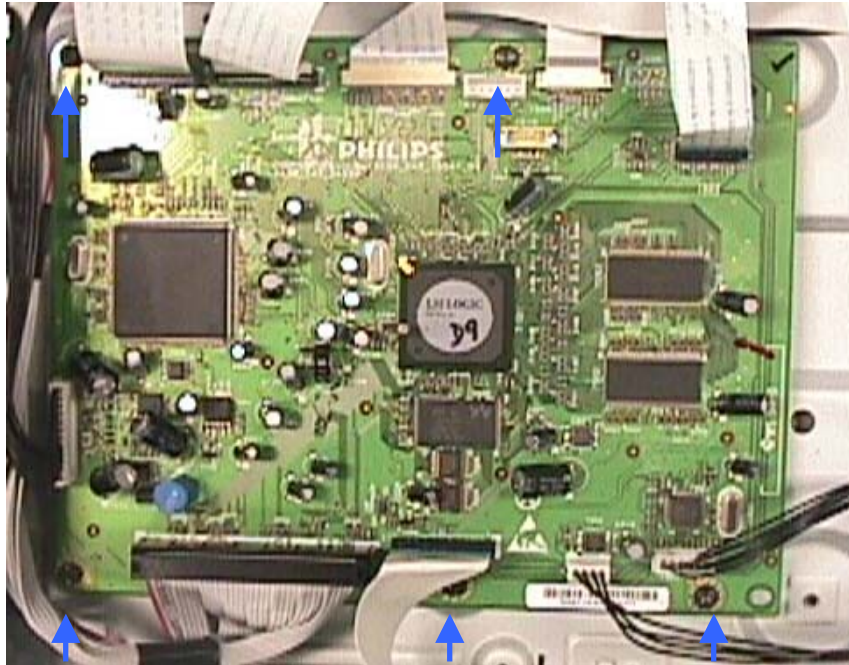


Figure 9 - Remove mounting screws for Digital Board

- 2) It is necessary to detach the Front Panel for Digital Board Service Position as shown in Figure 10.

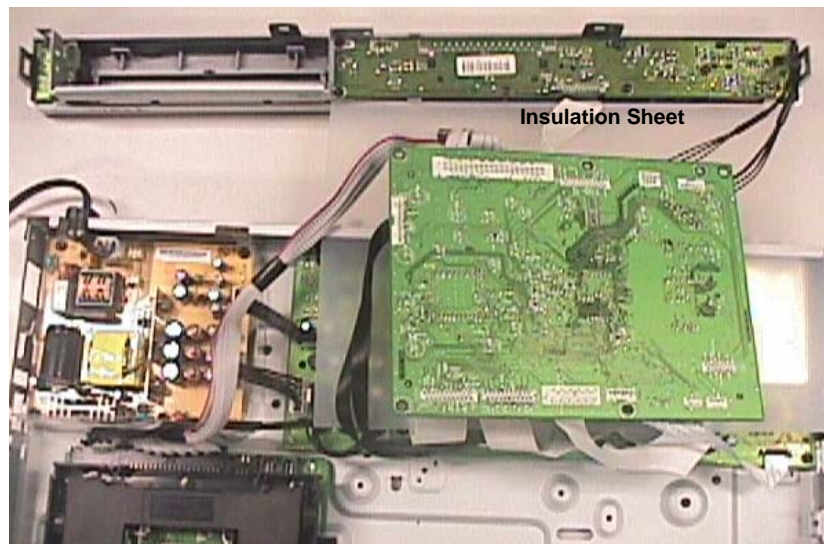


Figure 10 - Digital Board Service Position

1.6. Dismantling of the Analog Board

- 1) Remove screws from the Back Plate 230 to detach Analogue Board 1001.
Service position for Analogue Board is given in Figure 13.
Notes: Beware of short cable connections from the Analog Board to the PSU Board. Make sure them not to come out from the connectors of PSU Board while flipping over the Analog Board for servicing.

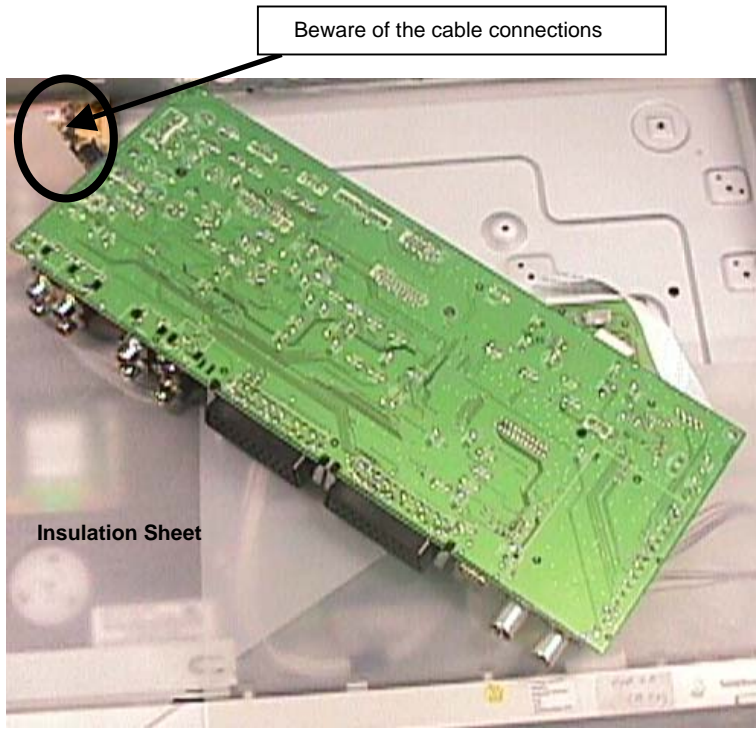
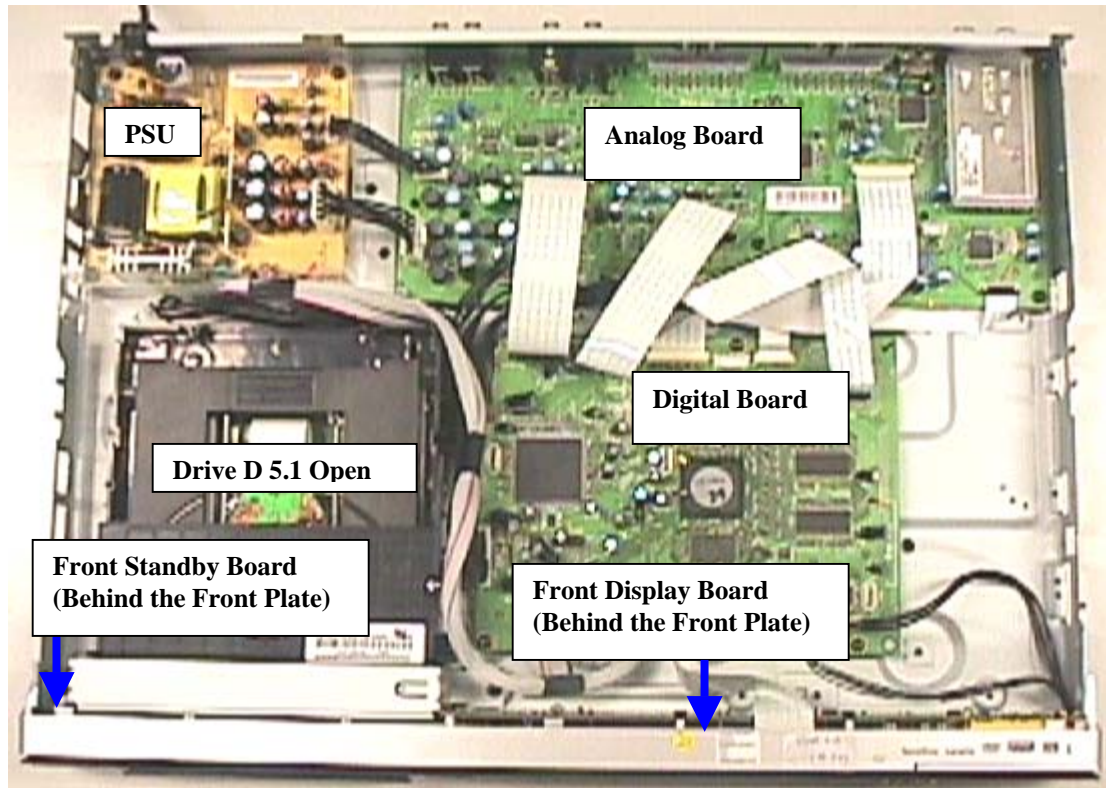


Figure 11 - Analogue Board Service Position

1. Technical Specifications and Connection Facilities

1.1. PCB Locations



1.2. General

Mains voltage:	220V-240V
Mains frequency:	~50 Hz
Power consumption:	23 W
Standby Power consumption:	<3.2W

1.3. Hybrid Tuner

1.3.1. Hybrid Tuner-Analogue TV

Test equipment: Fluke 54200 TV Signal generator
Test streams: PAL BG Philips Standard test pattern

1.3.1.1. System

B/G, I, L/L', D/K

1.3.1.2. RF – Loop Through:

Frequency range:	43 MHz – 860 M Hz
Gain (ANT IN – ANT OUT) without amplifier:	-4 dB ± 2 dB
Gain (ANT IN – ANT OUT) with amplifier:	From 2 dB + 3 dB until 2 dB – 2 dB

1.3.2. Receiver

Output of Euro connector/Cinch to be used for measurements (direct output from front end)

Video Performance:

Frequency response (0 - 4.4 MHz):	0 ± 4dB
Group delay (0 - 4.4 MHz):	0 ± 150 n sec
S/N Ratio (RF level = 70dBuV, BW = 5MHz, LPS = 200kHz, SC Trap = OFF)	≥ 45 dB

Audio Performance (Mono/German Stereo):

Frequency response (100 Hz – 12 kHz) relative to 1 kHz:	0 ± 3dB
S/N Ratio unweighted (20Hz – 20kHz):	≥ 45 dB
Total Harmonic distortion at 1kHz: FM± 25 kHz:	≤ 1.5 %
Total Harmonic distortion at 1kHz: AM: m = 54% (L/L’):	≤ 2 %

Audio Performance (NICAM Stereo/Dual)

Frequency response (40 Hz - 15 kHz): (Relative to 1 kHz)	0 ± 3dB
S/N Ratio unweighted (20Hz – 20kHz):	≥ 65 dB
Total Harmonic distortion at 1kHz:	≤ 0.5 %
Channel Separation:	≥ 45 dB

1.3.3. Tuning

Tuning Frequency Range:	45.25 MHz – 863.25 MHz
Antenna Level for 40dB luminance	
S/N unweighted at 75Ω:	≤ 40 dBμV (High End) ≤ 60 dBμV (Low End)

Automatic Search Tuning

Scanning time auto search without RF Signal:	3 minutes 30 seconds typical
Stop level (vision carrier):	≥ 40 dBμV
Maximum tuning error during operation (drift):	± 100 kHz

Tuning Principles:

Automatic system recognition (B/G, I, L/L’, D/K)
Manual Selection in “Store” mode
Storage of frequencies at each random position number

1.3.4. Hybrid Tuner-DVB-T TV**1.3.4.1. DVB-T Tuning**

Frequency range:	448-861MHz (/05 only) 49-861MHz (/31, /58 only)
Gain (Ant IN – Ant OUT):	-1dB to 3dB
Auto Search scanning time:	1 min 14 sec typical (without RF signal)

1.3.4.2. DVB – T - Video Decoding

Demultiplexing:	according ISO 13818-1 (MPEG standard)
Video bit rate:	up to 15 M bit/sec
Video format:	4:3, 16:9, 14:9
Resolution:	up to 720 pixels x 576 lines

1.3.4.3. DVB – T – Video Performance

DVB-T-RF antenna signal IN: Video Performance measured at Rear Cinch Video Out:

S/N(Unweighted,5MHz-BW limitation SC trap ON):	≥ 52dB
Frequency response 0.1 to 4.8MHz:	+1/-5dB
Y/Chroma delay:	≤ 55ns
2-T-K-factor:	≤ 2%

1.3.4.4. DVB – T – Audio Decoding

Audio decompression: MPEG-1 & MPEG 2 Layer I and II
Audio modes: Stereo, Dual

1.3.4.5. DVB-T-Audio Performance

DVB-T-RF antenna signal IN: Audio performance measured at Rear Cinch Audio Out:

S/N(A-weighted, 22kHz-BW limited) : $\geq 88\text{dB}$
Frequency response 20Hz to 20kHz : $\pm 1\text{dB}$
THD + Noise (at 1kHz) : $\geq 85\text{dB}$
THD + noise (ratio) for 16Hz to 20kHz: $\geq 65\text{dB}$
Channel Separation(at 1kHz) : $\geq 100\text{dB}$

1.4. Analog Inputs/Outputs

1.4.1. SCART 1 (Connected to TV)

Pin Signals:

1	Audio-out R	1.8V RMS
2	Audio-in R	
3	Audio-out L	1.8V RMS
4	Audio GND	
5	Blue GND	
6	Audio- in L	
7	Blue-out	0.7Vpp \pm 0.1V into 75 Ω
8	Function switch	< 2V = no signal or internal bypass 4.5V - 7V = asp. Ratio 16:9 DVD 9.5V - 12V = asp. Ratio 4:3 DVD
9	Green GND	
10	P50 control not use	
11	Green out	0.7Vpp \pm 0.1V into 75 Ω
12	NC	
13	Red GND	
14	Fast switch GND	
15	Red-out	0.7Vpp \pm 0.1V into 75 Ω
16	Fast switch RGB / CVBS or Y out	< 0.4V into 75W = CVBS 1V- 3V into 75W = RGB
17	CVBS GND OUT	
18	CVBS GND IN	
19	CVBS-out	1Vpp \pm 0.1V into 75 Ω
20	CVBS-in	
21	Shield	

1.4.2. SCART 2 (Connected to AUX)

Pin Signals:

1	Audio-out R	1.8V RMS
2	Audio-in R	
3	Audio-out L	1.8V RMS
4	Audio GND	
5	Blue GND	
6	Audio-in L	
7	Blue-in	
8	Function switch	
9	Green GND	
10	NC	
11	Green-in	
12	NC	
13	Red GND	
14	Fast switch GND	
15	Red-in	
16	Fast switch RGB / CVBS or Y in	
17	CVBS-OUT GND	
18	CVBS in GND	
19	CVBS out	1Vpp \pm 0.1V into 75 Ω
20	CVBS in	
21	Shield	

1.4.3. Audio/Video Front Input Connectors

AUDIO – Cinch (L/R)

Input voltage: 2.2V_{rms} max
Input impedance: > 10kΩ

CAM1 VIDEO – Cinch

Input voltage: 1V_{pp} ± 3dB
Input impedance: 75Ω

CAM1 S.VIDEO - Hosiden

According to IEC 933-5

Input Voltage Y: 1V_{pp} ± 3dB
Input Impedance Y: 75Ω
Input Voltage C: 300 mV_{pp} ± 3dB
Input Impedance C: 75Ω

1.4.4. Audio/Video Output Connectors

AUDIO OUT – Cinch (L/R)

Output voltage: 2V_{rms} max.
Output impedance: > 10kΩ

VIDEO (CVBS) – Cinch (VIDEO OUT)

Output Voltage: 1V_{pp} ± 3dB
Output impedance: 75Ω

S-VIDEO (Y/C) – Hosiden (VIDEO OUT)

According to IEC 933-5

Output Voltage Y: 1V_{pp} ± 3dB
Output Impedance Y: 75Ω
Output Voltage C: 300 mV_{pp} ± 3dB
Output Impedance C: 75Ω

COMPONENT VIDEO OUT (Y/Pb/Pr) – Cinch

According to EIO-770-1-A, EIA-770-2-A

1.5. Digital Inputs/Outputs

1.5.1. CAM2 DV IN (IEEE 1394)

Implementation standard according:

IEEE Std 1394-1995
IEC61883 - Part1
IEC61883 - Part 2 SD-DVCR (02-01-1997)

Specification of consumer use digital VCR's using 6.3mm magnetic tape – dec.1994
Mechanical connection according to Annex of IEC 61883-1

1.5.2. USB

Compatibility: USB 1.1
Type of connector: Series A Connector

1.5.3. HDMI OUT

Compatibility: HDMI version 1.1
Type of connector: Type A connector (19 pins)

1.5.4. COAXIAL (DIGITAL OUT) – Cinch (Audio)

LPCM: according IEC 60958
MPEG 1, MPEG 2, AC3: according IEC 61937
DTS: according IEC 61937 + addendum

1.6. Video Performance

1.6.1. SNR

PAL

RGB	CVBS	Y/C
≥ 55 dB	Luminance: ≥ 55 dB Chroma: ≥ 55 dB (AM) ≥ 52 dB (PM)	Y: ≥ 55 dB C: ≥ 57 dB (AM) ≥ 54 dB (PM)

NTSC

Y Pb Pr	CVBS	Y/C
≥ 55dB	Luminance: ≥ 55 dB Chroma: ≥ 54 dB (AM) ≥ 54dB (PM)	Y: ≥ 55 dB C: ≥ 54 dB (AM) ≥ 54 dB (PM)

1.6.2. Bandwidth

PAL

RGB	CVBS	Y/C
0.5-4 MHz: +1dB/-2dB	0.5-4 MHz: +1dB/-2dB	Y: 4.8MHz-3dB
4.8 MHz: -3dB	4.8 MHz: -3dB	C: 700 kHz
5.8 MHz: -6dB	5.8 MHz: -6dB	

NTSC

YPbPr	CVBS	Y/C
4.2 MHz: -3dB	4.2 MHz: -3dB	Y: 4.2 MHz -3 dB
5.8 MHz: -6dB	5.8 MHz: -6dB	C: 700 kHz
With Pscan: 8.4MHz -3dB		

1.7. Audio Performance CDDA (PCM)

Cinch Output Rear

Output voltage 2 channel mode: $2V_{rms} \pm 1dB$
Channel unbalance (1kHz): $\leq |0.22| dB (0.05V)$
Crosstalk 1kHz: $\geq |100| dB$
Crosstalk 16Hz-20kHz: $\geq |90| dB$
Frequency response: $\leq |0.2| dB$
Frequency response with de-emphasis: $\leq |0.5| dB$
Signal to noise ratio (unweighted): $\leq -95 dB$
Signal to noise ratio (A-weighted): $\leq -100 dB$
Signal to noise ratio (with automute): $\leq -115 dB$

Dynamic range 1kHz:	≥ 90 dB
Distortion and noise 1kHz:	≤ -85 dB
Distortion and noise 16Hz-20kHz:	≤ -85dB
Intermodulation distortion:	≤ 0.002 % (60 Hz and 7 kHz)
Intermodulation distortion:	≤ 0.002 % (-94 dB) (19 kHz and 20 kHz)
Phase Difference between channels:	1 sample
Phase non-linearity:	± 2°
Level non-linearity (-60dB to -90dB):	≤ 1.0 dB
Output polarity	7FFF (H) positive pulse at output 8000 (H) negative pulse at output
Mute:	≤ -95 dB (during spin-up, spin-down, pause and access)
Outband attenuation:	≤ -40 dB above 30 kHz

1.7.1. Scart Audio

Output voltage:	1.6Vrms ± 2dB
Channel unbalance 1kHz:	< 0.22dB
Crosstalk 1kHz:	> 85dB
Crosstalk 16Hz-20kHz:	> 70dB
Signal to noise ratio (unweighted):	> 80 dB (20Hz to 20kHz bandwidth limited)
Signal to noise ratio (A-weighted):	> 85 dB (RMS, 20Hz to 20kHz bandwidth limited)
Dynamic range 1kHz:	> 83 dB
Distortion and noise 1kHz:	> 80 dB
Distortion and noise 16Hz-20kHz:	> 75 dB

1.8. Dimension and Weight

Set Dimension W x H x D:	435 x 43 x 324.5 mm
Weight:	3.0 kg

1.9. Laser Output Power & Wavelength

1.9.1. DVD

Output power during reading:	1.0mW
Output power during writing:	69mW
Wavelength:	658nm (at 25 °C)

1.9.2. CD

Output power:	1.2mW
Wavelength:	783nm (at 25 °C)

1.10. Playability

Video Playback		
1	Playback Media: CD-R/CD-RW, DVD+R DL, DVD+R/+RW, DVD-R/-RW, DVD-Video, Video CD/SVCD	x
2	Compression Format: MPEG1, MPEG2, DivX 3.11, DivX 4.x, DivX 5.x, DivX 6.0, DivX Ultra	x
Audio Playback		
1	Playback Media: Audio CD, CD-R/RW, DVD+R DL, DVD+R/+RW, DVD-R/-RW, MP3-CD, MP3-DVD, WMA-CD, USB flash drive	x
2	Compression Format: Dolby Digital, MPEG2 Multichannel, MP3, PCM, WMA	x
3	MP3 bit rates: 64-384 kbps and VBR	x

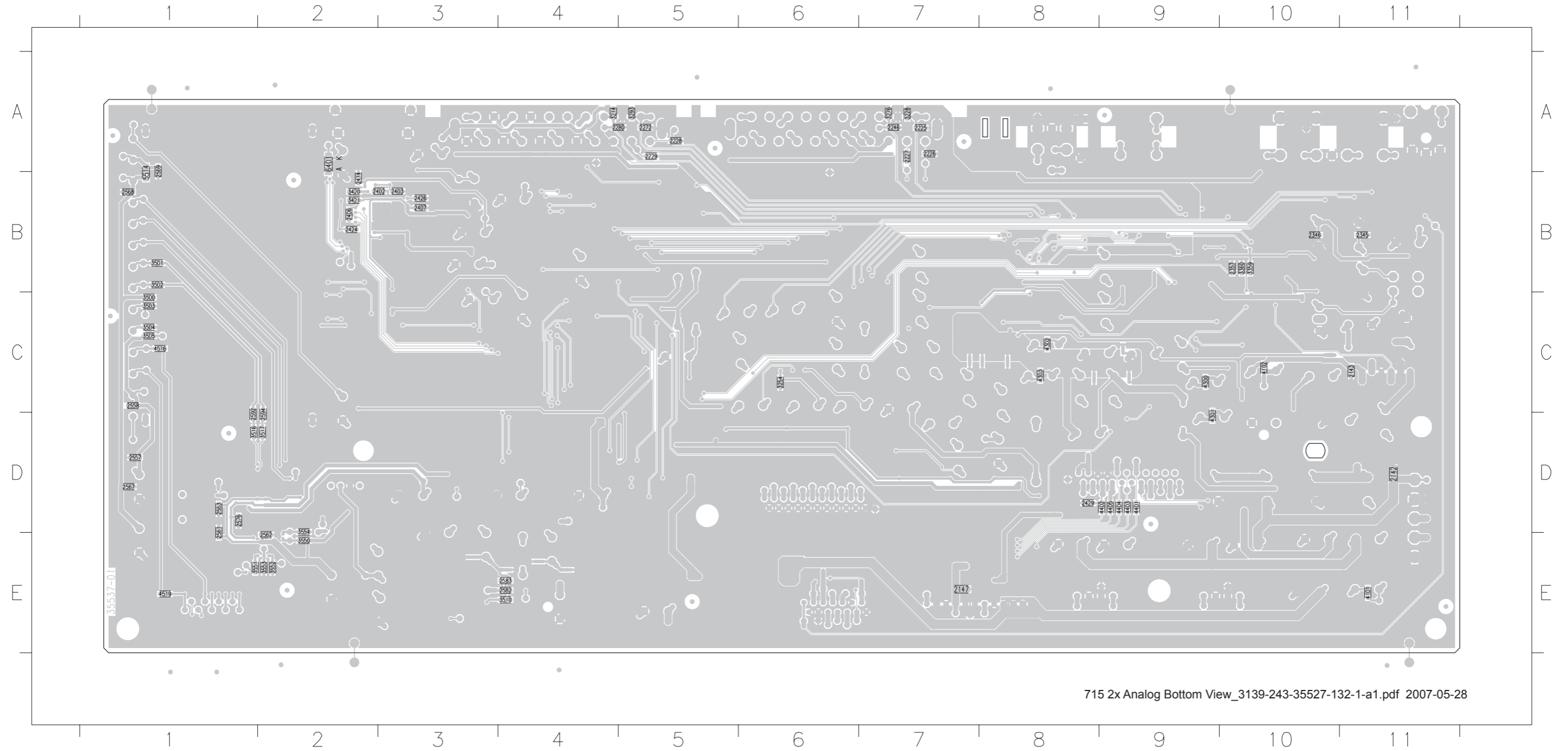
Still Picture Playback		
1	Playback Media: Picture CD, CD-R/RW, DVD+R DL, DVD+R/+RW, DVD-R/-RW, USB flash drive, USB Memory Card Reader	x
2	Picture Compression Format: JPEG	x
3	Picture Enhancement: Rotate, Zoom, Slideshow with music playback	x

1.11. Supported Disc Types and Media Speed for Recording

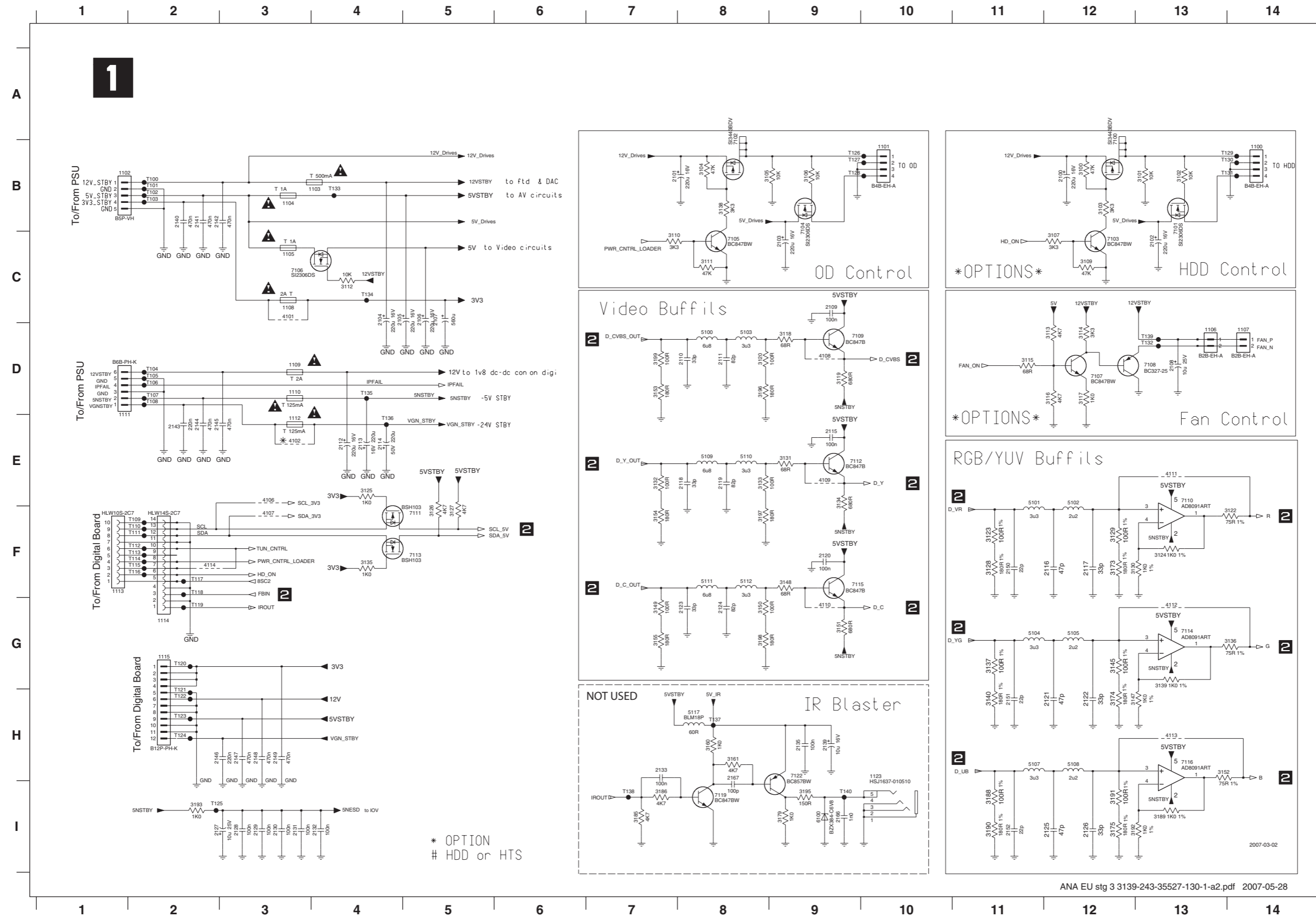
Disc	Media speeds
DVD+R	1x - 16x
DVD+RW	2.4x - 8x
DVD-R	1x - 16x
DVD-RW	2.4x - 6x
DVD+R DL	2.4x

Layout: Analog (Bottom View)

2142 D11	2226 A7	2246 A7	2346 B10	2406 B2	2426 B3	2561 E1	2568 B1	2583 E4	3228 A7	3359 B10	3500 C1	3504 C1	3517 D2	3553 E2	4300 C9	4401 D9	4405 D9	6401 A2
2143 C11	2227 A7	2272 A5	2357 B10	2407 B3	2429 D8	2562 F2	2569 A1	2592 D1	3254 C6	3360 B10	3501 B1	3505 C1	3550 E2	3554 D2	4301 D9	4402 D9	4406 C1	
2147 E7	2228 A5	2280 A5	2402 B3	2414 B2	2557 D1	2563 D1	2576 D1	2594 D2	3276 A7	3420 B2	3502 B1	3510 F4	3551 E1	4101 F11	4302 C8	4403 D9	4419 F1	
2225 A7	2229 A5	2345 B11	2403 B3	2424 B2	2558 C1	2567 D1	2582 E4	3214 A4	3293 A5	3421 B2	3503 C1	3516 D1	3552 E2	4102 C10	4303 C8	4404 D9	5514 B1	

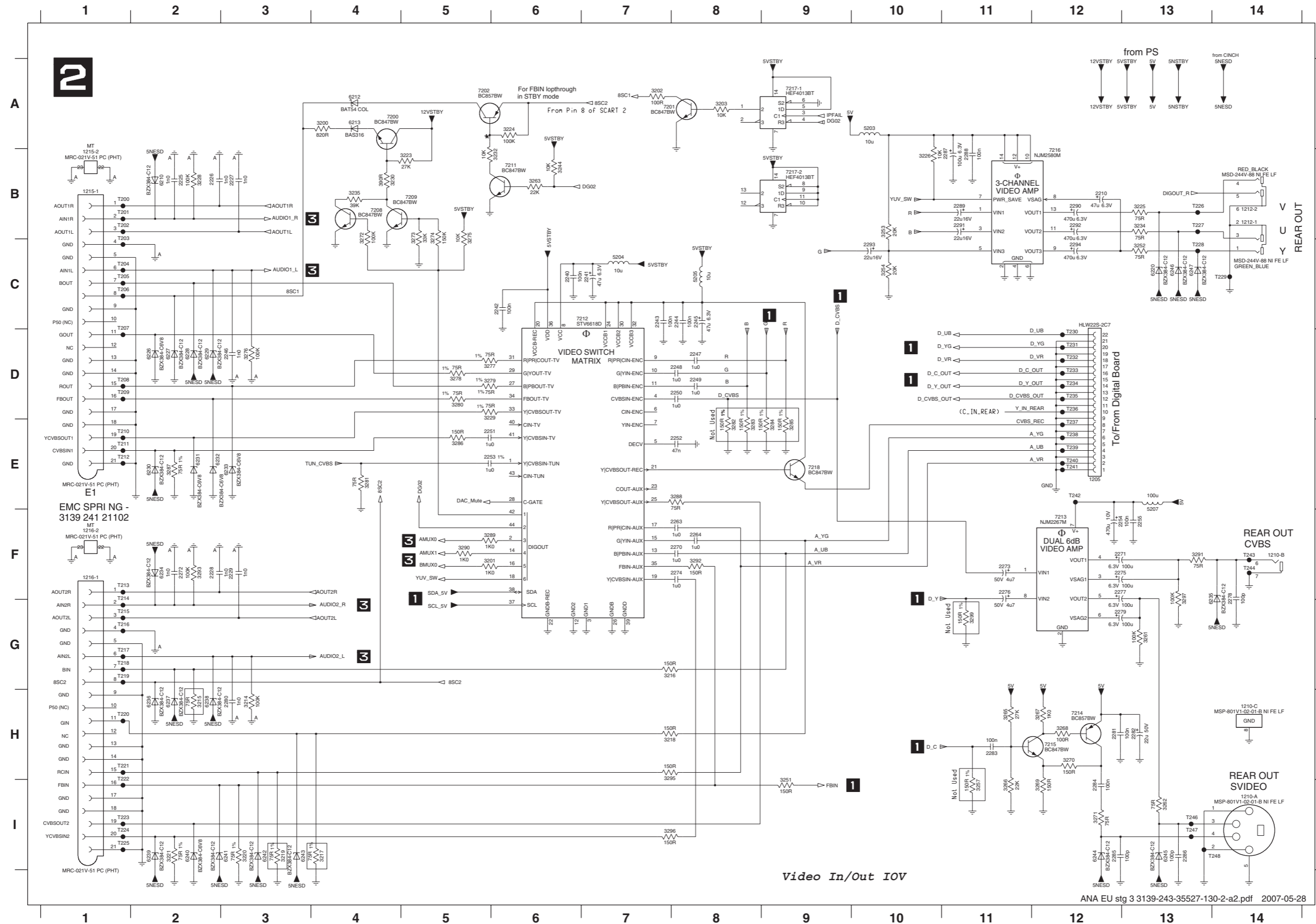


Analog: PSU & COM



1100	B14	3152	H13
1101	B10	3153	D7
1102	B1	3154	F7
1103	B4	3155	G7
1104	B3	3160	H8
1105	C3	3161	H8
1106	D13	3173	F12
1107	D14	3174	H12
1108	C3	3175	H12
1109	D3	3179	I9
1110	D3	3185	I7
1111	D1	3186	I7
1112	E3	3188	I11
1113	F1	3189	I13
1114	G2	3190	I11
1115	G2	3191	I12
1123	H10	3192	I12
2100	B12	3193	I2
2101	B7	3195	I9
2102	C13	3196	D8
2103	C9	3197	F8
2104	C4	3198	G8
2105	C4	3199	D7
2106	C5	4101	C3
2107	C5	4102	E3
2108	D13	4106	E3
2109	C9	4107	F3
2110	D8	4108	D9
2111	D8	4109	E9
2112	E4	4110	G9
2113	E4	4111	E3
2114	E4	4112	G13
2115	E9	4113	H13
2116	F12	4114	F2
2117	F12	5100	D8
2118	E8	5101	E11
2119	E8	5102	E12
2120	F9	5103	D8
2121	H12	5104	G11
2122	H12	5105	G12
2123	G8	5107	H11
2124	G8	5108	H12
2125	H2	5109	E8
2126	H2	5110	E8
2127	I2	5111	F8
2128	I3	5112	F8
2129	I3	5117	H8
2130	I3	6100	I9
2131	I3	7100	B12
2132	I4	7101	B13
2133	H7	7102	B8
2135	H9	7103	C12
2139	H9	7104	B9
2140	B2	7105	C8
2141	B2	7106	C3
2142	B2	7107	D12
2143	E2	7108	D13
2144	E2	7109	D9
2145	E2	7110	E13
2146	H2	7111	F5
2147	H3	7112	E9
2148	H3	7113	F5
2149	H3	7114	G13
2150	F11	7115	F9
2151	H11	7116	H13
2152	H11	7119	I8
2166	I9	7122	H9
2167	H8	T100	B2
3100	B12	T101	B2
3101	B13	T102	B2
3102	B13	T103	B2
3103	B12	T104	D2
3104	B8	T105	D2
3105	B8	T106	D2
3106	B9	T107	D2
3107	C12	T108	D2
3109	C12	T109	F2
3110	C7	T110	F2
3111	C8	T111	F2
3112	C4	T112	F2
3113	D12	T113	F2
3114	D12	T114	F2
3115	D11	T115	F2
3116	D12	T116	F2
3117	D12	T117	F2
3118	D9	T118	F2
3119	D9	T119	G2
3120	D8	T120	G2
3122	F14	T121	H2
3123	F11	T122	H2
3124	F13	T123	H2
3125	E4	T124	H2
3126	F5	T125	I2
3127	F5	T126	B9
3128	F11	T127	B9
3129	F12	T128	B9
3130	F12	T129	B13
3130	F12	T129	B13
3131	E9	T130	B13
3132	E7	T131	B13
3133	E8	T132	D13
3134	E9	T133	B4
3135	F4	T134	C4
3136	G14	T135	D4
3137	G11	T136	E4
3138	B8	T137	H8
3139	G13	T138	I7
3140	H11	T139	D13
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3147	H12		
3148	F9		
3149	G7		
3150	G8		
3151	G9		

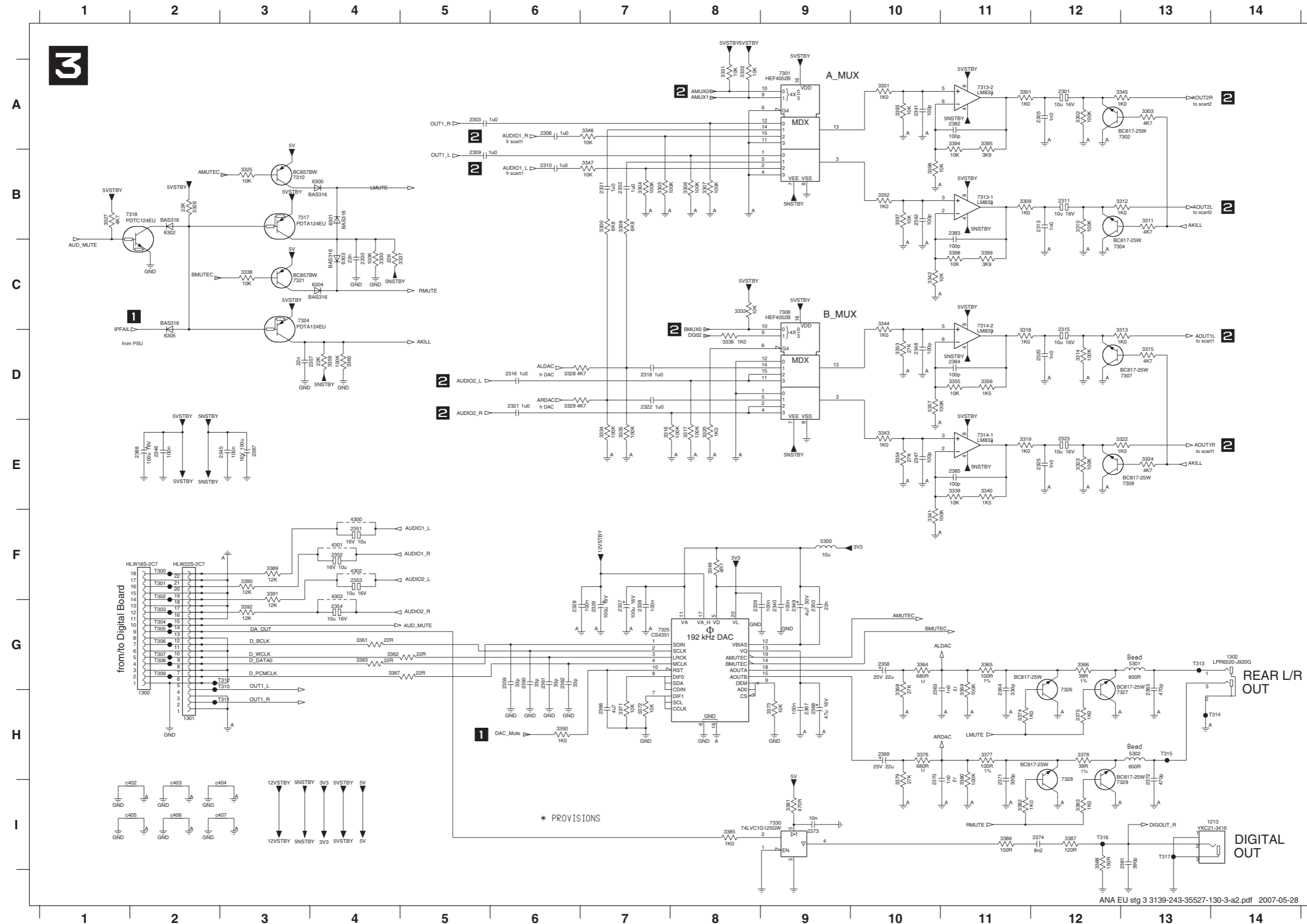
Analog: VIDEO / SCART



Video In/Out IOV

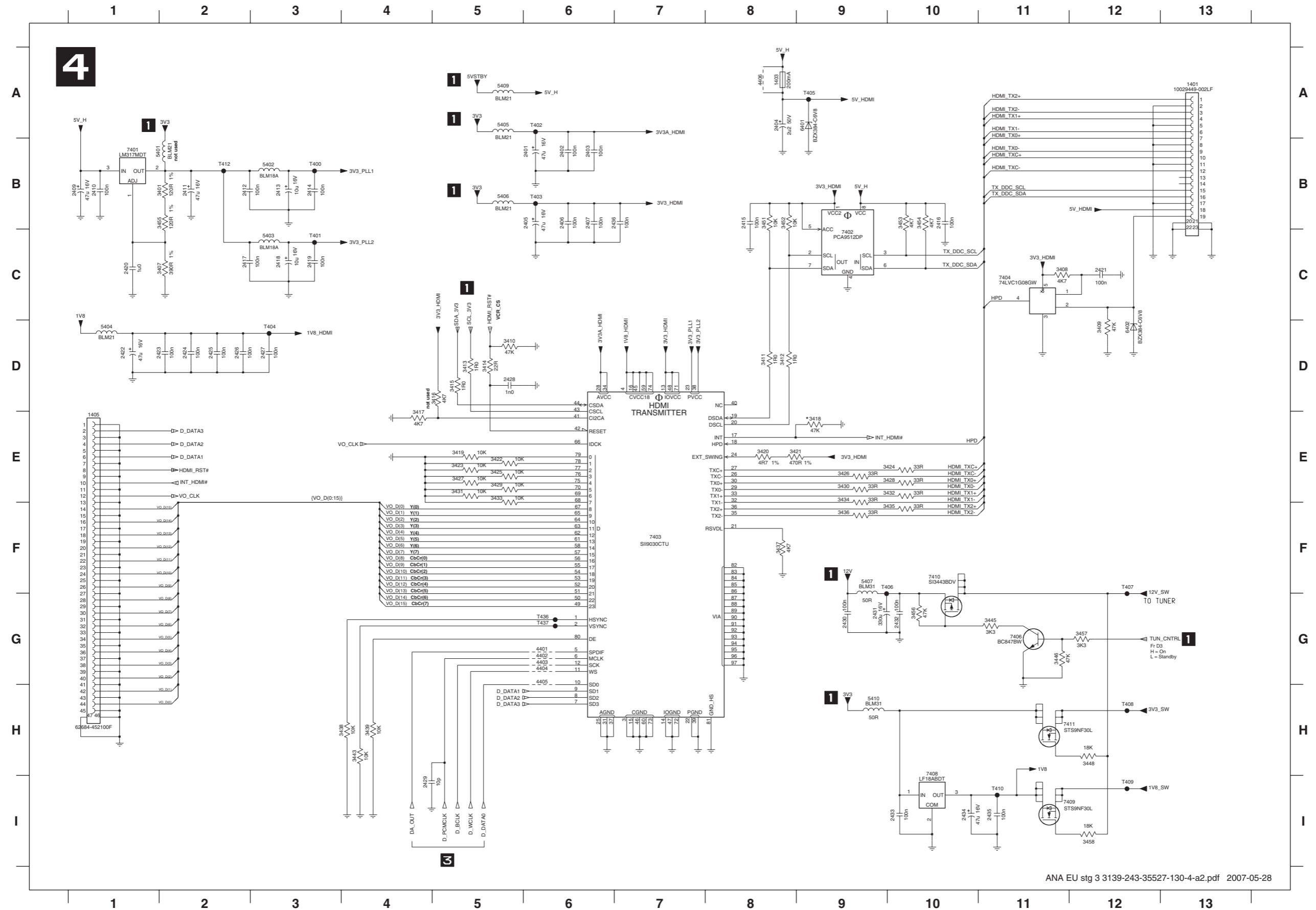
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1210-A H14	3292 F8
1210-B F14	3293 F2
1210-C H14	3295 H7
1212-1 B14	3296 I7
1212-2 B14	3297 F13
1215-1 B1	3299 G11
1215-2 B1	5203 A10
1216-1 F1	5204 C7
1216-2 F1	5205 C8
2210 B12	5207 E13
2225 B2	6210 B2
2226 B2	6212 A4
2227 B3	6213 A4
2228 F2	6220 C13
2229 F3	6226 D2
2240 C6	6227 D2
2241 C7	6228 D2
2242 C6	6229 D2
2243 C7	6230 E2
2244 C8	6231 E2
2245 C8	6232 E2
2246 D3	6233 E3
2247 D8	6234 F2
2248 D8	6235 F14
2249 D8	6236 D8
2250 D8	6237 H2
2251 E5	6238 H2
2252 E8	6239 I2
2253 E5	6240 I2
2254 F12	6241 I3
2255 F13	6242 I3
2263 F8	6243 I3
2264 F8	6244 I12
2270 F8	6245 I13
2271 F12	6246 C13
2272 F2	6247 C13
2273 F11	7200 A4
2274 F8	7201 A8
2275 F12	7202 A5
2276 F11	7208 B4
2277 F12	7209 B5
2278 F14	7211 B6
2279 G12	7212 C6
2280 H3	7213 F12
2281 H12	7214 H12
2282 H13	7215 H12
2283 H11	7216 B12
2284 H12	7217-1 A9
2285 H12	7217-2 B9
2286 I13	7218 E9
2287 B11	T200 B1
2288 B11	T201 B1
2289 B11	T202 B1
2290 B12	T203 C1
2291 B11	T204 C1
2292 B12	T205 C1
2293 C10	T206 C1
2294 C12	T207 D1
3200 A4	T208 D1
3201 F5	T209 D1
3202 A7	T210 E1
3203 A8	T211 E1
3214 H3	T212 E1
3215 H2	T213 H1
3216 G7	T214 G1
3217 I4	T215 G1
3218 H7	T216 G1
3219 I3	T217 G1
3220 I3	T218 G1
3221 I2	T219 G1
3223 B5	T220 H1
3224 A6	T221 H1
3225 B10	T222 I1
3226 B13	T223 I1
3228 B2	T224 I1
3229 D5	T225 I1
3230 B4	T226 B13
3232 B6	T227 B13
3234 B13	T228 C13
3235 B4	T229 C14
3244 B6	T230 D12
3251 I9	T231 D12
3252 C13	T232 D12
3253 B10	T233 D12
3254 C10	T234 D12
3257 I11	T235 D12
3261 G13	T236 D12
3262 I13	T237 E12
3263 B6	T238 E12
3265 H11	T239 E12
3266 I11	T240 E12
3267 H12	T241 E12
3268 H12	T242 E12
3269 H12	T243 F14
3270 H12	T244 F14
3271 I12	T246 I13
3272 B4	T247 I13
3273 B5	T248 I14
3274 B5	
3275 B5	
3276 D3	
3277 D5	
3278 D5	
3279 D5	
3280 D5	
3281 E4	
3282 E8	
3283 E8	
3284 E9	
3285 E9	
3286 E5	
3287 E2	
3288 E8	
3289 F5	
3290 F5	

Analog: DAC & AUDIO SWITCH



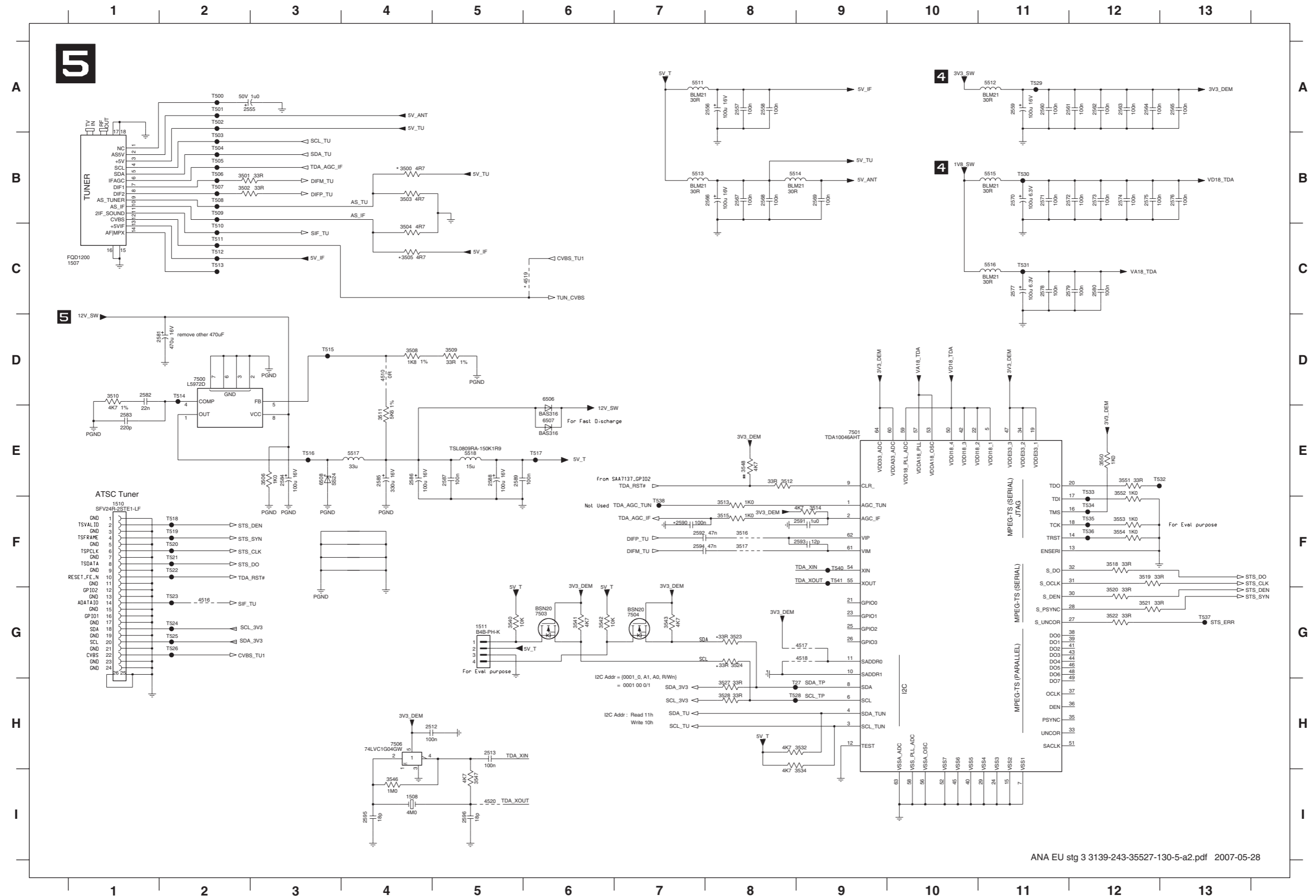
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- 1300 H2
- 1301 H2
- 1302 G14
- 2301 A12
- 2303 A5
- 2305 A12
- 2306 A6
- 2309 B5
- 2310 B6
- 2311 B12
- 2313 D12
- 2315 D12
- 2316 D6
- 2318 D7
- 2320 D12
- 2321 D6
- 2322 D7
- 2323 E12
- 2325 E12
- 2328 G6
- 2329 G7
- 2330 C4
- 2331 B7
- 2332 B7
- 2337 G7
- 2338 G7
- 2339 G8
- 2340 G9
- 2341 A10
- 2342 B10
- 2345 E2
- 2346 E2
- 2347 E10
- 2348 D10
- 2349 G9
- 2350 G9
- 2351 F4
- 2352 F4
- 2353 F4
- 2354 G4
- 2357 D3
- 2358 G10
- 2359 G6
- 2360 G6
- 2361 G6
- 2362 G6
- 2363 G10
- 2364 G11
- 2365 G13
- 2366 H7
- 2367 H9
- 2368 H9
- 2369 H10
- 2370 H10
- 2371 H11
- 2372 H13
- 2373 I9
- 2374 I12
- 2381 I13
- 2382 A11
- 2383 B11
- 2384 D11
- 2385 E11
- 2387 E3
- 2388 E2
- 3000 B7
- 3001 A11
- 3002 A12
- 3003 A13
- 3004 B7
- 3005 B7
- 3006 B8
- 3007 B8
- 3008 B7
- 3009 B11
- 3010 B12
- 3011 B13
- 3012 B13
- 3013 D13
- 3014 D12
- 3015 D13
- 3016 E7
- 3017 E8
- 3018 D11
- 3019 E11
- 3020 E8
- 3022 E13
- 3023 E12
- 3024 E13
- 3025 B3
- 3026 B2
- 3027 B1
- 3028 D6
- 3029 D6
- 3030 C4
- 3031 A8
- 3032 A8
- 3033 C8
- 3034 E7
- 3035 E7
- 3036 D8
- 3037 C4
- 3038 C3
- 3039 E11
- 3040 E11
- 3042 C10
- 3043 E10
- 3044 C10
- 3045 A13
- 3046 A7
- 3047 B7
- 3049 F8
- 3050 H6
- 3051 A10
- 3352 B10
- 3353 D10
- 3354 E10
- 3355 E11
- 3356 D11
- 3357 D10
- 3359 D4
- 3360 D4
- 3361 G4
- 3362 G4
- 3363 G4
- 3364 G10
- 3365 G11
- 3366 G12
- 3367 G4
- 3368 G10
- 3369 G11
- 3371 H7
- 3372 H7
- 3373 H9
- 3374 H11
- 3375 H12
- 3376 H10
- 3377 H11
- 3378 H12
- 3379 H10
- 3380 H11
- 3381 I9
- 3382 I11
- 3383 I12
- 3385 I8
- 3386 I11
- 3387 I12
- 3389 F3
- 3390 F3
- 3391 F3
- 3392 G3
- 3393 G3
- 3394 A10
- 3395 A11
- 3396 B10
- 3397 B10
- 3398 C11
- 3399 C11
- 4000 F4
- 4001 F4
- 4002 F4
- 4003 F4
- 4004 F4
- 4005 F4
- 4006 I2
- 4007 I2
- 4008 I2
- 4009 I2
- 4010 I2

Analog: HDMI



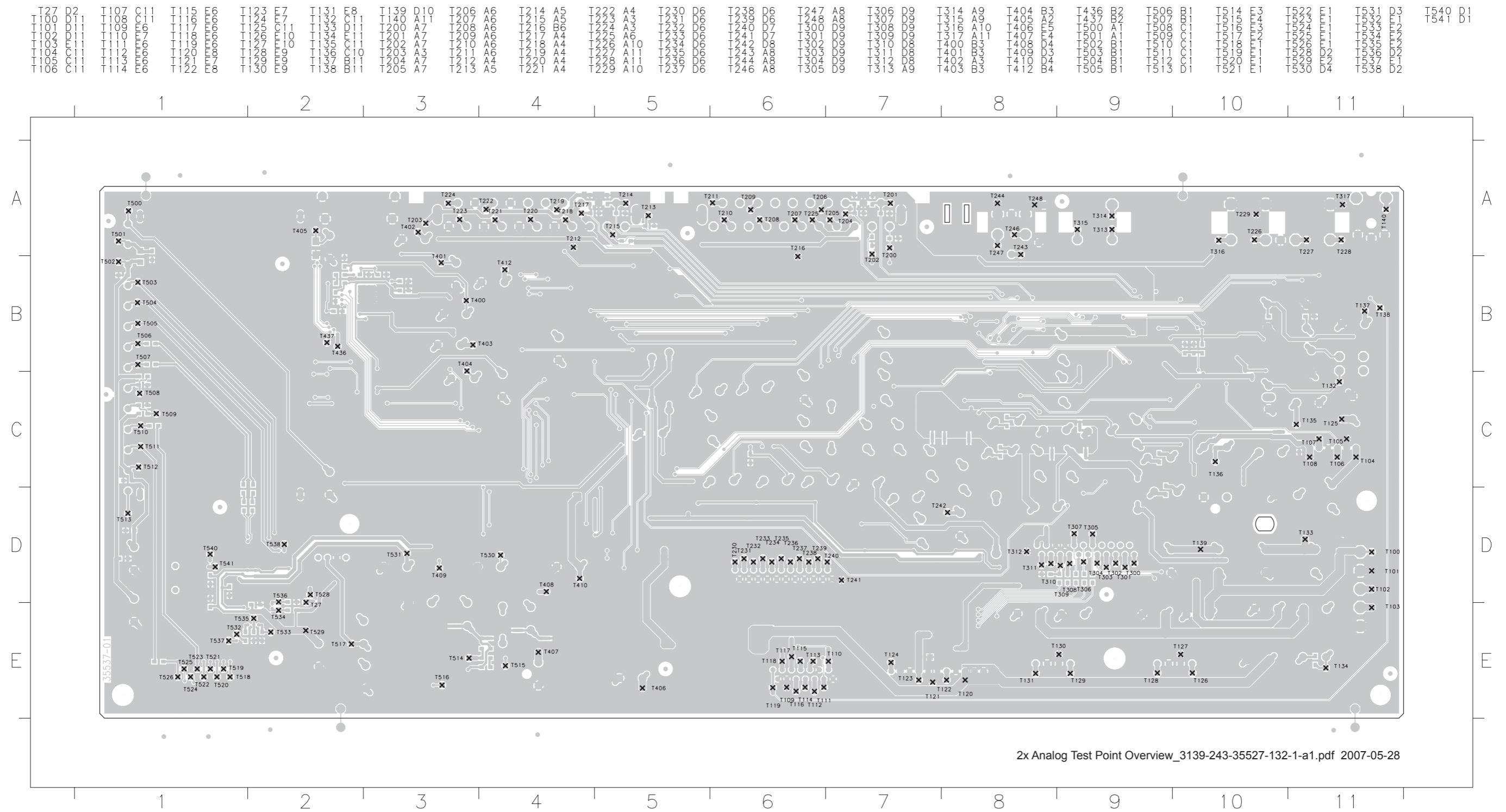
- 1401 A13
- 1403 A8
- 1405 E1
- 2401 B6
- 2402 B6
- 2403 B6
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- 2405 B6
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- 2407 B6
- 2409 B1
- 2410 B1
- 2411 B2
- 2412 B2
- 2413 B3
- 2414 B3
- 2415 B8
- 2416 B10
- 2417 C2
- 2418 C3
- 2419 C3
- 2420 C1
- 2421 C12
- 2422 D1
- 2423 D2
- 2424 D2
- 2425 D2
- 2426 D2
- 2427 D3
- 2428 D5
- 2429 I4
- 2430 G9
- 2431 G9
- 2432 G10
- 2433 I10
- 2434 I10
- 2435 I11
- 2436 B7
- 3401 B2
- 3402 C2
- 3408 C11
- 3409 D12
- 3410 D5
- 3411 D8
- 3412 D8
- 3413 D5
- 3414 D5
- 3415 D5
- 3416 D5
- 3417 E4
- 3418 E9
- 3419 E5
- 3420 E8
- 3421 E8
- 3422 E5
- 3423 E5
- 3424 E10
- 3425 E5
- 3426 E9
- 3427 E5
- 3428 E10
- 3429 E5
- 3430 E9
- 3431 E5
- 3432 E10
- 3433 E5
- 3434 E9
- 3435 F10
- 3436 F9
- 3437 F8
- 3438 H4
- 3439 H4
- 3443 H4
- 3445 G11
- 3446 G11
- 3448 H12
- 3451 B8
- 3452 B8
- 3453 B10
- 3454 B10
- 3455 B2
- 3456 G10
- 3457 G12
- 3458 I12
- 4401 G6
- 4402 G6
- 4403 G6
- 4404 G6
- 4405 A5
- 4406 A8
- 5401 B2
- 5402 B3
- 5403 C3
- 5404 D1
- 5405 A5
- 5406 B5
- 5407 F9
- 5409 A5
- 5410 H9
- 6401 A9
- 6402 D12
- 7401 B1
- 7402 C9
- 7403 F7
- 7404 C11
- 7406 G11
- 7408 I10
- 7409 I11
- 7410 F10
- 7411 H11
- T400 B3
- T401 C3
- T402 A6
- T403 B6
- T404 A13
- T405 A8
- T406 A9
- T407 F12
- T408 H12
- T409 H12
- T410 I11
- T411 B2
- T412 B2
- T413 B3
- T414 B3
- T415 B8
- T416 B10
- T417 C2
- T418 C3
- T419 C3
- T420 C1
- T421 C12
- T422 D1
- T423 D2
- T424 D2
- T425 D2
- T426 D2
- T427 D3
- T428 D5
- T429 I4
- T430 G9
- T431 G9
- T432 G10
- T433 I10
- T434 I10
- T435 I11
- T436 B7
- T437 G6
- T438 G6
- T439 G6
- T440 A6

Analog: DVBT & Channel Decoder

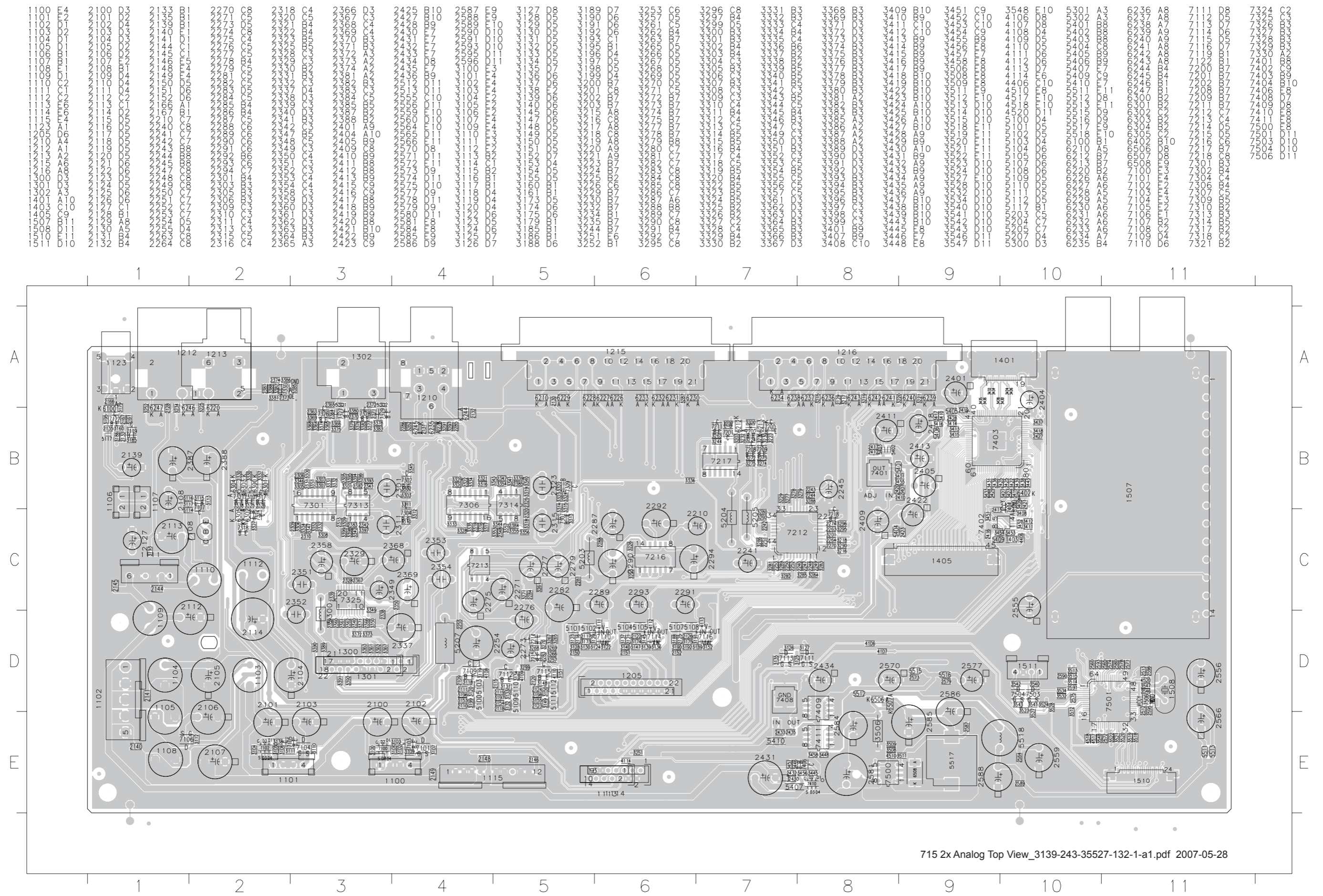


T27 H9	T501 A2
1507 C1	T502 A2
1508 B4	T503 B2
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1511 G5	T505 B2
2512 H4	T506 B2
2513 H5	T507 B2
2555 A2	T508 B2
2556 A8	T509 B2
2557 A8	T510 C2
2558 A8	T511 C2
2559 A11	T512 C2
2560 A11	T513 C2
2561 A12	T514 D2
2562 A12	T515 D3
2563 A12	T516 E3
2564 A12	T517 E6
2565 A13	T518 F2
2566 B8	T519 F2
2567 B8	T520 F2
2568 B8	T521 F2
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2572 B12	T525 G2
2573 B12	T526 G2
2574 B12	T528 H9
2575 B12	T529 A11
2576 B13	T530 B11
2577 C11	T531 C11
2578 C11	T532 E12
2579 C12	T533 E12
2580 C12	T534 F12
2581 D2	T535 F12
2582 D1	T536 F12
2583 E1	T537 G13
2584 E3	T538 F7
2585 E4	T540 F9
2586 E4	T541 F9
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2588 E5	
2589 E5	
2590 F7	
2591 F9	
2592 F7	
2593 F9	
2594 F7	
2595 I4	
2596 I5	
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3503 B4	
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3512 E8	
3513 F8	
3514 F9	
3515 F8	
3516 F8	
3517 F8	
3518 F12	
3519 F12	
3520 G12	
3521 G12	
3522 G12	
3523 G8	
3524 G8	
3527 H8	
3528 H8	
3529 H9	
3534 I9	
3540 G5	
3541 G6	
3542 G6	
3543 G7	
3546 I4	
3547 I5	
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3551 E12	
3552 E12	
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5512 A11	
5513 B7	
5514 B8	
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5518 E5	
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7506 H4	
T500 A2	

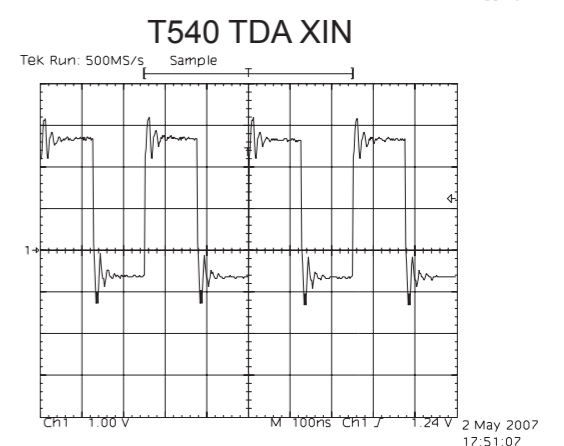
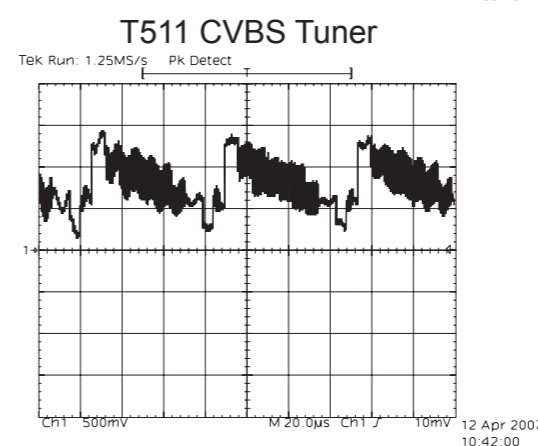
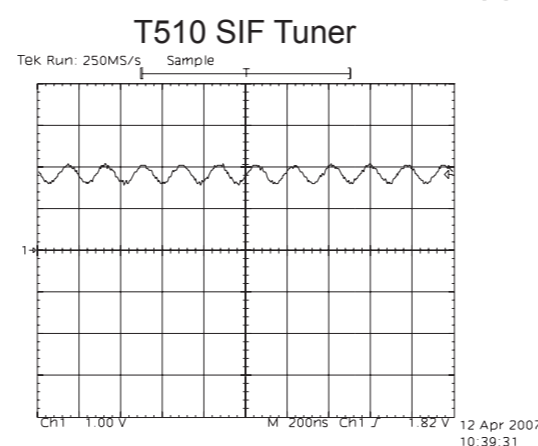
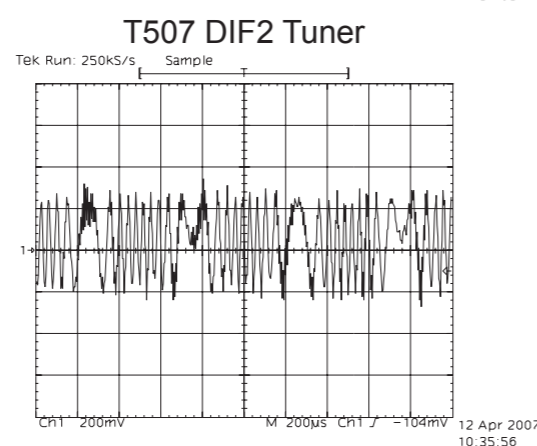
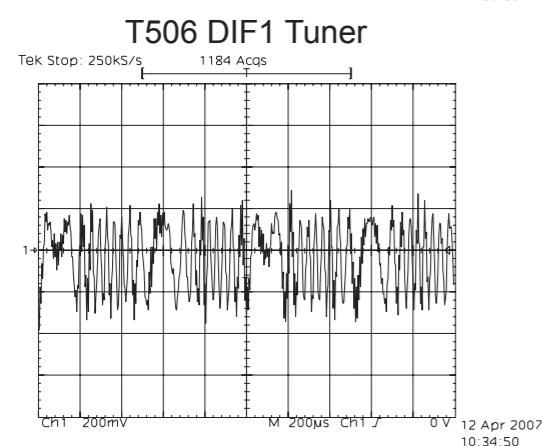
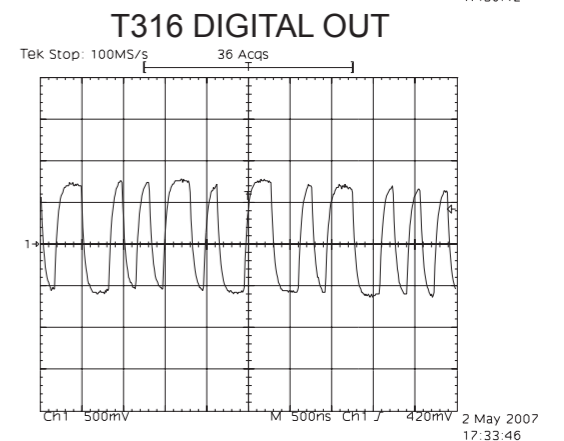
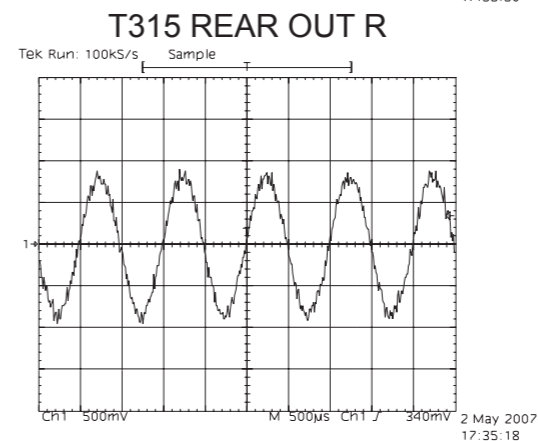
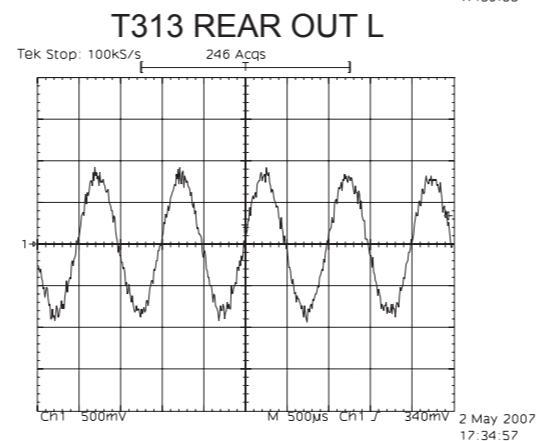
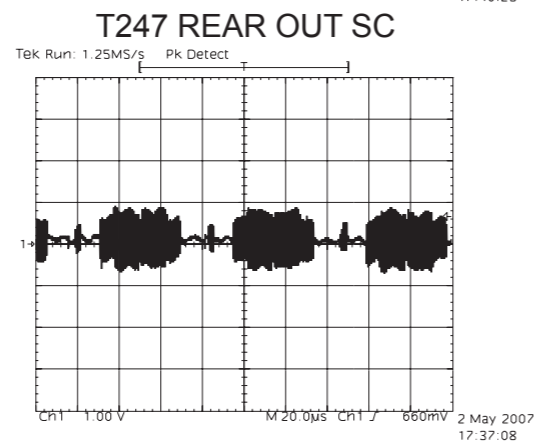
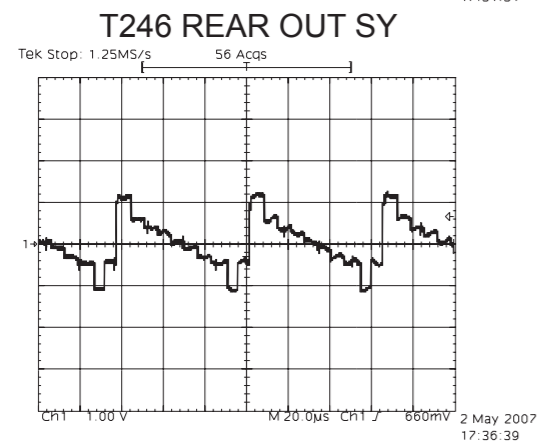
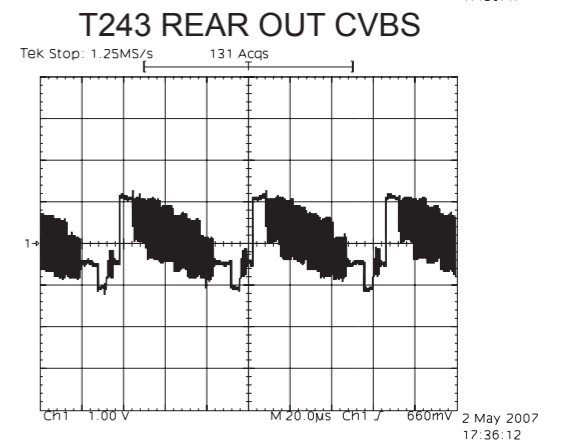
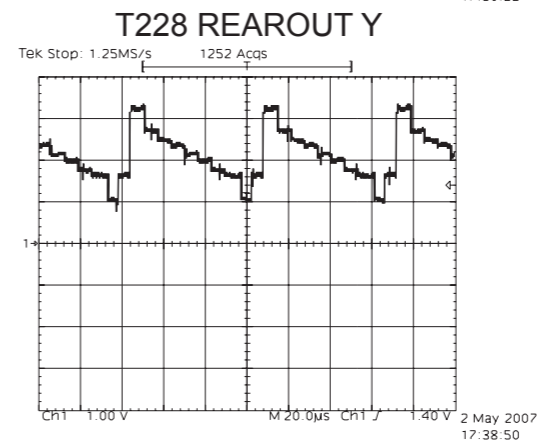
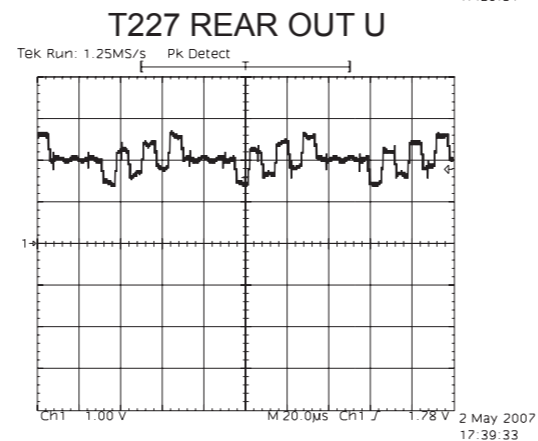
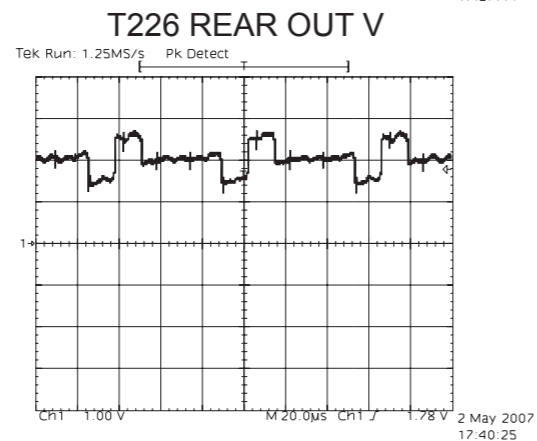
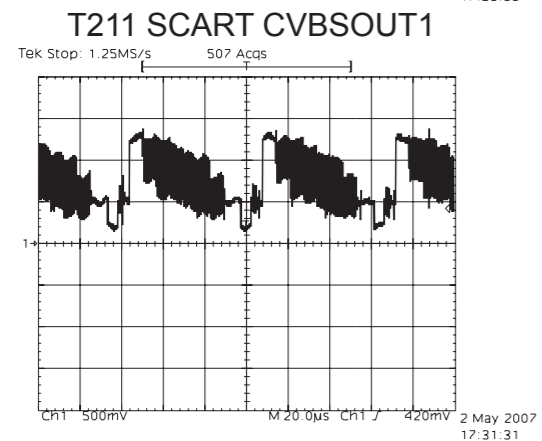
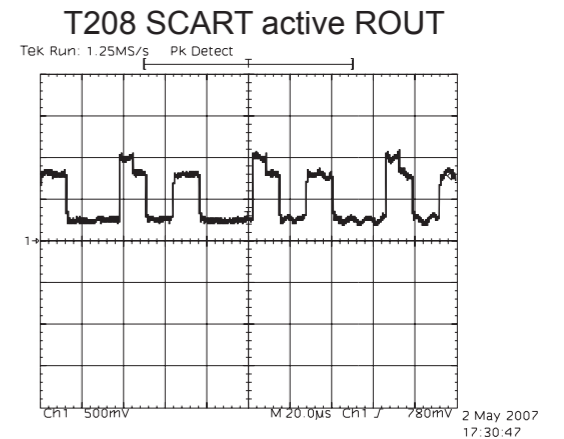
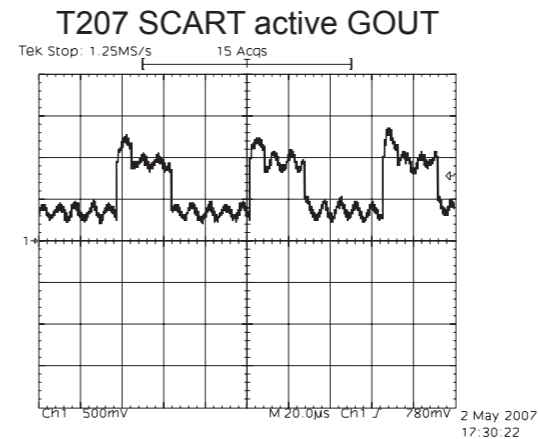
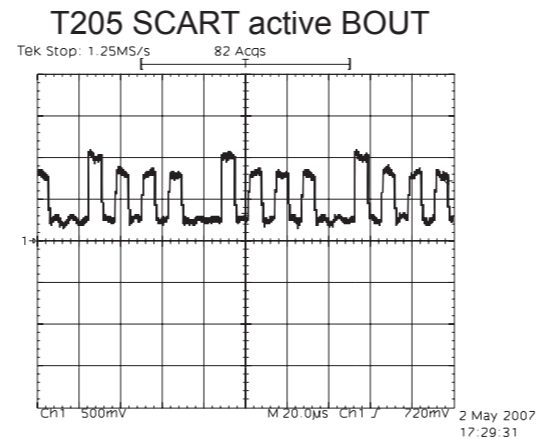
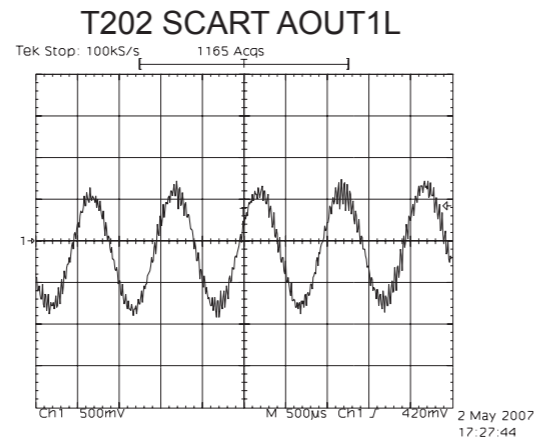
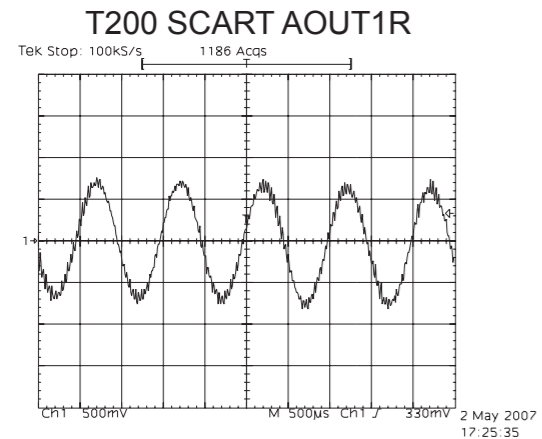
Layout: Analog Board Testpoint Overview



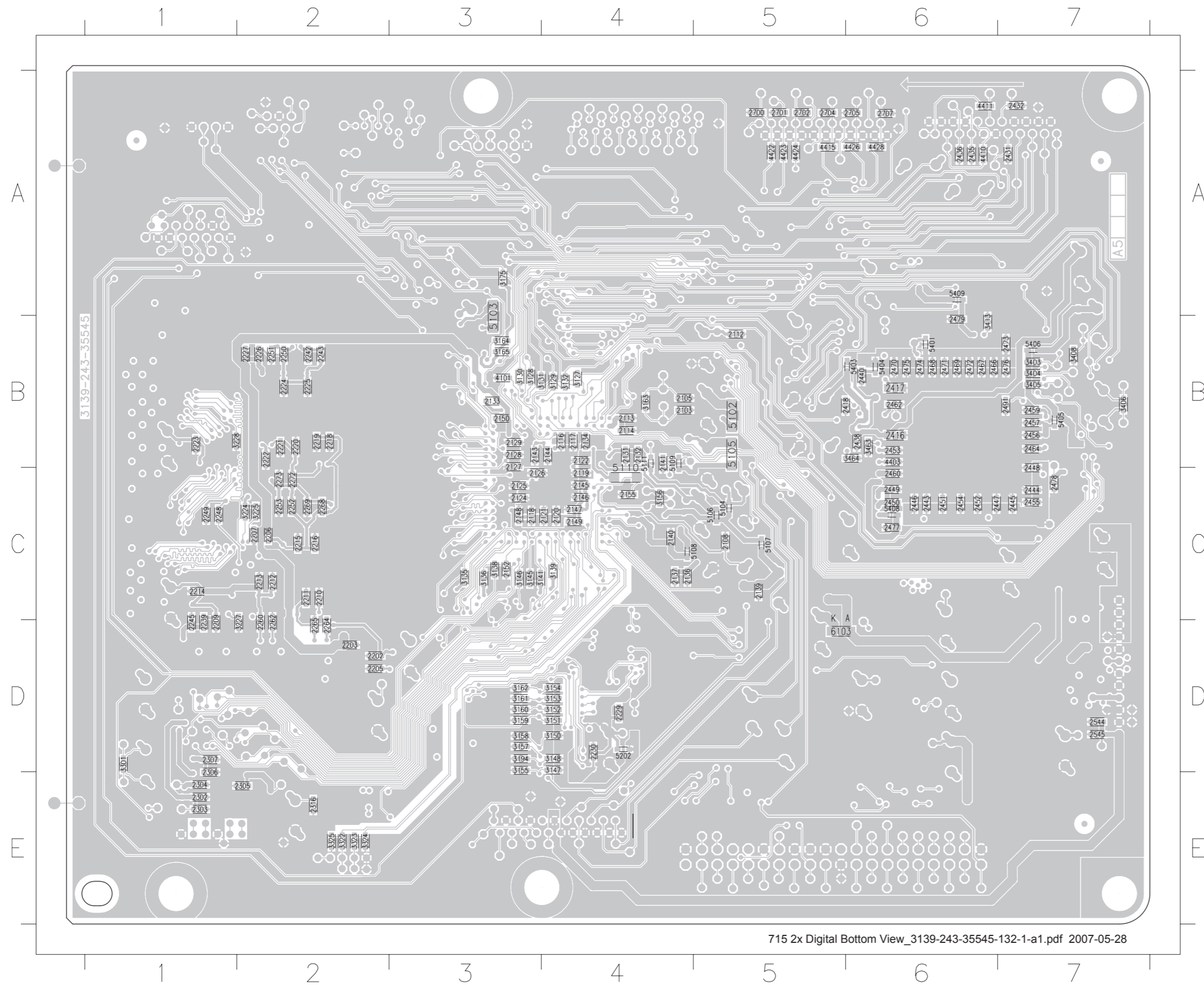
Layout: Analog (Top View)



Analogue Board Waveforms

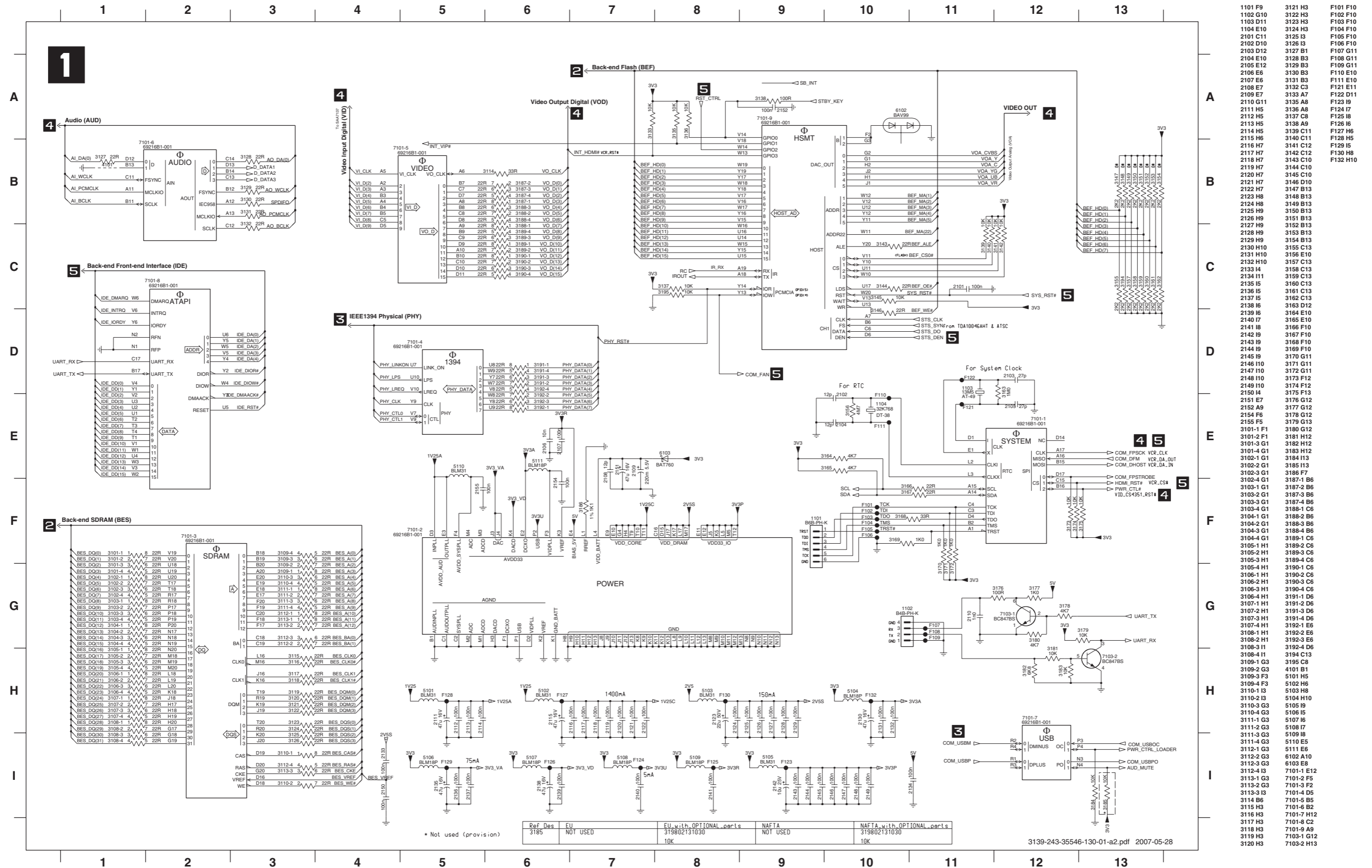


Layout: Digital (Bottom View)



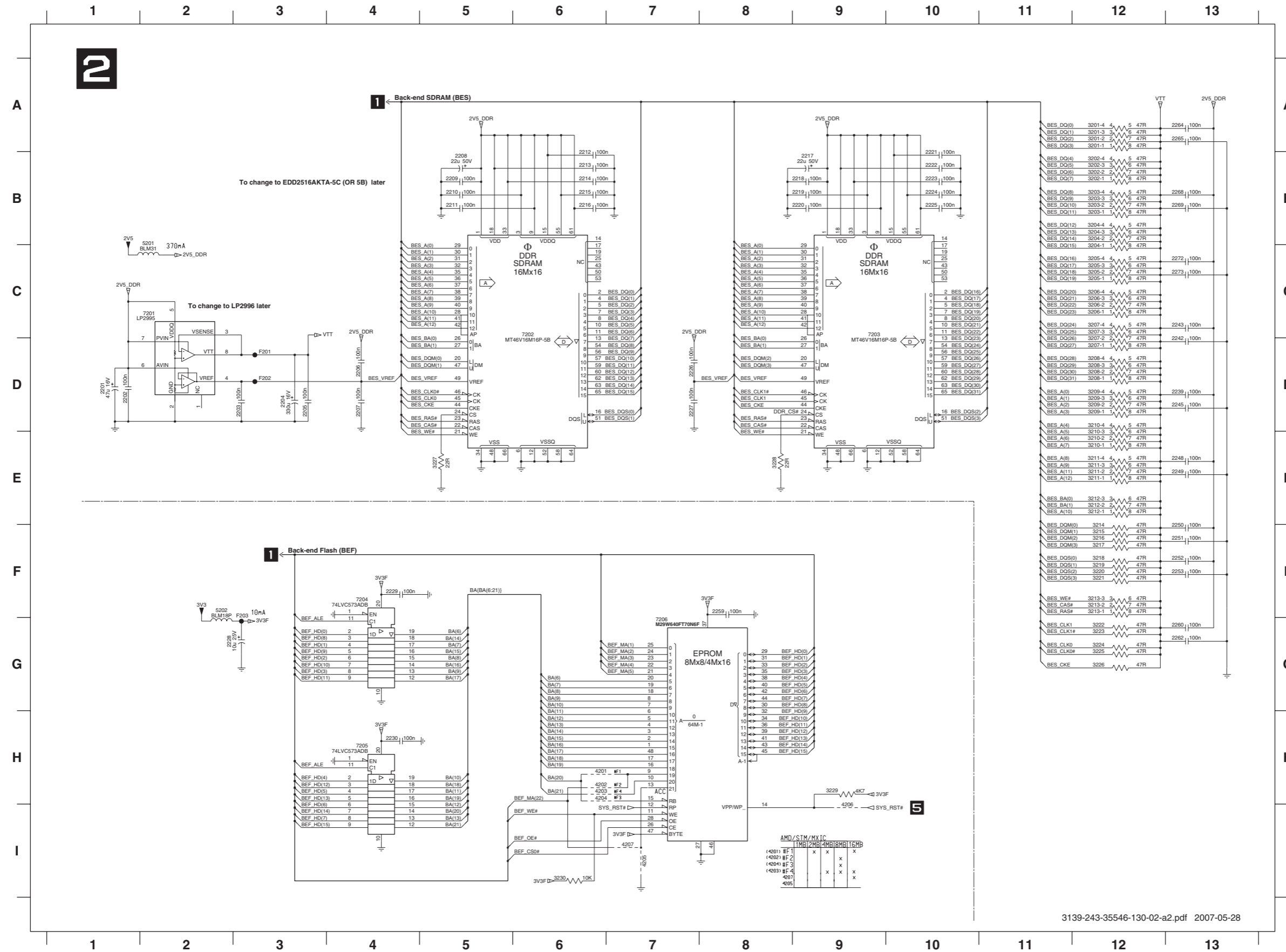
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2117	A6	2438	A6	3325	F2
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Digital: Back-end Processor



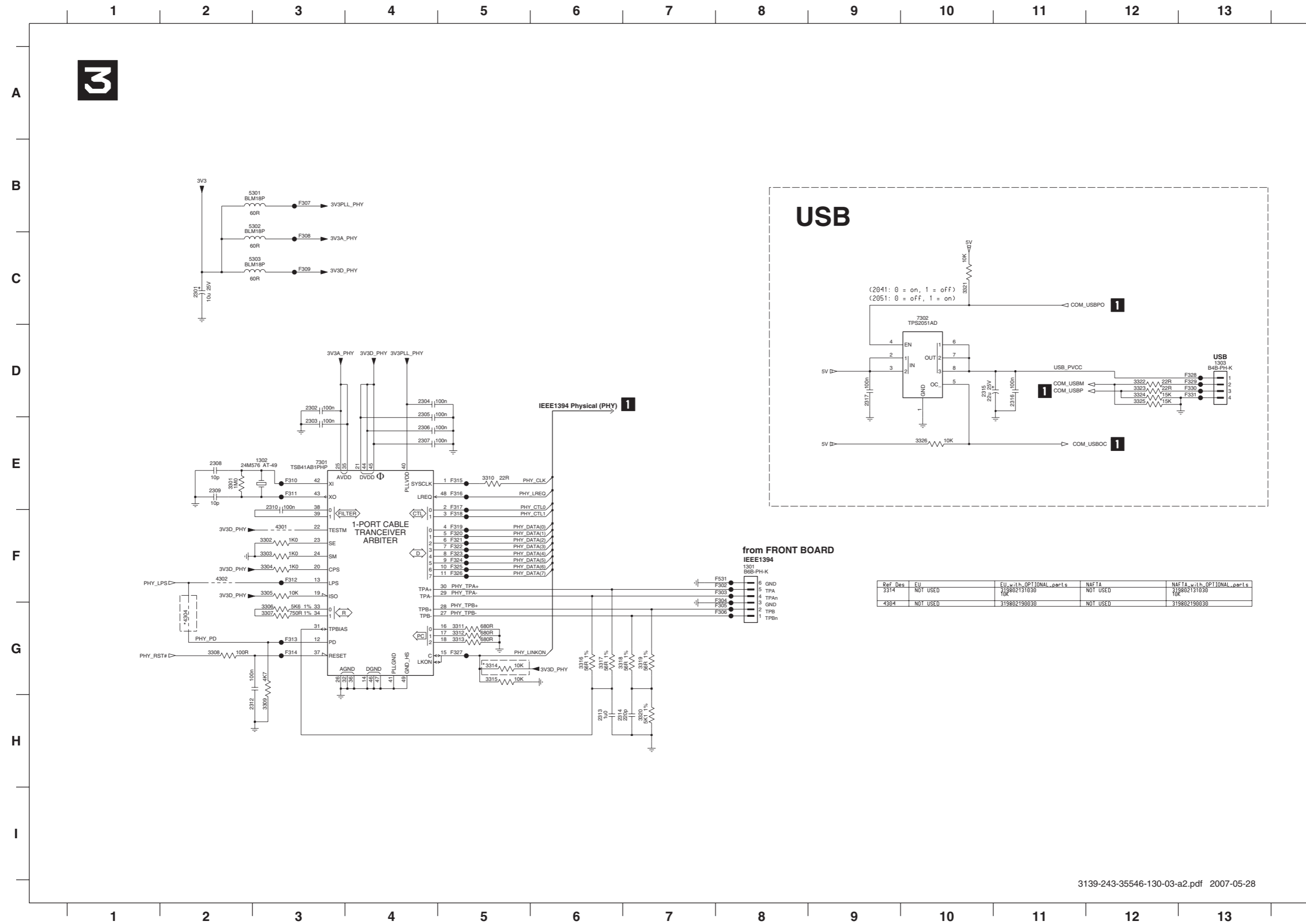
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- 2110 G11
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- 2131 H10
- 2132 H10
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- 2152 A9
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- 2155 F5
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- 3109-2 G3
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- 5130 H8
- 5131 H10

Digital: Memory



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- 2243 C13
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- 4203 H6
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- 4205 I7
- 4206 I9
- 4207 I7
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- 5202 F2
- 7201 C2
- 7202 C6
- 7203 C9
- 7204 F4
- 7205 H4
- 7206 G7
- F201 D3
- F202 D3
- F203 F3

Digital: IEEE 1394 Physical Layer & USB



- 1301 F8
- 1302 E3
- 1303 D13
- 2301 C2
- 2302 D3
- 2303 E3
- 2304 D4
- 2305 D4
- 2306 E4
- 2307 E4
- 2308 E2
- 2309 E2
- 2310 E3
- 2312 H3
- 2313 H6
- 2314 H6
- 2315 D10
- 2316 D11
- 2317 D9
- 3301 E2
- 3302 F3
- 3303 F3
- 3304 F3
- 3305 F3
- 3306 G3
- 3307 G3
- 3308 G2
- 3309 H3
- 3310 E5
- 3311 G5
- 3312 G5
- 3313 G5
- 3314 G5
- 3315 G5
- 3316 G6
- 3317 G6
- 3318 G6
- 3319 G7
- 3320 H7
- 3321 C10
- 3322 D12
- 3323 D12
- 3324 D12
- 3325 D12
- 3326 E10
- 4301 F3
- 4302 F2
- 4304 G2
- 5301 B3
- 5302 B3
- 5303 C3
- 7301 E3
- 7302 C10
- F302 F8
- F303 F8
- F304 F8
- F305 G8
- F306 G8
- F307 B3
- F308 C3
- F309 C3
- F310 E3
- F311 E3
- F312 F3
- F313 G3
- F314 G3
- F315 E5
- F316 E5
- F317 E5
- F318 F5
- F319 F5
- F320 F5
- F321 F5
- F322 F5
- F323 F5
- F324 F5
- F325 F5
- F326 F5
- F327 G5
- F328 D13
- F329 D13
- F330 D13
- F331 D13
- F531 F8

Digital: Video Input Processor

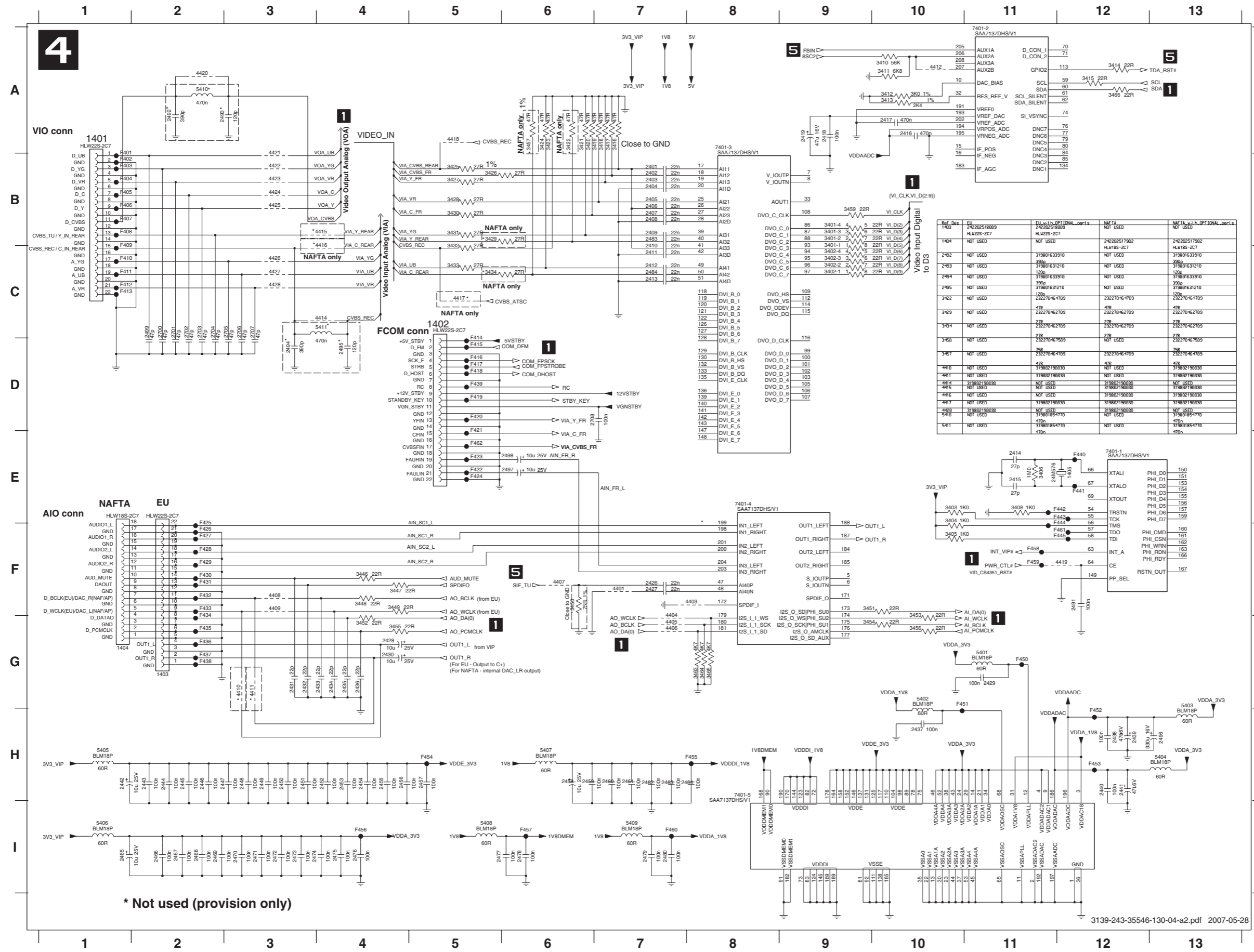
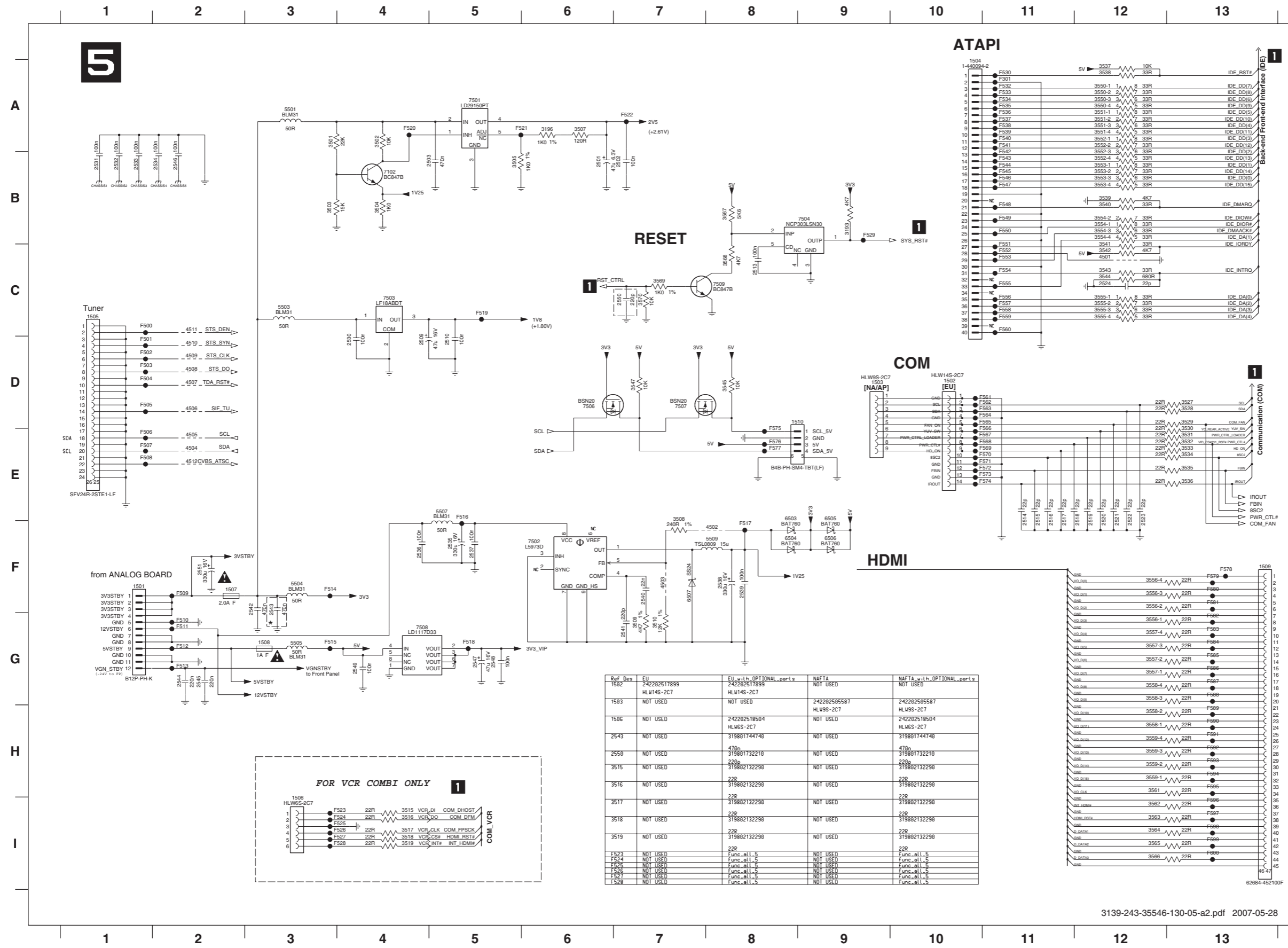


Table of component values and footprints, including part numbers like 1401 A1, 1402 C5, 1403 G2, etc., and their corresponding locations on the board.

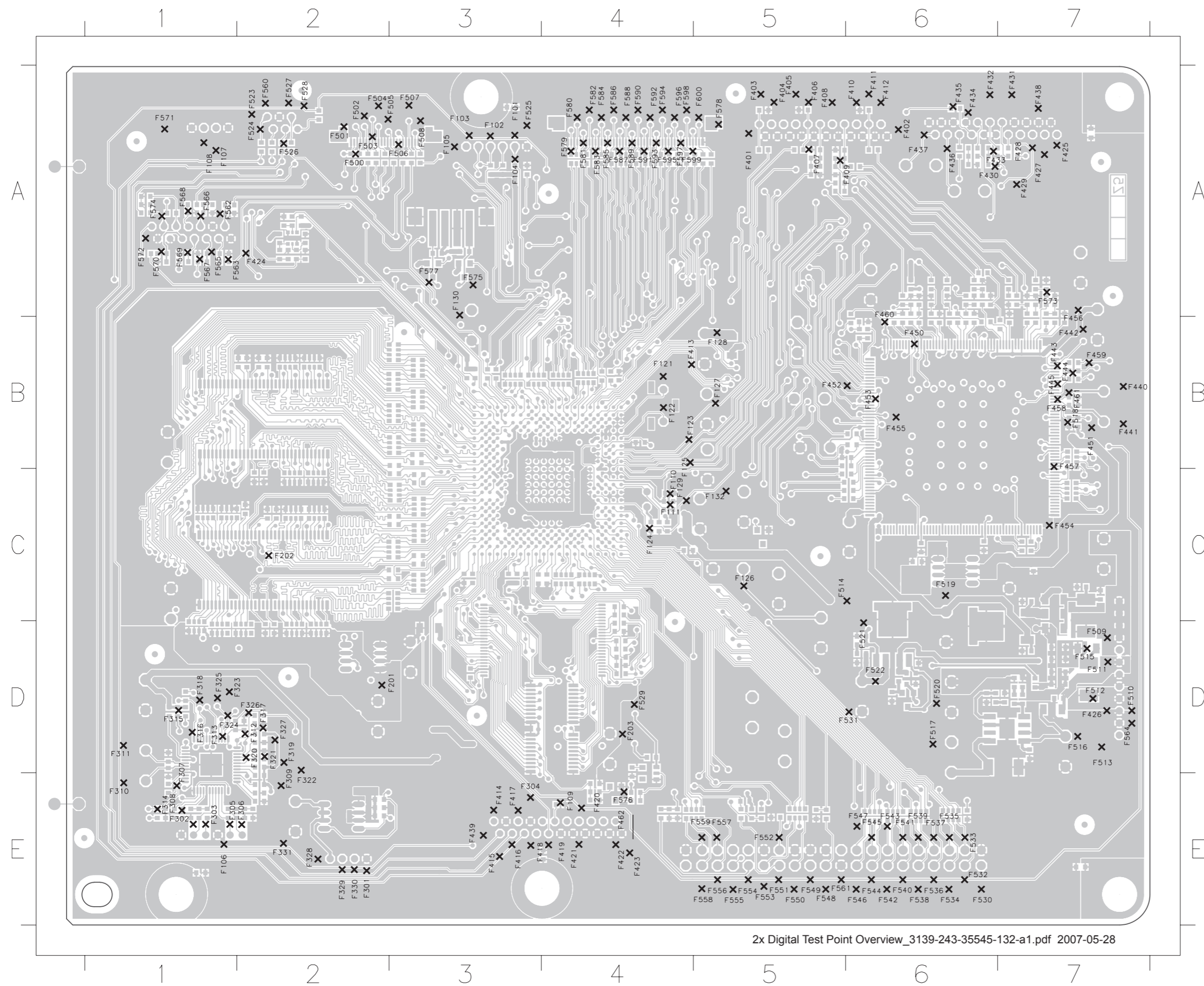
* Not used (provision only)

Digital: Power Supply & Interfaces



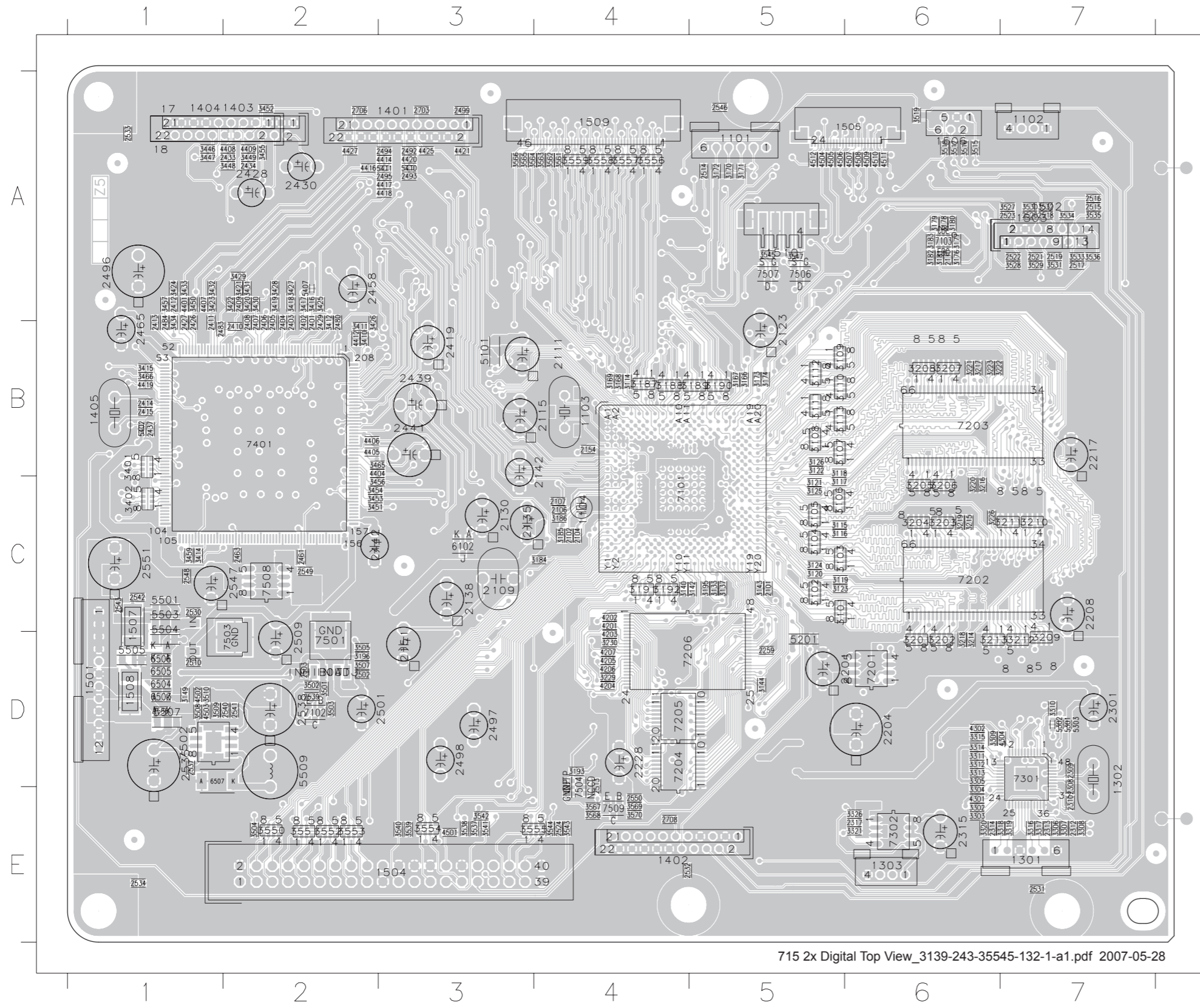
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1502	NOT USED	242202517899	HLW14S-2C7	NOT USED	NOT USED
1503	NOT USED	NOT USED	HLW9S-2C7	242202505587	HLW9S-2C7
1506	NOT USED	242202518504	HLW6S-2C7	242202518504	HLW6S-2C7
2543	NOT USED	319801744746	NOT USED	NOT USED	319801744746
2550	NOT USED	470n	319801732210	NOT USED	470n
3515	NOT USED	220	319802132290	NOT USED	220
3516	NOT USED	220	319802132290	NOT USED	220
3517	NOT USED	220	319802132290	NOT USED	220
3518	NOT USED	220	319802132290	NOT USED	220
3519	NOT USED	220	319802132290	NOT USED	220
F523	NOT USED	Func.all.5	NOT USED	NOT USED	Func.all.5
F524	NOT USED	Func.all.5	NOT USED	NOT USED	Func.all.5
F525	NOT USED	Func.all.5	NOT USED	NOT USED	Func.all.5
F526	NOT USED	Func.all.5	NOT USED	NOT USED	Func.all.5
F527	NOT USED	Func.all.5	NOT USED	NOT USED	Func.all.5
F528	NOT USED	Func.all.5	NOT USED	NOT USED	Func.all.5
1501 F1	3557-4 G12	F565 D10			
1502 D10	3558-1 H12	F566 E10			
1503 D9	3558-2 H12	F567 E10			
1504 A10	3558-3 G12	F568 E10			
1505 C1	3558-4 G12	F569 E10			
1506 I3	3559-1 H12	F570 E10			
1507 F2	3559-2 H12	F571 E10			
1508 G3	3559-3 H12	F572 E10			
1509 F13	3559-4 H12	F573 E10			
1510 D8	3561 H12	F574 E10			
2501 B6	3562 H12	F575 E8			
2502 B7	3563 H12	F576 E8			
2503 B4	3564 H12	F577 E8			
2509 D4	3565 H12	F578 F13			
2510 D5	3566 H12	F579 F13			
2513 C8	3567 B8	F580 F13			
2514 E11	3568 C8	F581 F13			
2515 E11	3569 C7	F582 G13			
2516 E11	3570 C7	F583 G13			
2517 E11	4501 C12	F584 G13			
2518 E12	4502 F8	F585 G13			
2519 E12	4503 F7	F586 G13			
2520 E12	4504 E2	F587 G13			
2521 E12	4505 E2	F588 G13			
2522 E12	4506 D2	F589 H13			
2523 E12	4507 D2	F590 H13			
2524 C12	4508 D2	F591 H13			
2530 D4	4509 D2	F592 H13			
2531 B1	4510 D2	F593 H13			
2532 B1	4511 C2	F594 H13			
2533 B1	4512 E2	F595 H13			
2534 B2	5501 A3	F596 H13			
2535 F5	5503 C3	F597 H13			
2536 F4	5504 F3	F598 H13			
2537 F5	5505 G3	F599 H13			
2538 F8	5507 E5	F600 H13			
2539 F8	5509 F8				
2542 F3	6503 E8				
2543 F3	6506 F9				
2544 G2	6507 F7				
2545 G2	7102 B4				
2546 B2	7501 A5				
2547 G5	7502 F6				
2548 G5	7503 C4				
2549 G4	7504 B9				
2550 C7	7506 D6				
2551 F2	7507 D7				
3193 B9	7508 G4				
3196 A6	7509 C8				
3501 A3	F301 A11				
3502 A4	F500 C1				
3503 B3	F501 D1				
3504 B4	F502 D1				
3505 B5	F503 D1				
3507 A6	F504 D1				
3508 F7	F505 D1				
3509 G7	F506 E1				
3510 G7	F507 E1				
3515 I4	F508 E1				
3516 I4	F509 F2				
3517 I4	F510 G2				
3518 I4	F511 G2				
3519 I4	F512 G2				
3527 D13	F513 G2				
3528 D13	F514 F3				
3529 D13	F515 G3				
3530 E13	F516 E5				
3531 E13	F517 F8				
3532 E13	F518 G6				
3533 E13	F519 C5				
3534 E13	F520 A4				
3535 E13	F521 A6				
3536 E13	F522 A7				
3537 A12	F523 I3				
3538 A12	F524 I3				
3539 B12	F525 I3				
3540 B12	F526 I3				
3541 C12	F527 I3				
3542 C12	F528 I3				
3543 C12	F529 B9				
3544 C12	F530 A11				
3545 D8	F532 A11				
3547 D7	F533 A11				
3550-1 A12	F534 A11				
3550-2 A12	F535 A11				
3550-3 A12	F536 A11				
3550-4 A12	F537 A11				
3551-1 A12	F538 A11				
3551-2 A12	F539 A11				
3551-3 A12	F540 A11				
3551-4 A12	F541 A11				
3552-1 A12	F542 B11				
3552-2 A12	F543 B11				
3552-3 B12	F544 B11				
3552-4 B12	F545 B11				
3553-1 B12	F546 B11				
3553-2 B12	F547 B11				
3553-3 B12	F548 B11				
3553-4 B12	F549 B11				
3554-1 B12	F550 B11				
3554-2 B12	F551 C11				
3554-3 B12	F552 C11				
3554-4 B12	F553 C11				
3555-1 C12	F554 C11				
3555-2 C12	F555 C11				
3555-3 C12	F556 C11				
3555-4 C12	F557 C11				
3556-1 G12	F558 C11				
3556-2 F12	F559 C11				
3556-3 F12	F560 C11				
3556-4 F12	F561 D10				
3557-1 G12	F562 D10				
3557-2 G12	F563 D10				
3557-3 G12	F564 D10				

Layout: Digital Board Testpoint Overview



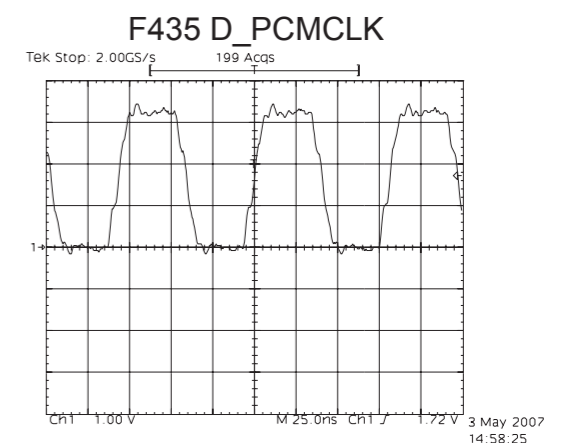
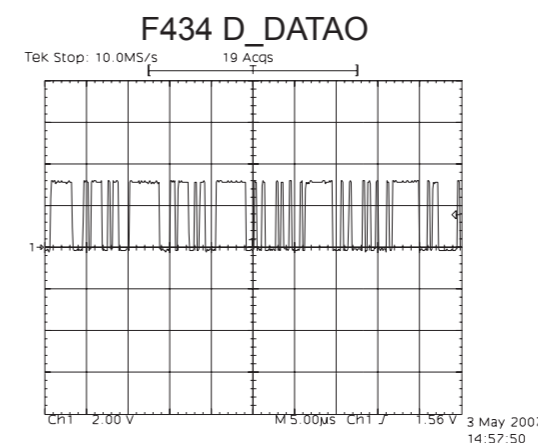
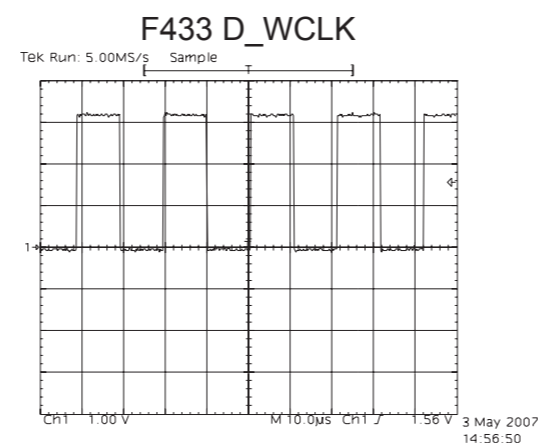
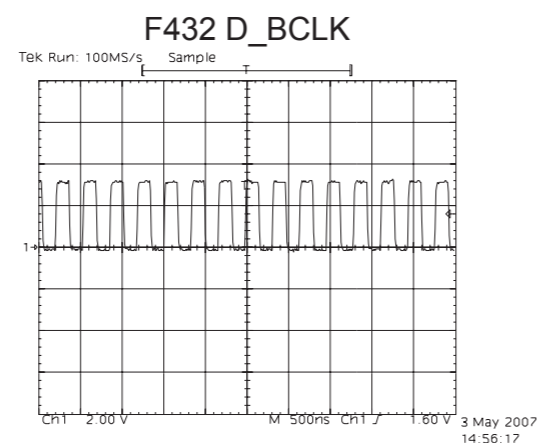
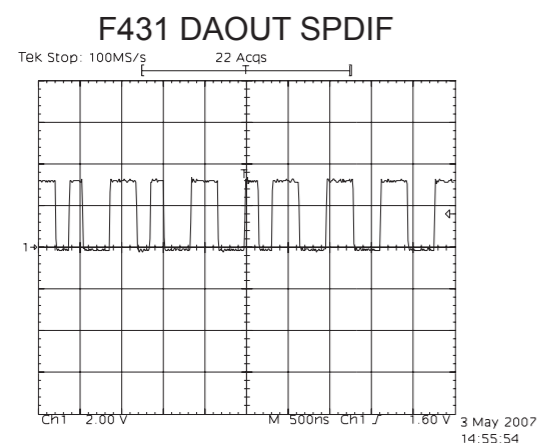
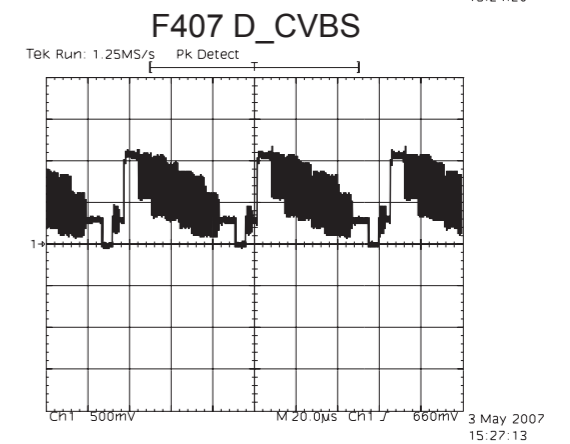
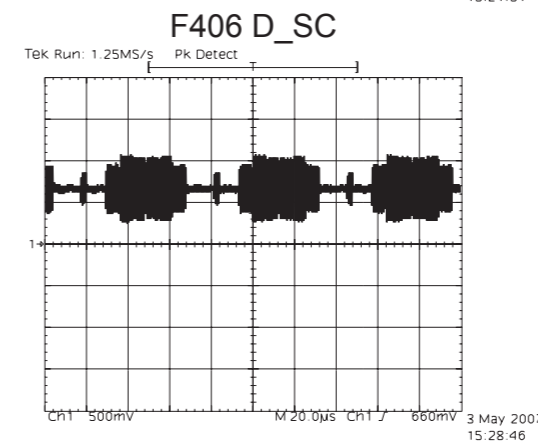
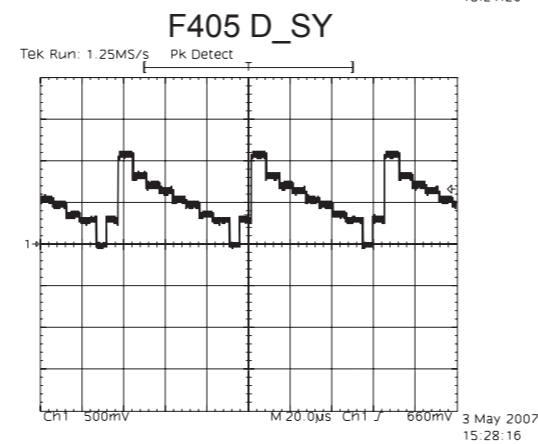
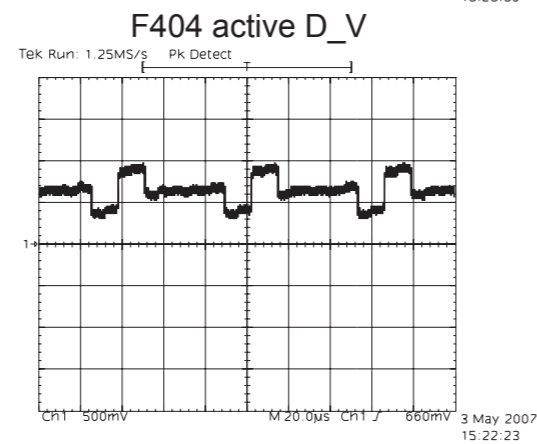
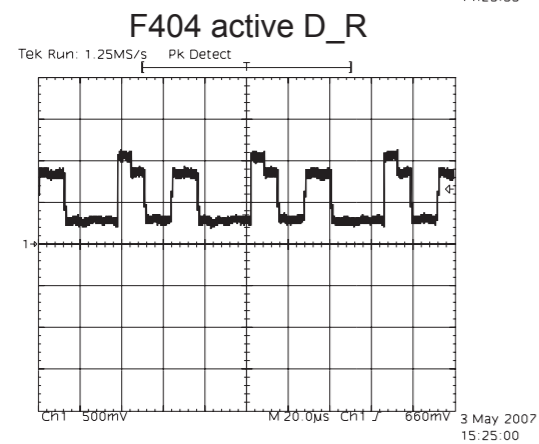
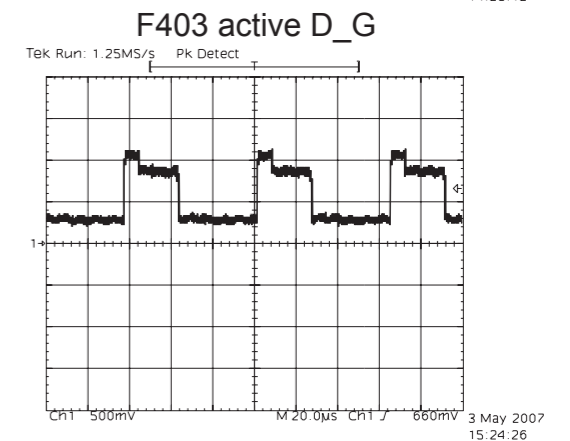
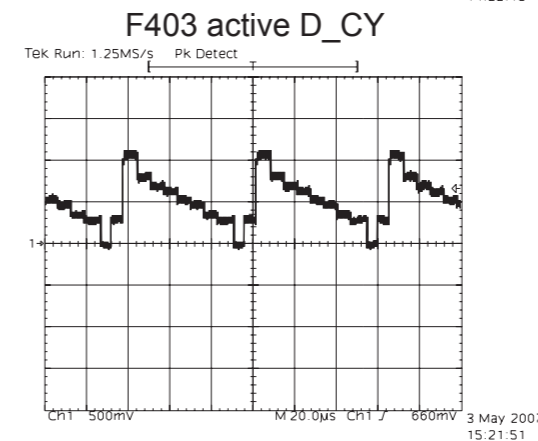
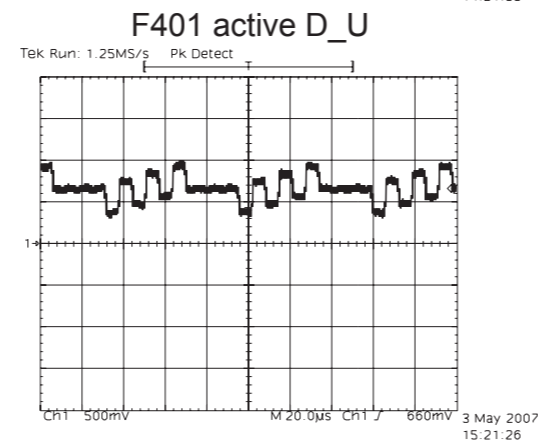
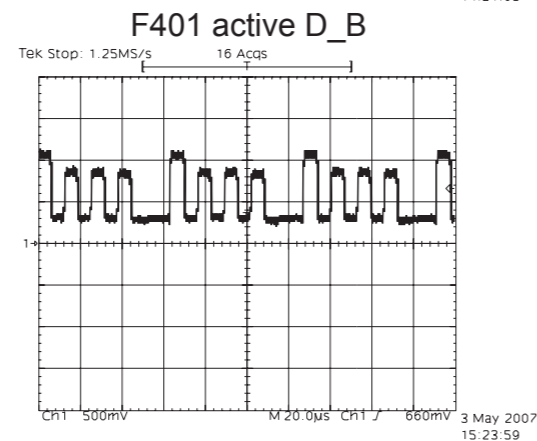
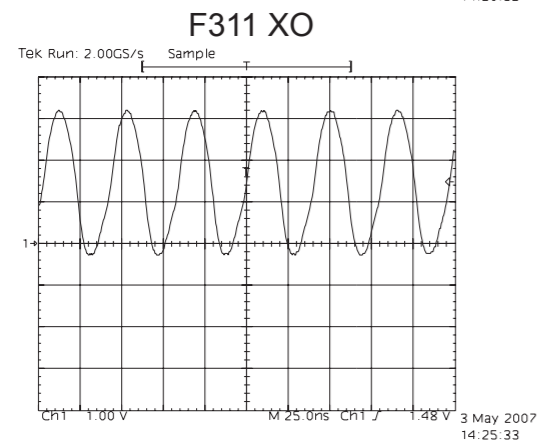
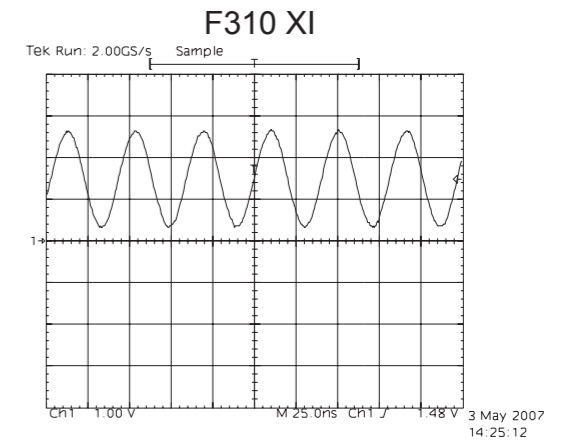
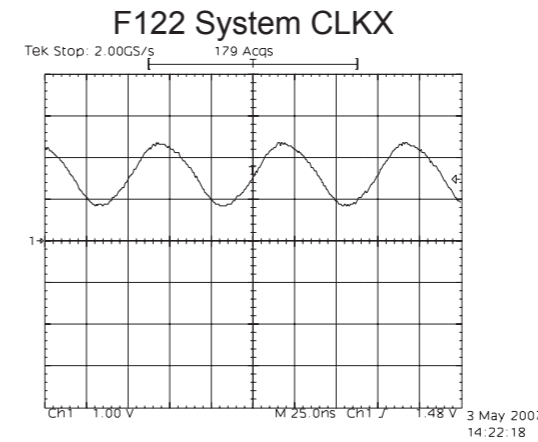
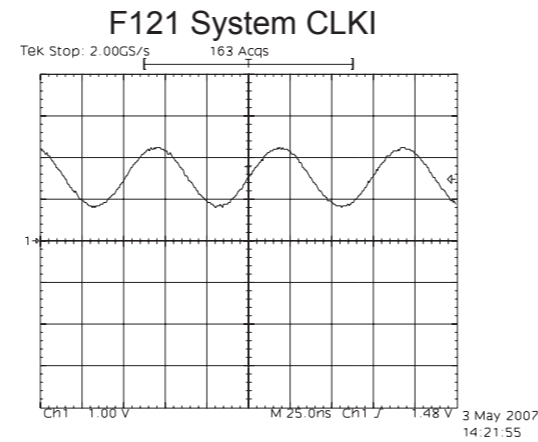
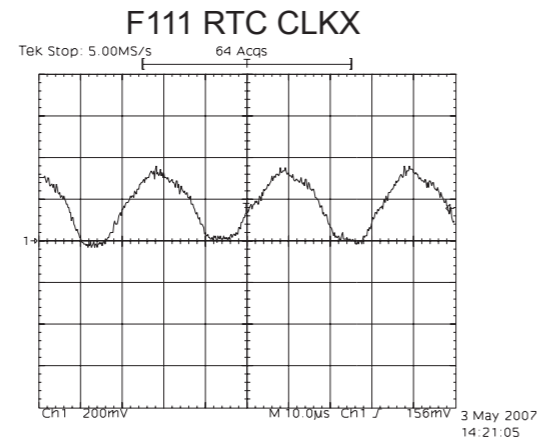
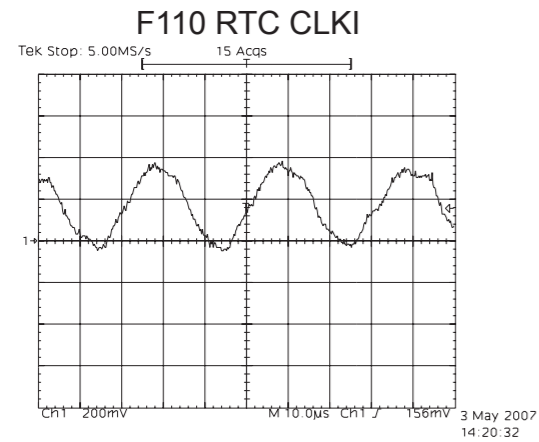
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F103	A3	F433	A6	F511	A3
F104	A3	F434	A6	F512	A4
F105	A3	F435	A6	F513	A4
F106	E1	F436	A6	F514	A4
F107	A1	F437	A7	F515	A4
F108	A1	F438	A7	F516	A4
F109	E4	F439	E3	F517	A4
F110	C4	F440	B7	F518	A4
F111	C4	F441	B7	F519	A4
F112	B4	F442	B7	F520	A4
F113	B4	F443	B7	F521	A4
F114	B4	F444	B7	F522	A4
F115	C4	F445	B7	F523	A4
F116	B4	F446	B6	F524	A4
F117	C4	F447	B6	F525	A4
F118	B4	F448	B6	F526	A4
F119	C4	F449	B6	F527	A4
F120	C4	F450	B6	F528	A4
F121	C4	F451	B6	F529	A4
F122	B4	F452	B6	F530	A4
F123	B4	F453	B6	F531	A4
F124	C4	F454	B6	F532	A4
F125	B4	F455	B6	F533	A4
F126	B4	F456	B6	F534	A4
F127	B4	F457	B6	F535	A4
F128	B4	F458	B6	F536	A4
F129	C4	F459	B6	F537	A4
F130	C4	F460	B6	F538	A4
F131	A3	F461	B6	F539	A4
F132	C4	F462	B6	F540	A4
F133	C4	F463	B6	F541	A4
F134	C4	F464	B6	F542	A4
F135	C4	F465	B6	F543	A4
F136	C4	F466	B6	F544	A4
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F138	C4	F468	B6	F546	A4
F139	C4	F469	B6	F547	A4
F140	C4	F470	B6	F548	A4
F141	C4	F471	B6	F549	A4
F142	C4	F472	B6	F550	A4
F143	C4	F473	B6	F551	A4
F144	C4	F474	B6	F552	A4
F145	C4	F475	B6	F553	A4
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F147	C4	F477	B6	F555	A4
F148	C4	F478	B6	F556	A4
F149	C4	F479	B6	F557	A4
F150	C4	F480	B6	F558	A4
F151	C4	F481	B6	F559	A4
F152	C4	F482	B6	F560	A4
F153	C4	F483	B6	F561	A4
F154	C4	F484	B6	F562	A4
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F157	C4	F487	B6	F565	A4
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F165	C4	F495	B6	F573	A4
F166	C4	F496	B6	F574	A4
F167	C4	F497	B6	F575	A4
F168	C4	F498	B6	F576	A4
F169	C4	F499	B6	F577	A4
F170	C4	F500	B6	F578	A4

Layout: Digital (Top View)



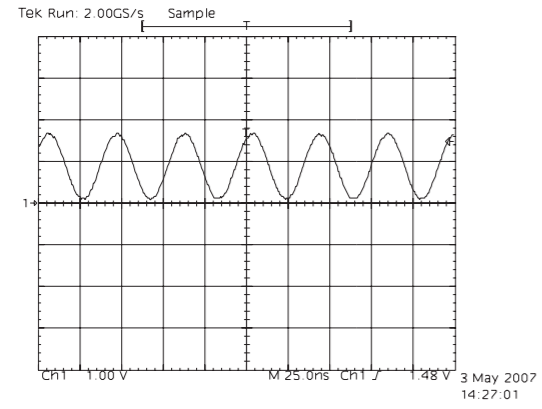
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3	18	3446	4408	4409	4427	2494	2492	4425	4421	558	559	4612	4504	4506	4507	3528	3529	3531	3533	3536
4	22	3447	2433	3446	4414	4414	4420			559	560	4612	4504	4506	4507	3528	3529	3531	3533	3536
5		3448	2434	3447	4415	4415	4421			561	562	4613	4505	4508	4510					
6		2428			4417	2495				563	564	4614	4506	4509	4511					
7					4418	2496				565	566	4615	4507	4510	4512					
A										567	568	4616	4508	4511	4513					
B										569	570	4617	4509	4512	4514					
C										571	572	4618	4510	4513	4515					
D										573	574	4619	4511	4514	4516					
E										575	576	4620	4512	4515	4517					

Digital Board Waveforms

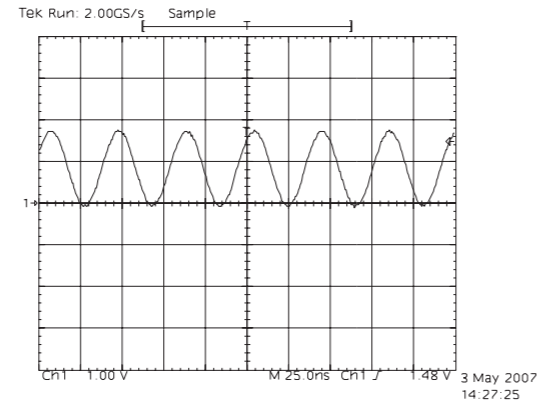


Digital Board Waveforms

F440 VIP XTALI



F441 VIP XTALO



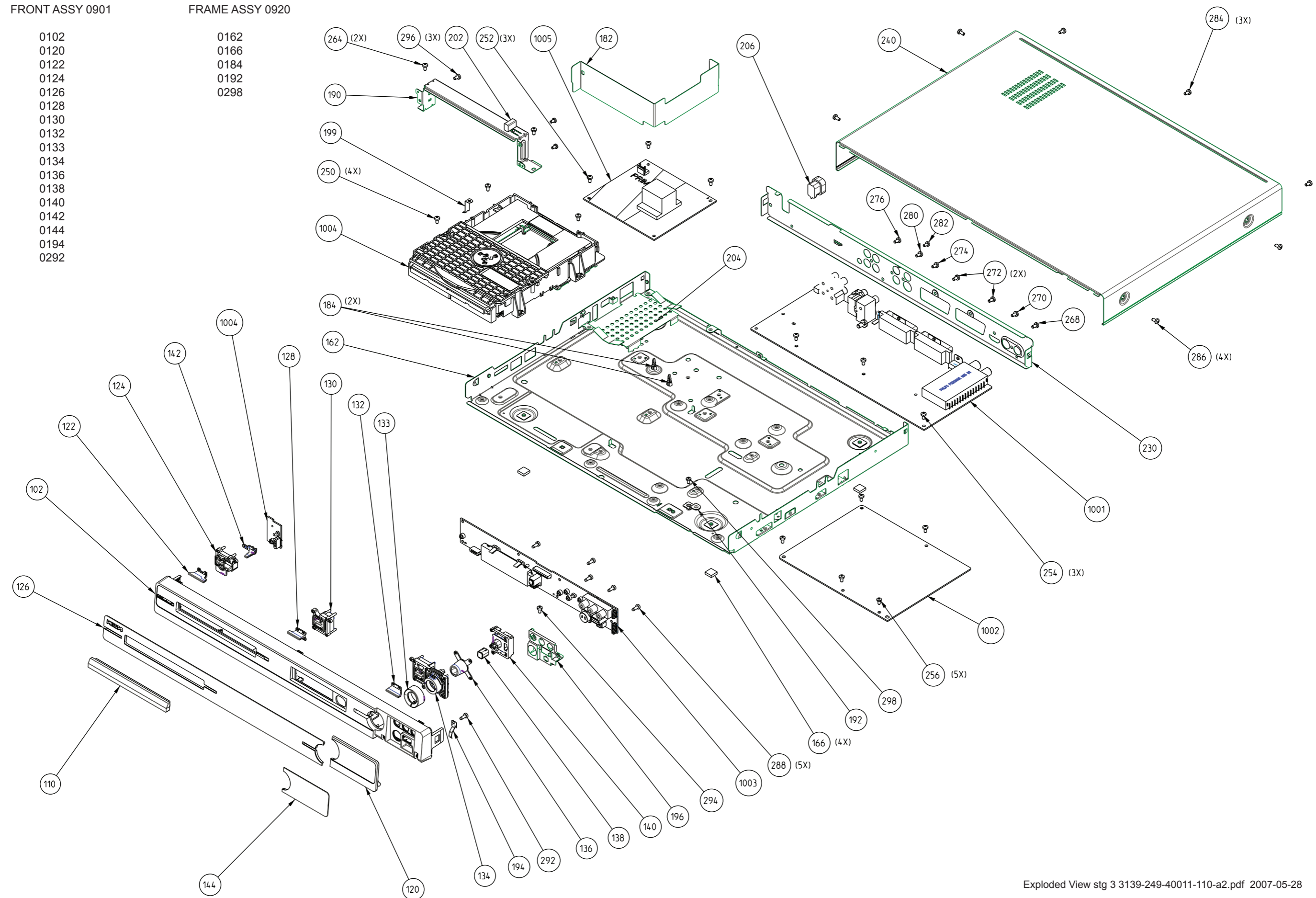
Exploded View of the Set

FRONT ASSY 0901

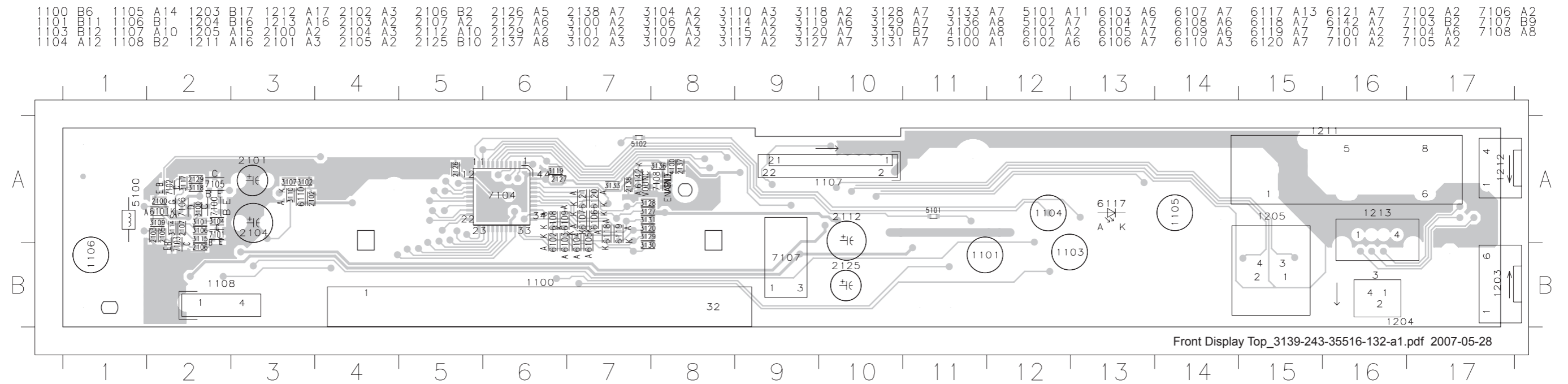
FRAME ASSY 0920

- 0102
- 0120
- 0122
- 0124
- 0126
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- 0138
- 0140
- 0142
- 0144
- 0194
- 0292

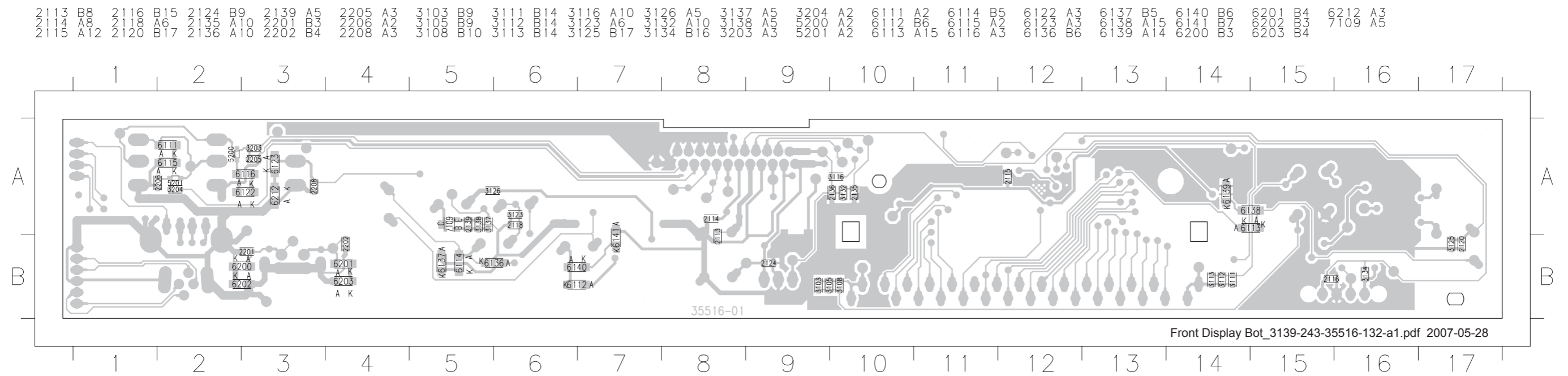
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- 0166
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- 0298



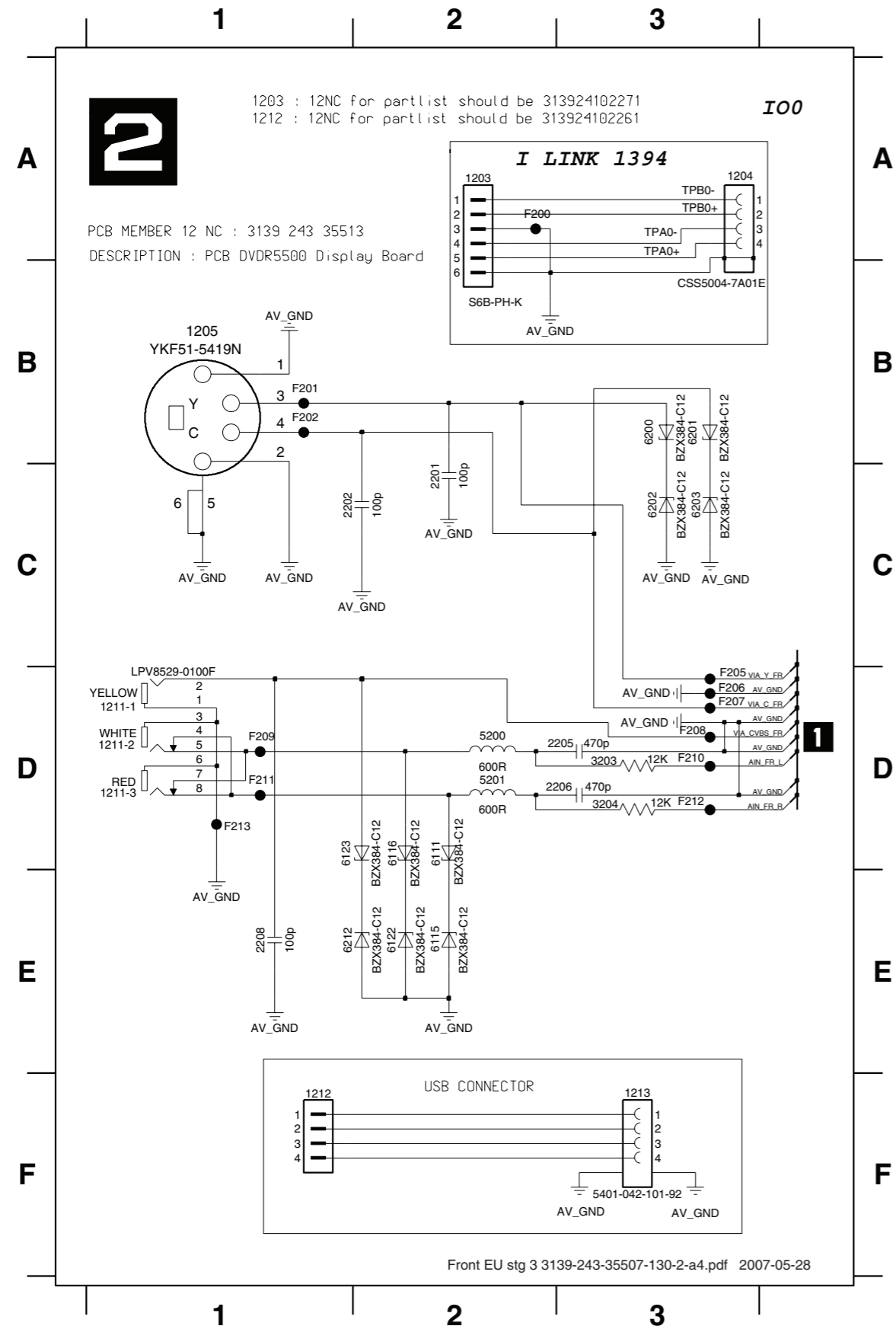
Layout: Front Board (Top View)



Layout: Front Board (Bottom View)

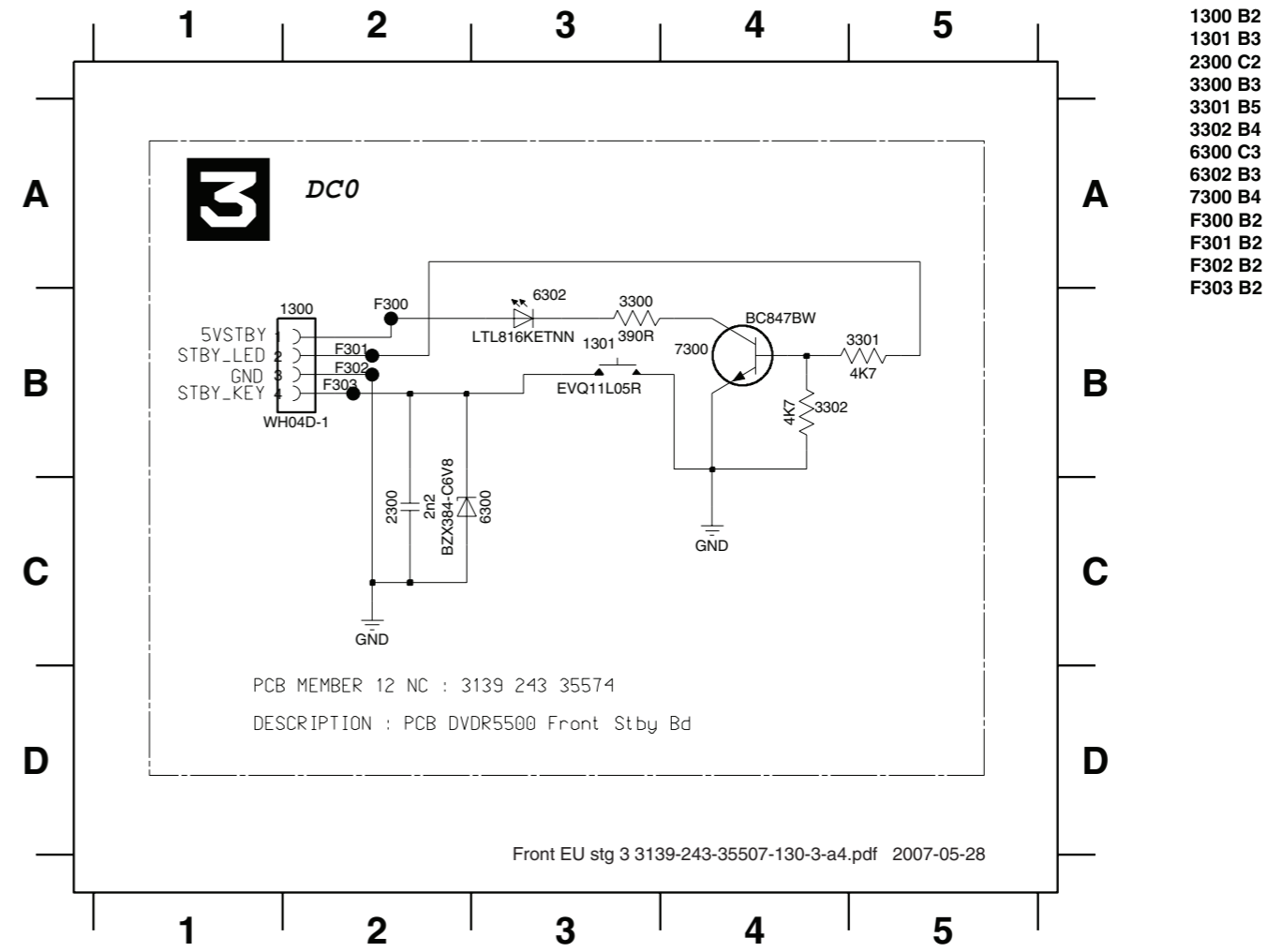


Front: Front Connector (FC)



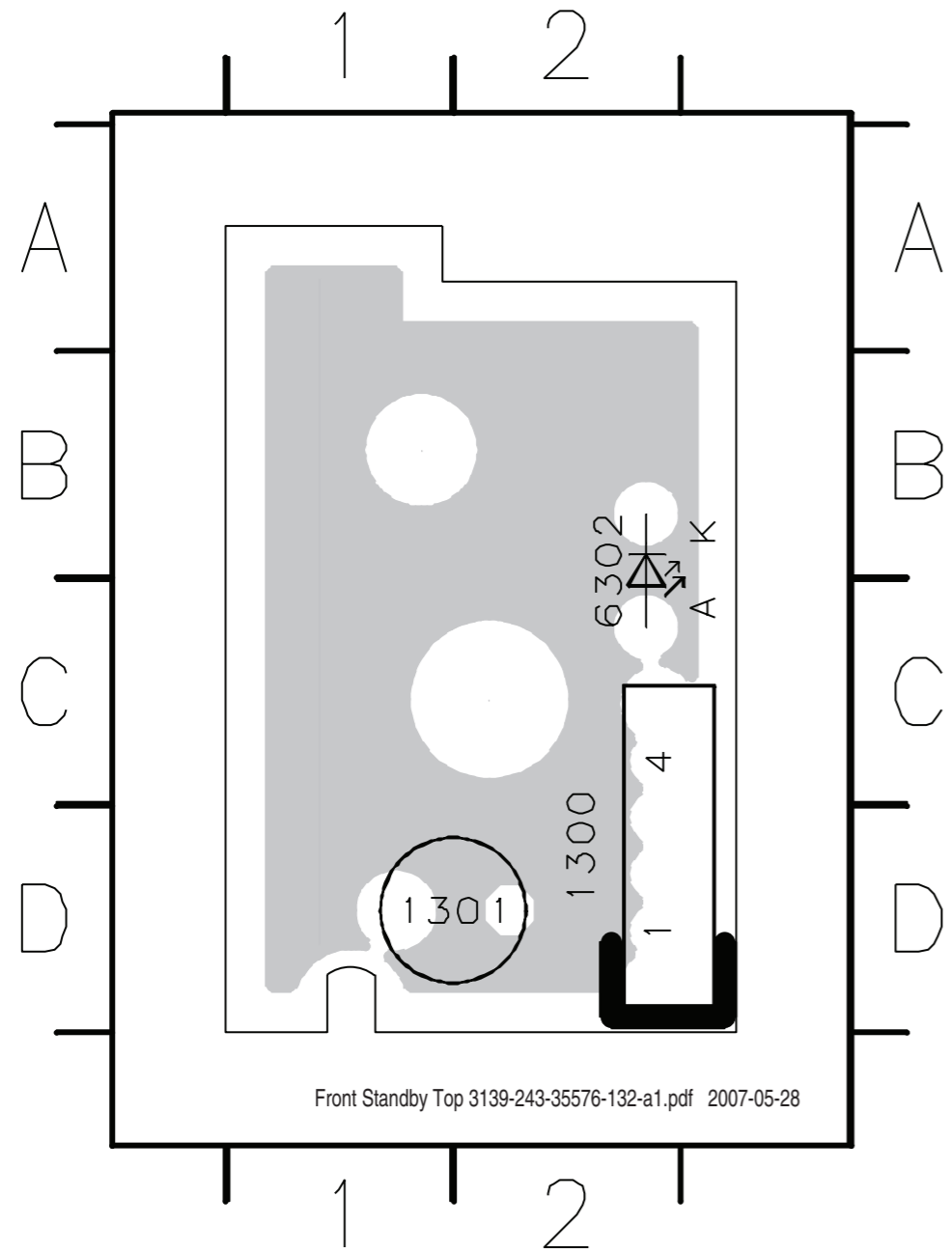
- 1203 A2
- 1204 A3
- 1205 B1
- 1211-1 D1
- 1211-2 D1
- 1211-3 D1
- 1212 F1
- 1213 F3
- 2201 C2
- 2202 C1
- 2205 D3
- 2206 D3
- 2208 E1
- 3203 D3
- 3204 D3
- 5200 D2
- 5201 D2
- 6111 D2
- 6115 E2
- 6116 D2
- 6122 E2
- 6123 D1
- 6200 B3
- 6201 B3
- 6202 C3
- 6203 C3
- 6212 E1
- F200 A2
- F201 B1
- F202 B1
- F205 D3
- F206 D3
- F207 D3
- F208 D3
- F209 D1
- F210 D3
- F211 D1
- F212 D3
- F213 D1

Front: Standby (STBY)



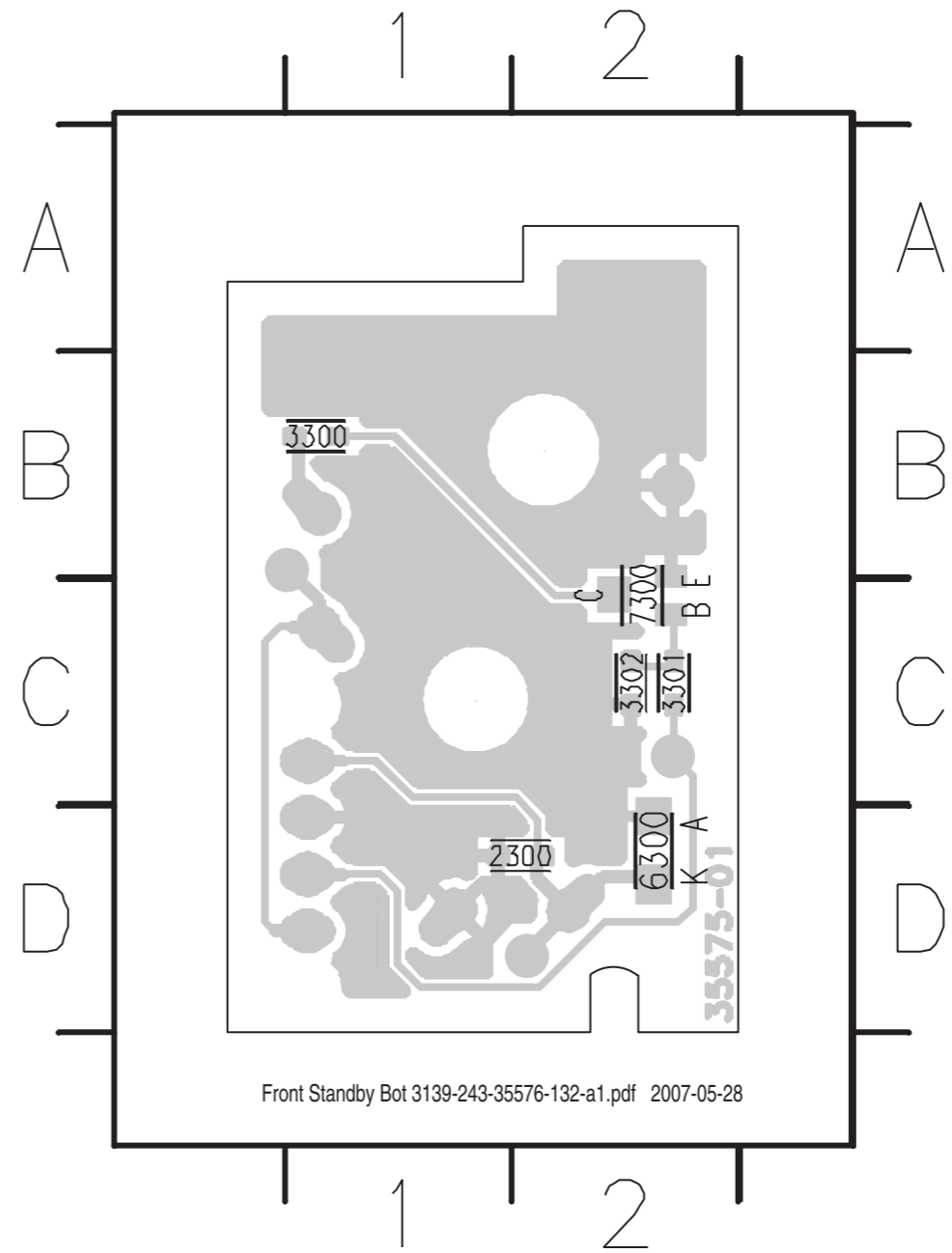
- 1300 B2
- 1301 B3
- 2300 C2
- 3300 B3
- 3301 B5
- 3302 B4
- 6300 C3
- 6302 B3
- 7300 B4
- F300 B2
- F301 B2
- F302 B2
- F303 B2

Layout: Front Standby Board (Top View)



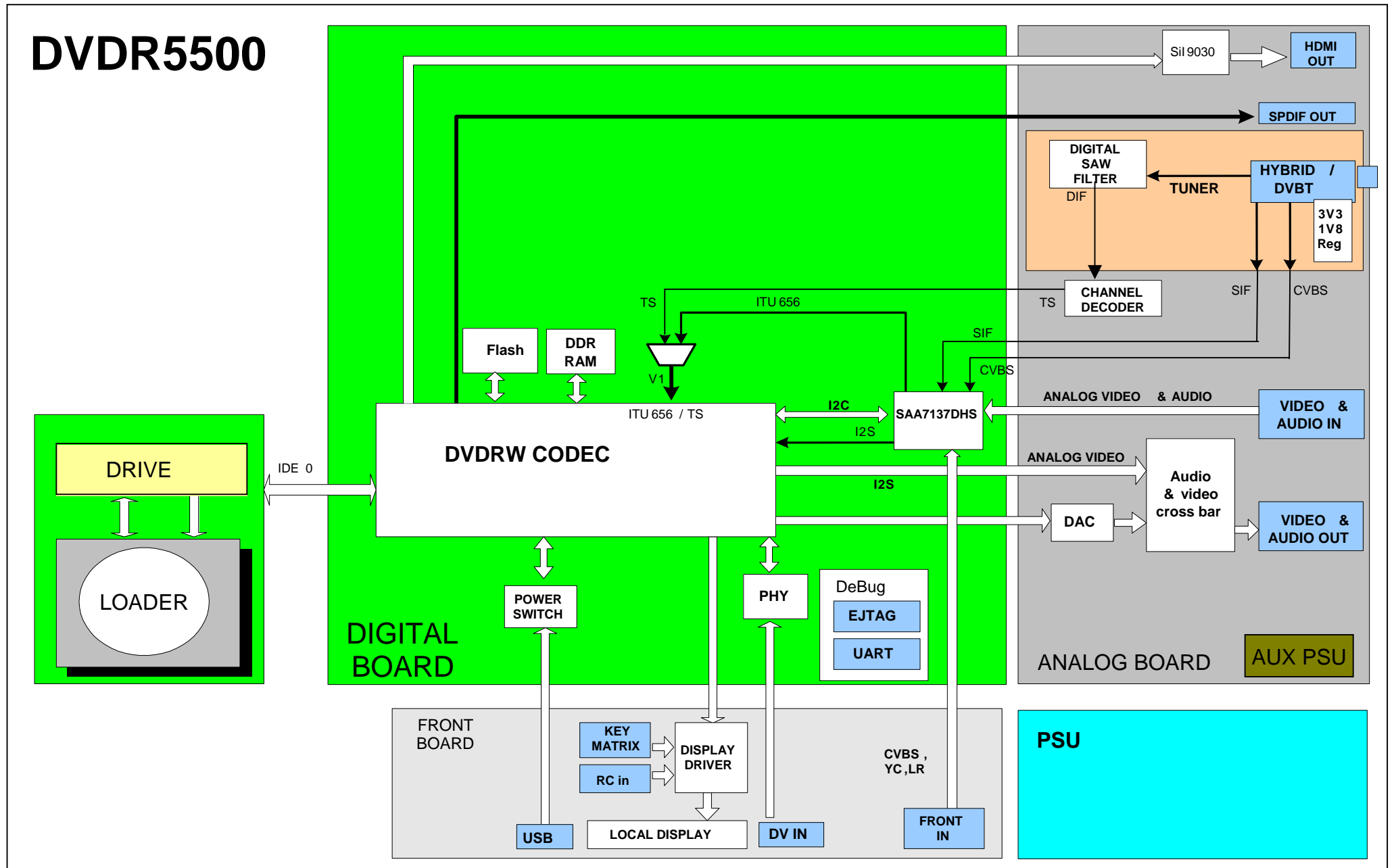
1300	D2
1301	D1
6302	B2

Layout: Front Standby Board (Bottom View)



2300	D2
3300	B1
3301	C2
3302	C2
6300	D2
7300	C2

DVDR5500 HW Architecture



3 Enjoy

Start recording

A Recording from TV or a connected external device

- 1 Insert a recordable DVD disc in the tray.

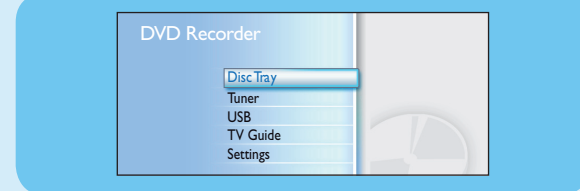


- 2 Press **LIVE TV** or **CAM** to select the source to record from.
 - To record a TV programme, use **P + / -** to scroll through the channels, or press **0 - 9** to select the channel that you want to record.
- 3 Press **REC** to start recording, press **REC** again to automatically record 30 minutes. Each subsequent press increases the recording time by 30 minutes.
- 4 To end recording, press **STOP**. 'UPDATING MENU' will be displayed on the recorder.
- 5 To playback the recording, press **DISC**, select the title and press **▶||**.

Start playback

A Playback from disc

- 1 Press **OPEN/CLOSE** to open the disc tray. Load a disc and close the disc tray.

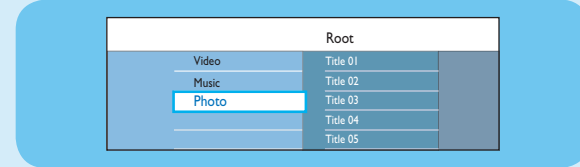


(TV Guide is not available in some countries).

- 2 Press **HOME** and select { **Disc Tray** }.
- 3 Press **OK** to confirm.
- 4 Use **◀▶▲▼** keys to reach the title/file you want to play and press **▶||** to start playback.

B Playback from USB device

- 1 Insert the USB device to the USB port.
- 2 Press **USB** to show the contents list.



- 3 Select the contents type and press **▶ right**.
- 4 Select a data file (MP3, WMA, DivX and JPEG) and press **▶||** to start playback.

Select a record mode

Selecting an appropriate recording mode is important as it determines the picture quality and recording time.

- 1 Before recording, press **HOME** on the remote control.
- 2 Select { **Settings** } in the menu and press **OK**.
- 3 Move to { **Recording** } and press **▶ right**.
- 4 Move to { **Record Mode** } and press **▶ right**.
- 5 Select a record mode and press **OK** to confirm.

Record Mode	Hours of recording that can be stored on an empty DVD recordable disc.	
	DVD±R/ DVD±RW	DVD+R Double Layer
HQ (high quality)	1	1 hr 55 mins
SP (standard play)	2	3 hrs 40 mins
SPP (standard play plus)	2.5	4 hrs 35 mins
LP (long play)	3	5 hrs 30 mins
EP (extended play)	4	7 hrs 20 mins
SLP (super long play)	6	11 hrs 5 mins
SEP (super extended play)	8	14 hrs 45 mins

User Manual

See the user manual that came with your Philips recorder.

Online

Go to www.philips.com/welcome.



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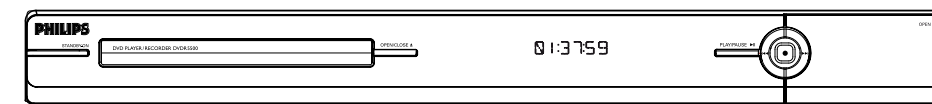
12 NC 3139 245 2571 | www.philips.com

Quick Start Guide

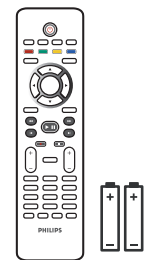


- 1 Connect
- 2 Set up
- 3 Enjoy

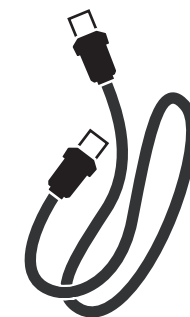
What's in the box?



DVD Recorder/ Player



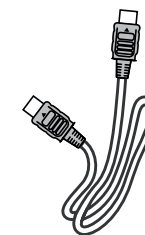
Remote Control and 2 batteries



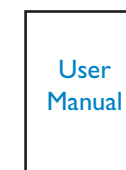
RF antenna cable (connect between recorder and TV)



Scart cable



HDMI cable



User Manual

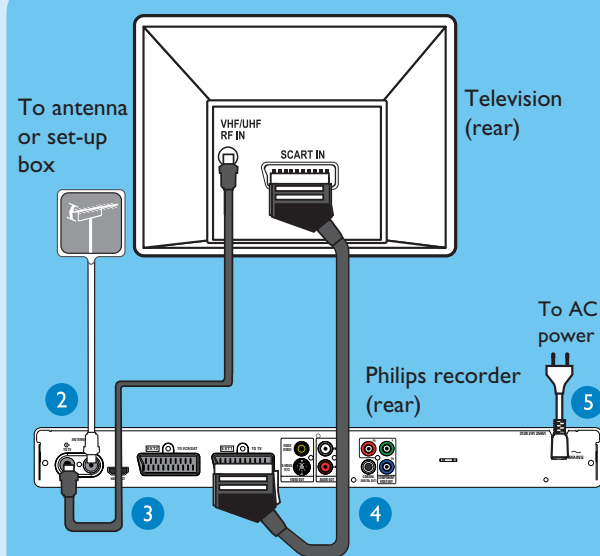


1 Connect

Before connecting

Select the most suitable connection (A or B) based on your home set up. Refer to the accompanying User Manual for other possible connections.

A Connecting Recorder and TV with antenna only

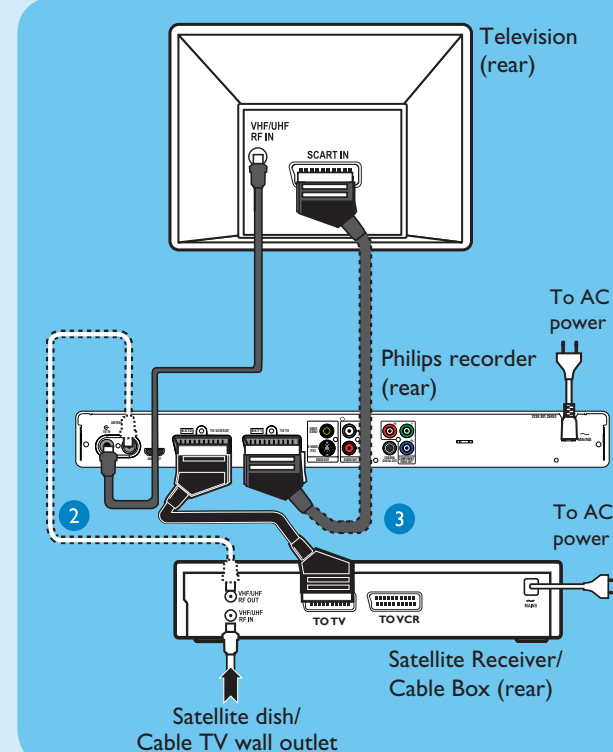


- 1 Unplug the antenna cable that is currently connected to your TV.
- 2 Connect the antenna cable to the **ANTENNA-IN** socket on the recorder.
- 3 Use the supplied RF antenna cable to connect the **ANTENNA TO-TV** socket on this recorder to the Antenna In socket on the TV.
- 4 Use the SCART cable to connect the **EXT1 TO TV-I/O** socket on this recorder to the corresponding SCART input socket on the TV.

Note If you have a HDMI TV, connect the supplied HDMI cable from the recorder to your HDMI TV set. See the chapter "Step I: Basic Recorder Connections – Connecting the video cable" in the accompanying user manual.

- 5 Connect the power cable from the recorder to an AC power outlet.

B Connecting Recorder, TV and Satellite Receiver/Cable Box



- 1 Follow steps 3-5 of connection A before you proceed to step 2 below.
- 2 Use an antenna cable to connect the Antenna Output (RF OUT) socket on the Cable Box to the **ANTENNA-IN** socket on this recorder. (optional)
- 3 Use another SCART cable (not supplied) to connect the **EXT2 TO VCR/SAT** scart socket on this recorder to the SCART OUT (TO TV) socket on your Satellite Receiver/Cable Box.

Note The antenna connection can be different depending on the Satellite Receiver/Cable Box. Refer to its user manual for proper antenna connection.

- 3 Use another SCART cable (not supplied) to connect the **EXT2 TO VCR/SAT** scart socket on this recorder to the SCART OUT (TO TV) socket on your Satellite Receiver/Cable Box.

For additional connection diagrams, see the accompanying User Manual.

2 Set up

A Finding the viewing channel

- 1 Switch on the TV set. The installation menu is displayed.



- 2 In case you don't see the recorder's setting menu, press the Channel Down button on the TV's remote control repeatedly (or AV, SELECT, ⏮ button) until you see the menu. This is the correct viewing channel for the recorder.

Note To access the colour functions shown on the bottom of the menu, press the matching colour coded buttons on the remote control.

B Start initial installation

Use the recorder's remote control and follow the on-screen instructions to complete the installation.

Note Use the up ▲ or down ▼ keys to toggle through the options. To confirm a setting, press **OK** on the remote control. To return to the previous screen, press the **Red** button.

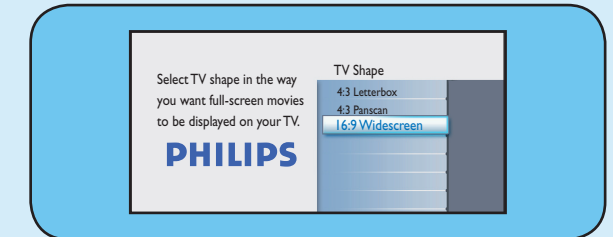
- 1 **Select the desired on-screen menu language.** Press **OK** to confirm.



- 2 **Select the country of your residence.** Press **OK** to confirm.

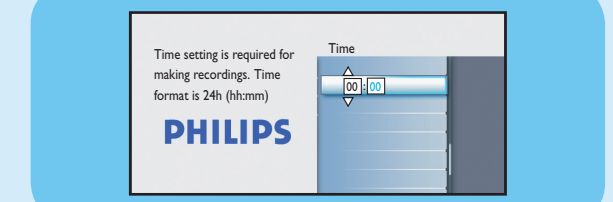


- 3 **Select the suitable TV shape.** Press **OK** button to confirm.



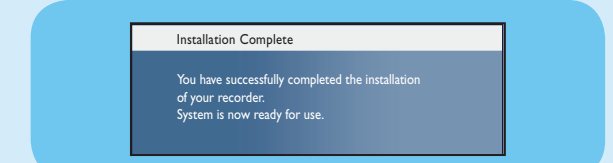
- 4 **Automatic channel search begins.** Once complete, the total number of stored channels screen appears. Press **OK** to continue.

- 5 **Set the time.** Use the **alphanumeric keypad 0-9** or **▲▼◀▶** keys to enter the correct time. Press **OK** to confirm and continue.



- 6 **Set the date.** Use the **alphanumeric keypad 0-9** or **▲▼◀▶** keys to enter the correct date. Press **OK** to confirm and continue.

- 7 **Installation is complete.**



Press **OK** to exit the menu.

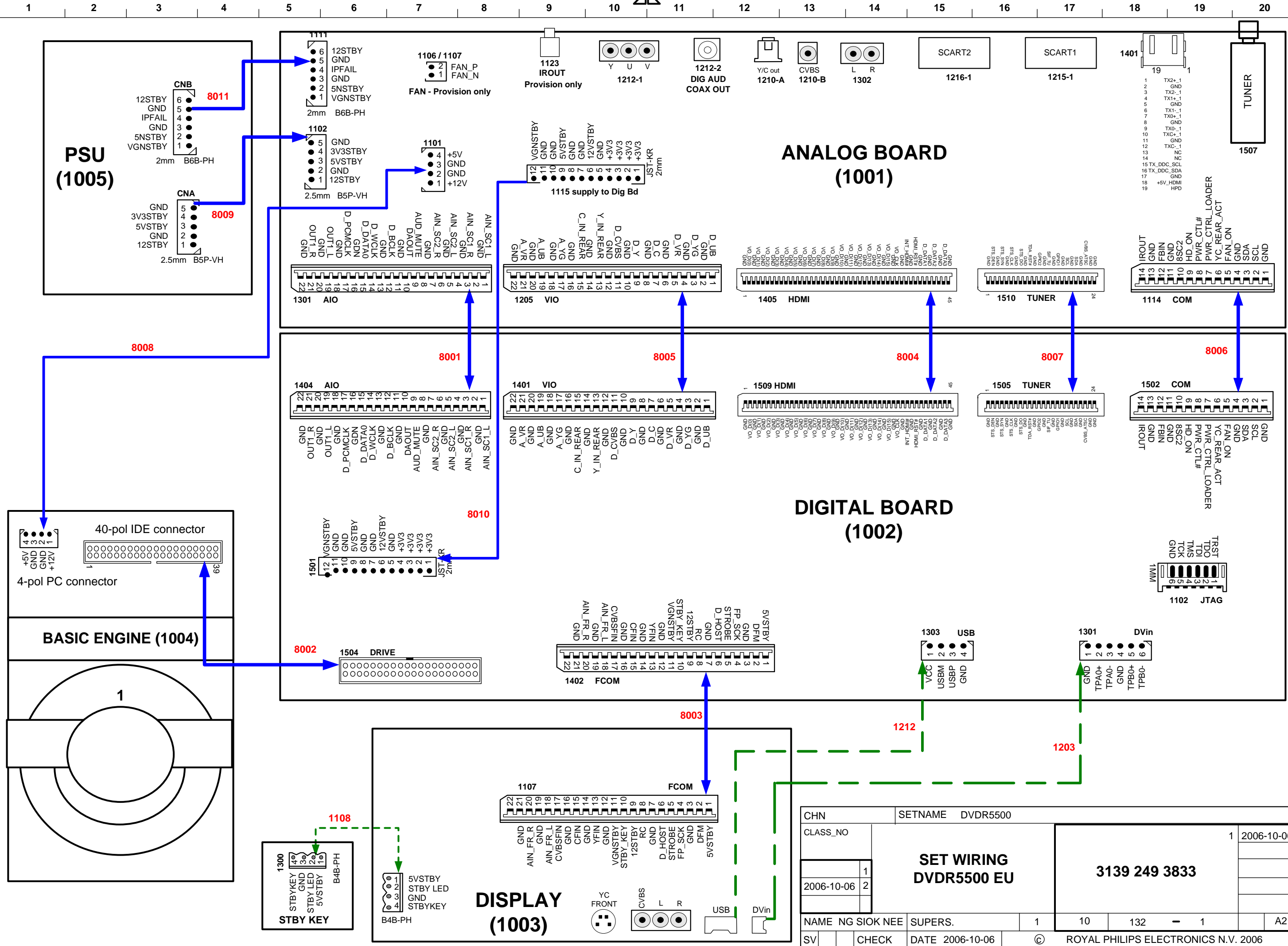
The recorder is now ready for use.

DVDR5500/05/31/58

110	313924414132	COVER TRAY DVDR5500	
182	313924320471	SHIELD THERMAL DVDR3380	
196	313924125761	SHIELD EMC AV DVDR5500	
199	313924100043	EMC SPRING	
204	313924320921	\$ SHIELD PSU DVDR5500	
206	313911426671	BUSH 450H259010	
230	313924125451	PLATE BACK DVDR5500	
240	313924124241	COVER TOP DVDR3400	
342	242254901436	REMOTE CONTR DVDR5500 EU V+ B	/05 only
342	242254901437	REMOTE CONTR DVDR5500 EU SV B	/31/58 only
345	242207098236	\$ MAINSCORD UK 5A 1M8 VH BK B	/05 only
345	242207098231	\$ MAINSCORD IEC 2A5 1M8 VH BK B	/31/58 only
351	242207600825	CBLE SCART 1M5 SCART 21P BK B	
353	242207600865	CBLE HDMI 19P 1M5 19P HDMI BKB	
487	242207600885	CBLE IEC-M 1M47 IEC-F BK B	
901	314302766472	FRONT ASSY DVDR5500/05	/05 only
901	314302766462	FRONT ASSY DVDR5500/31	/31/58 only
920	314302766502	FRAME ASSY DVDR5500	
1001	313924850451	PCBAS DVDR5500 ANALOG BOARD EU	
1002	313924850471	PCBAS DVDR5500 DIGITAL BOARD	
1003	313924850441	PCBAS DVDR5500 FRONT PANEL	
1004	313924800232	DRIVE D5.1 OPEN	
1005	313924713053	\$ PSU 06H85L 0558D0557 LIS	
8001	313913103011	FFC FOIL 22P/080/22P AD 1MMP	
8002	313924103731	CBLE IDE 40P/370/40P IDE UL EX	
8003	313911034821	FFC FOIL 22P/140 BD 1MMP FOLD	
8004	313924103251	FFC FOIL 45P/180 BD 0.5MM FOLD	
8005	313924103571	FFC FOIL 22P/120 BD 1MMP FOLD	
8006	313924103271	FFC FOIL 14P/140 BD 1MMP FOLD	
8007	313924103231	FFC FOIL 24P/140 AD 0.5MM FOLD	
8008	313924103211	CBLE EHR 04P/220/04P F6001 UL	
8009	313924102201	CBLE VH 5P/080/5P VH 20ST BK	
8010	313911028301	CBLE PH 12P/220/12P PH 26ST BK	
8011	313911027861	CBLE PH 06P/080/06P PH 26ST BK	

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PHILIPS



CHN	SETNAME	DVDR5500
CLASS_NO	1 2006-10-06	
SET WIRING DVDR5500 EU		
3139 249 3833		
NAME	NG SIOK NEE	SUPERS.
SV	CHECK	DATE 2006-10-06
		© ROYAL PHILIPS ELECTRONICS N.V. 2006