

AVR 170/230

2x100W/2 channels 5.1 CHANNEL A/V RECEIVER



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ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor "chip" components.

The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge build-up or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical change sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES devices.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing.

Components identified with the IEC symbol  in the parts list are of special significance to safety. When replacing a component identified with , use only the replacement parts designated, or parts with the same ratings or resistance, wattage, or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

AVR 1700, AVR 170, AVR 170/230C

Audio/video receiver

Owner's Manual



harman/kardon
by HARMAN



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Introduction

Thank you for choosing this Harman Kardon® product!

For more than fifty years, the Harman Kardon mission has been to share a passion for music and entertainment, using leading-edge technology to achieve premium performance. Sidney Harman and Bernard Kardon invented the receiver, a single component designed to simplify home entertainment without compromising performance. Over the years, Harman Kardon products have become easier to use while offering more features and sounding better than ever.

The AVR 1700, AVR 170 and AVR 170/230C 5.1-channel digital audio/video receivers (AVRs) continue this tradition with some of the most advanced audio and video processing capabilities yet and a wealth of listening and viewing options.

To obtain the maximum enjoyment from your new AVR, please read this manual and refer back to it as you become more familiar with its features and their operation.

If you have any questions about this product, its installation or its operation, please contact your Harman Kardon retailer or custom installer, or visit our Web site at www.harmankardon.com.

Supplied Accessories

The following accessory items are supplied with your AVR. If any of these items are missing, please contact your Harman Kardon dealer, or Harman Kardon customer service at www.harmankardon.com.

- System remote control
- EzSet/EQ™ microphone
- AM loop antenna
- FM wire antenna
- Three AAA batteries
- AC power cord

IMPORTANT SAFETY INFORMATION

Verify Line Voltage Before Use

The AVR 1700 has been designed for use with 120-volt alternating current (AC). The AVR 170 and AVR 170/230C have been designed for use with 220 – 240-volt AC. Connection to a line voltage other than that for which your AVR is intended can create a safety and fire hazard, and may damage the unit. If you have any questions about the voltage requirements for your specific model or about the line voltage in your area, contact your selling dealer before plugging the unit into a wall outlet.

Do Not Use Extension Cords

To avoid safety hazards, use only the power cord supplied with your unit. We do not recommend that extension cords be used with this product. As with all electrical devices, do not run power cords under rugs or carpets, or place heavy objects on them. Damaged power cords should be replaced immediately by an authorized service center with a cord meeting factory specifications.

Handle the AC Power Cord Gently

When disconnecting the power cord from an AC outlet, always pull the plug; never pull the cord. If you do not intend to use your AVR for any considerable length of time, disconnect the plug from the AC outlet.

Do Not Open the Cabinet

There are no user-serviceable components inside this product. Opening the cabinet may present a shock hazard, and any modification to the product will void your warranty. If water or any metal object such as a paper clip, wire or staple accidentally falls inside the unit, disconnect it from the AC power source immediately, and consult an authorized service center.

CATV or Antenna Grounding (AVR 1700)

If an outside antenna or cable system is connected to this product, be certain that it is grounded so as to provide some protection against voltage surges and static charges. Section 810 of the United States National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements of the grounding electrode.

NOTE TO CATV SYSTEM INSTALLER: This reminder is provided to call the CATV (cable TV) system installer's attention to article 820-40 of the NEC, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible.

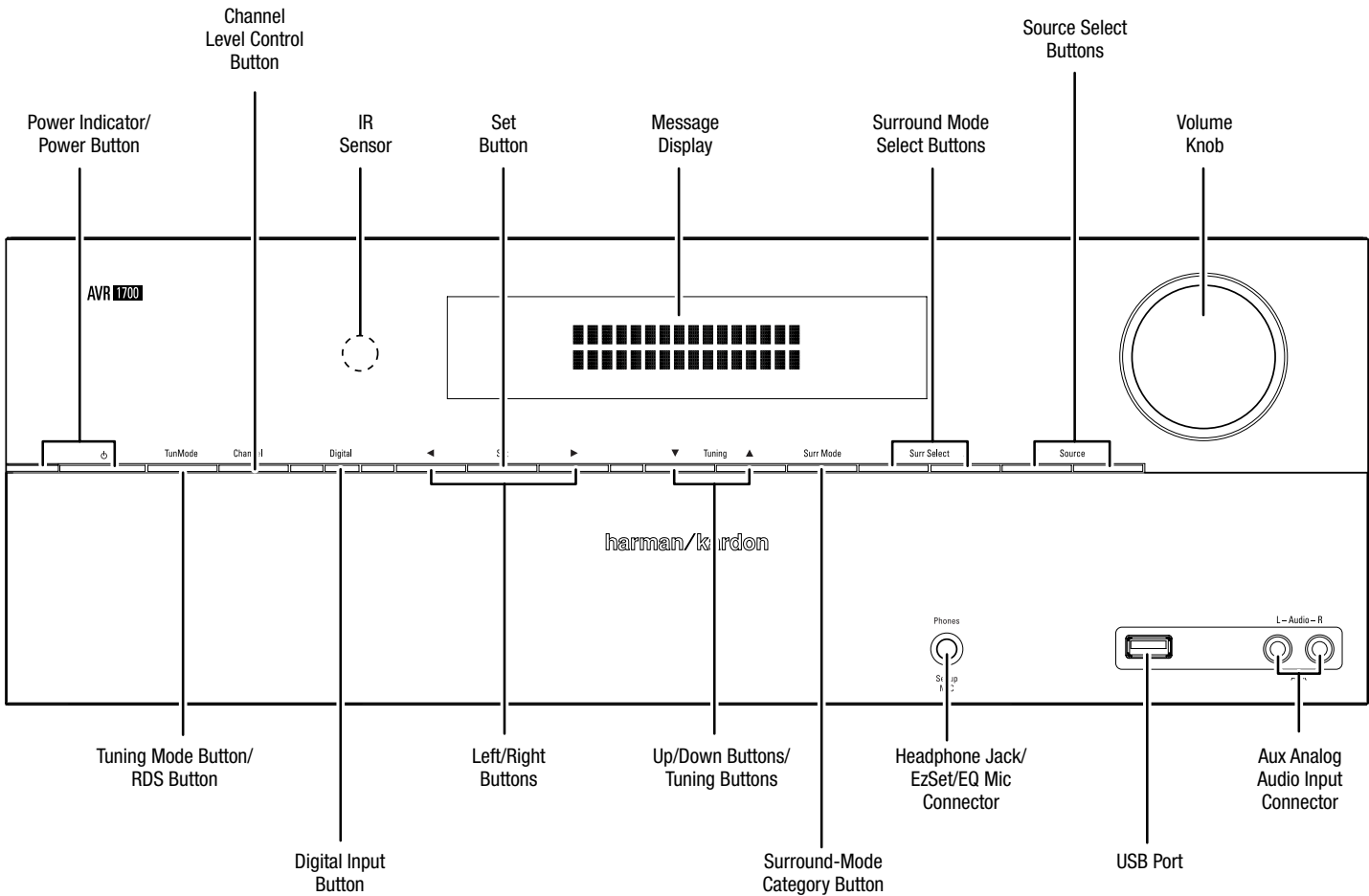
Place the AVR

- Place the AVR on a firm and level surface. Be certain that the surface and any mounting hardware can support the AVR's weight.
- Provide proper space above and below the AVR for ventilation. Recommended clearance distances are 30cm above the unit, 30cm behind the unit and 30cm on each side of the unit.
- If you install the AVR in a cabinet or other enclosed area, provide cooling air within the cabinet. Under some circumstances, a fan may be required.
- Do not obstruct the ventilation slots on the top of the AVR or place objects directly over them.
- Do not place the AVR directly on a carpeted surface.
- Do not place the AVR in moist or humid locations, in extremely hot or cold locations, in areas near heaters or heat registers, or in direct sunlight.



Front-Panel Controls

Front-Panel Controls





Front-Panel Controls, continued

Power indicator/Power button: The AVR has four different power modes:

- **Off (Power indicator not illuminated):** When the rear-panel Main Power switch is in the Off position or the power cord is unplugged the AVR is off and will not respond to any commands. Plugging the power cord into a live AC outlet and setting the Main Power switch in the On position will put the AVR into the Eco Standby mode.
- **Eco Standby (Power indicator glows solid amber):** The Eco Standby mode minimizes energy consumption when you're not using the AVR. When the AVR is in Eco Standby, it will not automatically turn on or play audio in response to an AirPlay signal from a networked device. When the AVR is in Eco Standby, pressing the Power button turns it on. To put the AVR into Eco Standby when it is on, press the Power button for more than three seconds. **NOTE: The AVR will not automatically enter the Eco Standby mode.**
- **Standby (Power indicator glows solid amber):** The Standby mode mutes the AVR and shuts off its front-panel display, but allows the AVR to automatically turn on and play audio in response to an AirPlay signal from a networked device. See *Listening to Media via AirPlay*, on page 22, for more information. When the AVR is in Standby, pressing the Power button turns it on. To put the AVR into Standby when it is on, press the Power button for less than three seconds. **NOTE: The AVR will automatically enter the Standby mode whenever no control buttons have been pressed and no audio signal has been present for 30 minutes.**
- **On (Power indicator glows solid white):** When the AVR is on it is fully operational.

IMPORTANT NOTE: If the PROTECT message ever appears on the AVR's front-panel Message display, turn off the AVR and unplug it from the AC outlet. Check all speaker wires for a possible short circuit (the "+" and "-" conductors touching each other or both touching the same piece of metal). If a short circuit is not found, bring the unit to an authorized Harman Kardon service center for inspection and repair before using it again.

Tuning Mode button (AVR 1700 only): This button toggles between manual (one frequency step at a time) and automatic (seeks frequencies with acceptable signal strength) tuning mode. It also toggles between stereo and mono modes when an FM station is tuned in.

RDS button (AVR 170 only): When listening to an FM radio station that broadcasts RDS information, this button activates the various RDS functions. **NOTE:** RDS service may not be available in all areas.

Channel Level Control button: Press this button to activate the channel-level adjustment feature. After pressing this button, use the Up/Down buttons to select the channel for adjustment and use the Left/Right buttons to adjust the channel's level.

Digital Input button: Press this button to change the audio input for the current source. Use the Left/Right buttons to cycle through the available input connections, and press the Set button to assign the currently-displayed connection to the source.

IR sensor: This sensor receives infrared (IR) commands from the remote control. It is important to ensure that the sensor is not blocked.

Set button: Press this button to select the currently highlighted menu item.

Left/Right buttons: Use these buttons to navigate the AVR's menus.

Message display: Various messages appear in this two-line display in response to commands and changes in the incoming signal. In normal operation, the current source name appears on the upper line, while the surround mode is displayed on the lower line. When the on-screen display menu system (OSD) is in use, the current menu settings appear.

Up/Down buttons/Tuning buttons: Use these buttons to navigate the AVR's menus. When the radio is the active source, use these buttons to tune stations according to the setting of the Tuning Mode button (see above).

Surround-Mode Category button: Press this button to select a surround-sound category. Each press changes the surround-mode category: Auto Select, Virtual, Stereo, Movie, Music and Video Game. To change the specific surround-sound mode within the category, use the Surround Mode Select buttons. See *Audio Processing and Surround Sound*, on page 23, for more information on surround modes.

Surround-Mode Select buttons: After you have selected the desired surround-mode category, press these buttons to select a specific mode within the category, such as to change from Dolby® Pro Logic® II Movie mode to Logic 7® Movie mode. Surround-mode availability depends on the nature of the source input signal, i.e., digital versus analog, and the number of channels encoded within the signal.

Source Select buttons: Press these buttons to select the active source.

Headphone jack/EzSet/EQ Mic connector: Connect a 1/4" stereo headphone plug to this jack for private listening. This jack is also used to connect the supplied microphone for the EzSet/EQ procedure described in *Configure the AVR for Your Speakers*, on page 17.

USB port: The USB port can be used to play audio files from an Apple iOS® device connected to the port, and can also be used to play MP3 and WMA audio files from a USB device inserted into the port. Insert the connector or device into the USB port oriented so it fits all the way into the port. You may insert or remove the connector or device at any time - there is no installation or ejection procedure.

You can also use the USB port to perform firmware upgrades. If an upgrade for the AVR's operating system is released in the future, you will be able to download it to the AVR using this port. Complete instructions will be provided at that time.

IMPORTANT: Do not connect a PC or other USB host/controller to this port, or you may damage both the AVR and the other device. HDD is not supported.

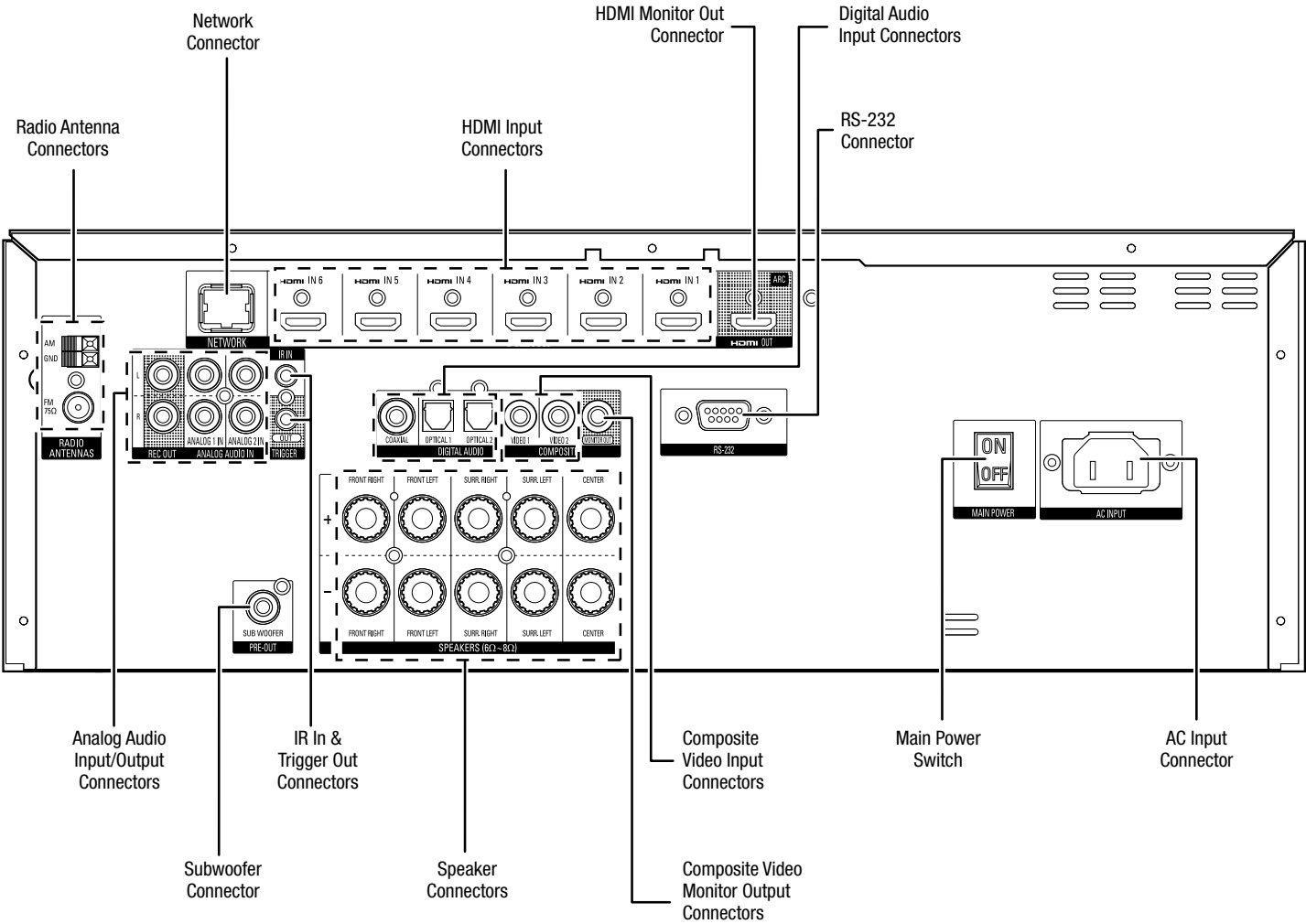
Volume knob: Turn this knob to raise or lower the volume.

Aux Analog Audio Input connector: Connect an auxiliary source component that will be used only temporarily, such as a camcorder, portable music player or game console, here.



Rear-Panel Connectors

Rear-Panel Connectors





Rear-Panel Connectors, continued

Radio Antenna connectors: Connect the included AM and FM antennas to their respective terminals for radio reception.

Analog Audio Input/Output connectors: Use the AVR's Analog Audio Input/Output connectors for source devices that don't have HDMI or digital audio connectors. Use the Rec Out connectors to connect to the audio inputs of a VCR or tape deck. See *Connect Your Audio and Video Source Devices*, on page 13, for more information.

Network connector: Use a Cat. 5 or Cat. 5E cable (not supplied) to connect the AVR's Network connector to your home network to enjoy Internet radio and content from DLNA-compatible devices that are joined to the network. See *Connect to Your Home Network*, on page 15, for more information.

Subwoofer connector: Connect this jack to a powered subwoofer with a line-level input. See *Connect Your Subwoofer*, on page 13, for more information.

IR In and Trigger Out connectors: When the IR sensor on the front panel is blocked (such as when the AVR is installed inside a cabinet), connect an optional IR receiver to the IR In jack. The Trigger Out connector provides 12V DC whenever the AVR is on. Connect it to the trigger input of a device such as a powered subwoofer.

Speaker connectors: Use two-conductor speaker wire to connect each set of terminals to the correct speaker. See *Connect Your Speakers*, on page 13, for more information.

HDMI® Input connectors: The HDMI (High-Definition Multimedia Interface) feature is a connection for transmitting digital audio and video signals between devices. If your source devices have HDMI connectors, using them will provide the best possible video and audio performance quality. Since the HDMI cable carries both digital video and digital audio signals, you do not have to make any additional audio connections for devices you connect via HDMI connections. See *Connect Your Audio and Video Source Devices*, on page 13, for more information.

HDMI Monitor Out connector: If your TV has an HDMI connector and you have HDMI source devices, use an HDMI cable (not included) to connect it to the AVR's HDMI Monitor Out connector.

Notes on using the HDMI Monitor Out connector:

- When connecting a DVI-equipped display to the HDMI Monitor Out connector, use an HDMI-to-DVI adapter and make a separate audio connection.
- Make sure the HDMI-equipped display is HDCP-compliant. If it isn't, do not connect it via HDMI; use a composite analog video connection instead and make a separate audio connection.

Composite Video Input connectors: Use composite video connectors for video source devices that don't have HDMI or component video connectors. You will also need to make an audio connection from the source device to the AVR. See *Connect Your Audio and Video Source Devices*, on page 13, for more information.

Composite Video Monitor Output connector: If your TV or video display does not have an HDMI connector, or if your TV does have an HDMI connector *but you are connecting some source devices with only composite video connectors*, use a composite video cable (not included) to connect the AVR's Composite Video Monitor Out connector to your TV's composite video input connector.

Digital Audio Input connectors: If your non-HDMI source devices have digital outputs, connect them to the AVR's digital audio connectors. NOTE: Make only one type of digital connection (HDMI, optical or coaxial) from each device. See *Connect Your Audio and Video Source Devices*, on page 13, for more information.

RS-232 connector: This connector is used to connect to external control hardware. Consult a certified professional installer for more information.

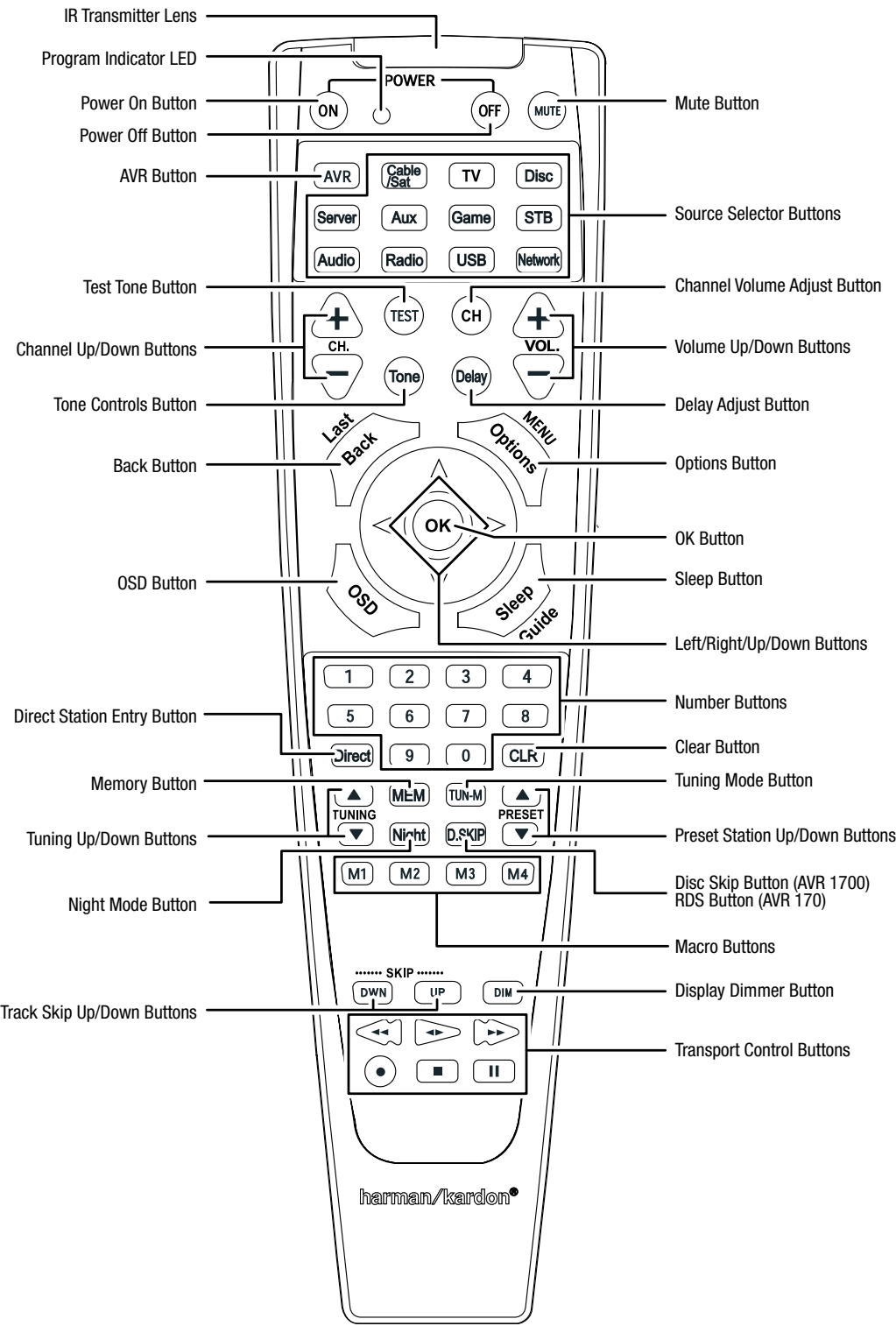
Main Power switch: This mechanical switch turns the AVR's power supply on or off. It is usually left on and cannot be turned on or off using the remote control.

AC Input connector: After you have made all other connections, plug the supplied AC power cord into this receptacle and into an unswitched wall outlet.



System Remote Control Functions

System Remote Control Functions





System Remote Control Functions, continued

ENGLISH

System Remote Control Functions, continued

In addition to controlling the AVR, the AVR remote is capable of controlling five other devices, plus your TV and an iPod/iPhone that is docked in the AVR's front-panel USB port. During the installation process, you may program the codes for each of your source components into the remote. (See *Program the Remote to Control Your Source Devices and TV*, on page 16, for programming information.) To operate a component, press its Source Selector button to change the remote's control mode.

A button's function depends on which component is being controlled. See Table A9 in the Appendix for listings of the functions for each type of component. Most of the buttons on the remote have dedicated functions, although the precise codes transmitted vary depending on the specific device being controlled. Due to the wide variety of functions for various source devices, we have included only a few of the most often-used functions on the remote: alphanumeric keys, transport controls, television-channel control, menu access and power on and off. To return the remote to the AVR control mode at any time, press the AVR button.

IR Transmitter lens: As buttons are pressed on the remote, infrared codes are emitted through this lens.

Program Indicator LED: This LED lights up to indicate various procedures when the remote is in the Programming mode.

Power On/Off buttons: Press these buttons to turn the AVR or the device being controlled on and off. The Main Power switch on the AVR's rear panel must be on for this button to turn the AVR on and off.

NOTE: When the AVR is on, pressing the Power Off button for more than three seconds will put it into the Eco Standby mode. See *Power indicator/Power button*, on page 5 for more information.

Mute button: Press this button to mute the AVR's speaker-output connectors and Headphone jack. To restore the sound, press this button or adjust the volume.

AVR button: Press this button to switch the remote's control mode to operate the AVR.

Source Selector buttons: Press one of these buttons to select a source device, e.g., cable/satellite tuner, radio, etc. This action will also turn on the AVR and switch the remote's control mode to operate the selected source device.

- The first press of the Radio Source Selector button switches the AVR to the last-used tuner band (AM or FM). Each successive press changes the band.
- The first press of the USB button switches the AVR to the last-used source (USB or iPod). Each successive press cycles between the two source.
- The first press of the Network button switches the AVR to the last-used source (Network or vTuner). Each successive press cycles between the two sources.

Test Tone button: Press this button to activate the test tone for calibrating channel volume levels by ear.

Channel Volume Adjust button: Press this button to activate the individual channel-level adjustment. It lets you easily change the channel balance to suit different programs or seating arrangements. See *Manual Speaker Setup*, on page 24, for more information.

Channel Up/Down buttons: The Channel Up/Down buttons have no effect on the AVR but are used to change channels on TVs and some video sources.

Volume Up/Down buttons: Press these buttons to raise or lower the volume.

Tone Controls button: Press this button to access the bass and treble controls. Use the OK button to select an adjustment and use the Up/Down buttons to change the settings.

Delay Adjust button: Pressing this button lets you adjust two different types of delay settings (use the Up/Down buttons to cycle through the settings):

- **A/V Sync:** This setting lets you resynchronize the audio and video signals from a source to eliminate a "lip sync" problem. Lip-sync issues can occur when the video portion of a signal undergoes additional processing in either the source device or the video display. Use the Left/Right buttons to delay the audio by up to 180ms.
- **Front L/Center/Front R/Surr R/Surr L/Subwoofer:** These settings let you set the delay for each speaker to compensate for the different distances they may be from the listening position. Use the Up/Down buttons to cycle through each of the system's speakers, and use the Left/Right buttons to set the distance each speaker is from the listening position. See *Manual Speaker Setup*, on page 24, for more information.

Back button: Press this button to return to the previous menu screen when you're using the on-screen menu (OSD) system.

Options button: This button allows you to adjust playback and various other options for the AVR's built-in sources and when controlling other components.

OSD button: Press this button to activate the on-screen display menu system.

OK button: This button is used to select items from the menu system.

Sleep button: Press this button to activate the sleep timer, which turns off the AVR after a programmed period of time (up to 90 minutes).

Left/Right/Up/Down buttons: These buttons are used to navigate the menu system.

Number buttons: Use these buttons to enter numbers for radio-station frequencies or to select station presets.

Direct Station Entry button: Press this button before using the Number buttons to enter a radio station frequency.

Clear button: Press this button to clear a radio station frequency you have started to enter.

Memory button: To save the currently tuned radio station as a preset, press this button, then a Number button.

Tuning Mode button: Press this button to toggle the radio between manual (one frequency step at a time) and automatic (seeks frequencies with acceptable signal strength) tuning mode. It also toggles between stereo and mono modes when an FM station is tuned in.

Tuning Up/Down buttons: Press these buttons to tune a radio station. Depending on whether the tuning mode has been set to manual or automatic, each press will either change one tuning frequency increment at a time or seek the next higher or lower station with acceptable signal strength.

Preset Station Up/Down buttons: Press these buttons to cycle through your preset radio stations.

Night Mode button: Press this button to activate Night mode with specially encoded Dolby Digital discs or broadcasts. Night mode compresses the audio so that louder passages are reduced in volume to avoid disturbing others, while dialogue remains intelligible. Each press of the button advances through the following settings:

- **Off:** No compression is applied. Loud passages in the program remain as they were recorded.
- **Mid:** Loud passages in the program are reduced moderately in volume.
- **Max:** Loud passages in the program are reduced more in volume.

Disc Skip button (AVR 1700): This button is used with some optical disc changers to skip to the next disc.

RDS button (AVR 170): When listening to an FM radio station that broadcasts RDS information, this button activates the various RDS functions.

Macro buttons: These buttons may be programmed to execute a series of up to 19 commands with a single button press. They are useful for programming the command to turn on or off all of your components or for accessing specialized functions for a different component from the one that you are currently operating. See *Programming Macro Commands*, on page 27, for information about programming macros.

Track Skip Up/Down buttons: These buttons are used with the AVR's built-in sources (USB, iPod, Network, AirPlay, etc) and many source components to change tracks or chapters.

Display Dimmer button: Press this button to dim the AVR's front-panel display partially or fully.

Transport Control buttons: These buttons have no effect on the AVR but are used to control many source components. By default, when the remote is operating the AVR, these buttons will control a Harman Kardon Blu-ray Disc™ player or DVD player.

AVR

Introduction to Home Theater
and Place Your Speakers

Introduction to Home Theater

This introductory section will help you to familiarize yourself with some basic concepts unique to multichannel surround-sound AVRs, which will make it easier for you to set up and operate your AVR.

Typical Home Theater System

A home theater typically includes an audio/video receiver (AVR), which controls the system and supplies amplification for the loudspeakers; a disc player; a source component for television broadcasts (cable box, satellite dish AVR, HDTV tuner or antenna connected to the TV); a TV or video display; and multiple loudspeakers.

Multichannel Audio

The main benefit of a home theater system is its ability to produce “surround sound.” Surround sound uses multiple speakers and amplifier channels to immerse you in the audio/video presentation for a dramatically increased sense of realism.

Your AVR can have up to five main speakers connected directly to it, plus a subwoofer. Each main speaker is powered by its own amplifier channel inside the AVR. A system with more than two speakers is called a multichannel system. The different main speaker types in a home theater system are:

- **Front Left and Right:** The front left and right speakers are used as in a 2-channel system. In many surround-sound modes, these speakers are secondary, while the main action, especially dialogue, is reproduced by the center speaker.
- **Center:** When you are watching movies and television programs, the center speaker reproduces most of the dialogue and other soundtrack information that occurs on the screen, anchoring it with the picture. When you are listening to a musical program, the center speaker helps to create a seamless front soundstage, creating a more realistic “you-are-there” listening experience.
- **Surround Left and Right:** The surround left and right speakers produce ambient sounds that help create a realistic and immersive surround-sound environment. They also help recreate directional sound effects such as aircraft flyovers.

Many people expect the surround speakers to play as loudly as the front speakers. Although you will calibrate all of the speakers in your system to sound equally loud at the listening position, most artists use the surround speakers for ambient effects only, and they create their programs to steer relatively little sound to these speakers.

- **Subwoofer:** A subwoofer is designed to play only the lowest frequencies (the deep bass). It augments smaller, limited-range main speakers that are usually used for the other channels. Many digital-format programs, such as movies recorded in Dolby Digital, contain a low-frequency effects (LFE) channel that is directed to the subwoofer. The LFE channel packs the punch of a rumbling train or airplane, or the power of an explosion, adding realism and excitement to your home theater. Some people use two subwoofers for additional power and for even distribution of the sound.

Surround Modes

There are different theories as to the best way to present surround sound and to distribute the individual channel information to the surround-sound system’s speakers. A variety of algorithms have been developed in an effort to recreate the way we hear sounds in the real world, resulting in a rich variety of options. Several companies have developed different surround-sound technologies, all of which can be accurately reproduced by your AVR:

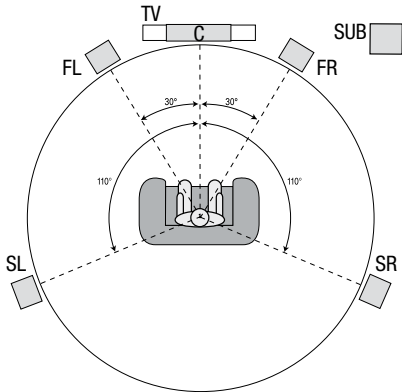
- **Dolby Laboratories:** Dolby TrueHD, Dolby Digital Plus, Dolby Digital, Dolby Digital EX, Dolby Pro Logic II.
- **DTS:** DTS-HD™ High Resolution Audio, DTS-HD Master Audio™, DTS, DTS 96/24™, DTS NEO: 6™.
- **HARMAN International:** Logic 7, virtual speaker.
- **Stereo Modes:** 2-channel stereo and 5-channel stereo.

Appendix Table A8, on page 32, contains detailed explanations of the different surround-sound options available on your AVR. Digital surround-sound modes, such as Dolby Digital and DTS systems, are available only with specially encoded programs, such as those available via HDTV, DVD and Blu-ray Disc media and digital cable or satellite television. Other surround modes may be used with digital and analog signals to create a different surround presentation or to use a different number of speakers. Surround-mode selection depends upon the number of speakers in your system, the programs you are watching or listening to, and your personal tastes.

Place Your Speakers

Determine the locations for your system’s speakers according to their manufacturer’s directions and the layout of your listening room. Use the illustration below as a guide for 5.1-channel systems.

To create the most realistic surround-sound environment possible, you should place your speakers in a circle with the listening position at its center. You should angle each speaker so it directly faces the listening position. Use the diagram below as a guide.



Placing the Left, Center and Right Speakers

Place the center speaker either on top of, below or mounted on the wall above or below the TV or video-display screen. Place the front left and right speakers along the circle, about 30 degrees from the center speaker and angled toward the listener.

Place the front left, front right and center speakers at the same height, preferably at about the same height as the listener’s ears. The center speaker should be no more than 2 feet (0.6m) above or below the left/right speakers. If you’re using only two speakers with your AVR, place them in the front left and front right positions.

Placing the Surround Speakers

You should place the left and right surround speakers approximately 110 degrees from the center speaker, slightly behind and angled toward the listener. Alternatively, you can place them behind the listener, with each surround speaker facing the opposite-side front speaker. You should place the surround speakers 2 feet – 6 feet (0.6m – 1.8m) higher than the listener’s ears.

NOTE: Your AVR will sound its best when the same model or brand of loudspeaker is used for all positions.

Placing the Subwoofer

Because a room’s shape and volume can have a dramatic effect on a subwoofer’s performance, it is best to experiment with placement so that you will find the location that produces the best results in your particular listening room. With that in mind, these rules will help you get started:

- Placing the subwoofer next to a wall generally will increase the amount of bass in the room.
- Placing the subwoofer in a corner generally will maximize the amount of bass in the room.
- In many rooms, placing the subwoofer along the same plane as the left and right speakers can produce the best integration between the sound of the subwoofer and that of the left and right speakers.
- In some rooms, the best performance could even result from placing the subwoofer behind the listening position.

A good way to determine the best location for the subwoofer is by temporarily placing it in the listening position and playing music with strong bass content. Move around to various locations in the room while the system is playing (putting your ears where the subwoofer would be placed), and listen until you find the location where the bass performance is best. Place the subwoofer in that location.



Types of Home Theater System Connections

There are different types of audio and video connections used to connect the AVR to your speakers, your TV or video display, and your source devices. The Consumer Electronics Association has established the CEA® color-coding standard.

Connection Color Guide Table

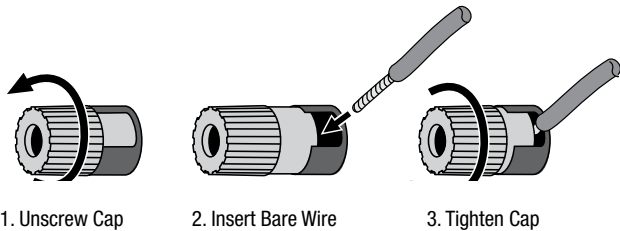
Analog Audio Connection	Color
Front Left/Right	White/Red
Center	Green
Surround Left/Right	Blue/Gray
Subwoofer	Purple
Digital Audio Connection	Color
Coaxial	Orange
Optical	Black
Analog Video Connection	Color
Composite Video	Yellow

Speaker Connections

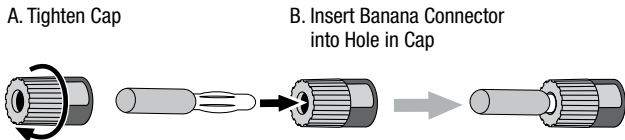
Speaker cables carry an amplified signal from the AVR's speaker terminals to each loudspeaker. Each cable contains two wire conductors, or leads, that are differentiated in some way, such as with colors or stripes.

The differentiation helps you maintain proper polarity, without which your system's low-frequency performance can suffer. Each speaker is connected to the AVR's speaker-output terminals using two wires, one positive (+) and one negative (–). Always connect the positive terminal on the speaker, which is usually colored red, to the positive terminal on the AVR, which is colored as indicated in the Connection Color Guide Table, above. The negative terminals on the speakers and the AVR are black.

Your AVR uses binding-post speaker terminals that can accept bare-wire cables or banana plugs. Bare-wire cables are installed as shown below:



Banana plugs are inserted into the hole in the middle of the terminal cap, as shown below:

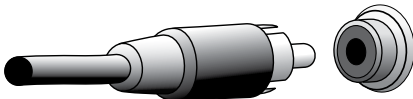


Always connect the colored (+) terminal on the AVR to the (+) terminal on the speaker (usually red), and the black (–) terminal on the AVR to the (–) terminal on the speaker (usually black).

IMPORTANT: Make sure the (+) and (–) bare wires do not touch each other or the other terminal. Touching wires can cause a short circuit that can damage your AVR or amplifier.

Subwoofer Connections

The subwoofer is a speaker dedicated to reproducing only the low (bass) frequencies, which require more power. To obtain the best results, most speaker manufacturers offer powered subwoofers that contain their own amplifiers. Use a single RCA audio cable (not included) to make a line-level (non-amplified) connection from the AVR's Subwoofer connector to a corresponding input jack on the subwoofer.



Although the AVR's purple subwoofer output looks similar to a full-range analog audio jack, it is filtered so that only the low frequencies pass through it. Don't connect this output to any device other than a subwoofer.

Source Device Connections

Audio and video signals originate in source devices (components where a playback signal originates) such as your Blu-ray Disc or DVD player, CD player, DVR (digital video recorder) or other recorder, tape deck, game console, cable or satellite television tuner, or a device docked in the AVR's USB port. The AVR's FM/AM tuner also counts as a source, even though no external connectors are needed other than the AVR's FM and AM antennas. Separate connectors are required for the audio and video portions of the source device's signal, except for digital HDMI connectors. The types of connectors you use will depend upon the capabilities of the source device and of your TV or video display.

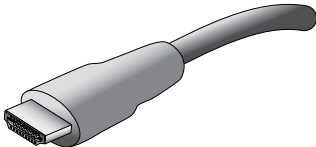
Digital Audio Connections – HDMI

There are two types of audio connections – digital and analog. Digital audio signals are required for listening to sources encoded with digital surround modes, such as Dolby Digital and DTS, or for uncompressed PCM digital audio. Your AVR has three types of digital audio connectors: HDMI, coaxial and optical. Do not use more than one type of digital audio connector for each source device. However, it's okay to make both analog and digital audio connections to the same source.

Your AVR is equipped with four rear-panel HDMI input connectors and one HDMI monitor output connector. HDMI technology enables digital audio and video information to be carried using a single cable, delivering the highest quality picture and sound. If your TV or video-display device has an HDMI input connector, make a single HDMI connection from each source device to the AVR.

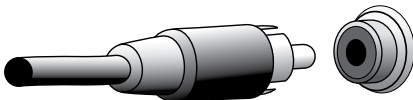
The AVR's HDMI Monitor Output connector contains an Audio Return Channel (ARC) that carries a digital audio signal from your TV or video display back to the AVR. It allows you to listen to HDMI devices that are connected directly to your TV (such as an Internet connection) without making an additional connection from the device to the AVR. The ARC signal is active when the TV source is selected. See *System Setup*, on page 26, for more information.

The HDMI connector is shaped for easy plug-in (see illustration, below), and HDMI cable runs are limited to about 10 feet (3m). If your video display has a DVI input and is HDCP-compliant, use an HDMI-to-DVI adapter (not included), and make a separate audio connection.



Digital Audio Connections – Coaxial

Coaxial digital audio jacks are usually color-coded orange. Although they look like standard RCA-type analog jacks, you should not connect coaxial digital audio outputs to analog inputs or vice versa.

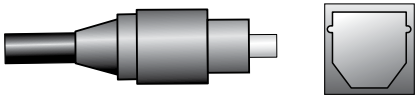


AVR

Types of Home Theater System Connections, continued

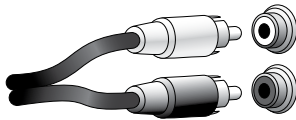
Digital Audio Connections – Optical

Optical digital audio connectors are normally covered by a shutter to protect them from dust. The shutter opens as the cable is inserted. Optical input connectors are color-coded using a black shutter.



Analog Audio Connections

Two-channel analog connections require a stereo audio cable, with one connector for the left channel (white) and one for the right channel (red). These two connectors are attached to each other.



For source devices that have both digital and analog audio outputs, you may make both connections.

Video Connections

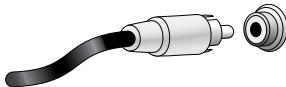
Many source devices output both audio and video signals (e.g., Blu-ray Disc, DVD player, cable television box, HDTV tuner, satellite box, VCR, DVR). In addition to an audio connection as described above, make a video connection for each of these source devices. Make only one type of video connection for each device.

Digital Video Connections

If you have already connected a source device to one of the AVR's HDMI input connectors, you have automatically made a video connection for that device, since the HDMI cable carries both digital audio and digital video signals.

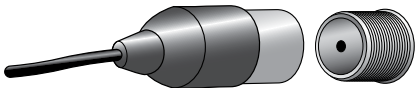
Analog Video Connections – Composite Video

Composite video is the basic connection most commonly available. Both the chrominance (color) and the luminance (intensity) components of the video signal are transmitted using a single cable. The jack is usually color-coded yellow and looks like an analog audio jack. Do not connect a composite video jack to an analog audio or coaxial digital audio jack, or vice versa.

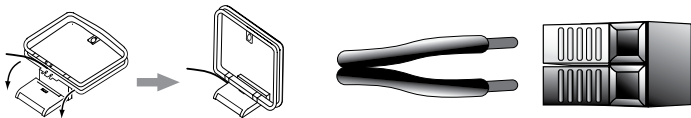


Radio Connections

Your AVR uses separate terminals for the included FM and AM antennas. The FM antenna uses a 75-ohm F-connector.



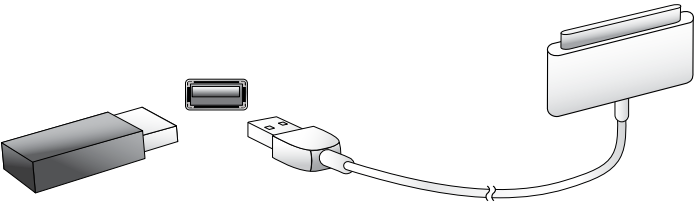
The AM antenna connector uses spring-clip terminals. After assembling the antenna as shown below, press the levers to open the connectors, insert the bare wires into the openings, and release the levers to secure the wires. The antenna wires are not polarized, so you can insert either wire into either connector.



USB Port

The AVR can play audio files from an Apple iOS® device connected to the USB port, and allows you to control the iOS device via the AVR remote control. The AVR can also play MP3 and WMA audio files from a USB device inserted into the USB port. Insert the connector or device into the USB port oriented so it fits all the way into the port. You may insert or remove the connector or device at any time – there is no installation or ejection procedure.

The USB port on your AVR is also used to perform firmware upgrades. If an upgrade for the AVR's operating system is released in the future, you will be able to download it to the AVR using this port. Complete instructions will be provided at that time.



IMPORTANT: Do not connect a PC or other USB host/controller to the AVR's USB port, or you may damage both the AVR and the other device. HDD is not supported.

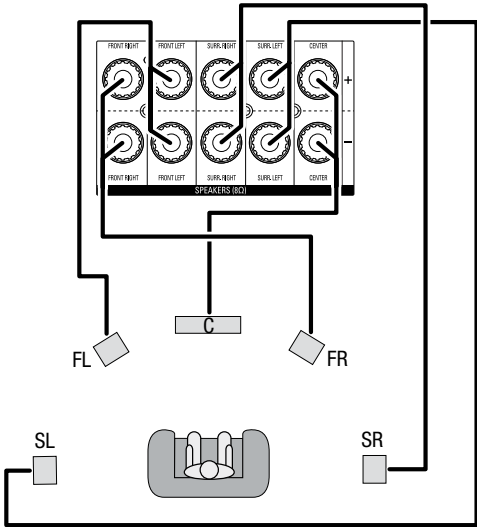


Making Connections

CAUTION: Before making any connections to the AVR, ensure that the AVR's AC cord is unplugged from the AVR and the AC outlet. Making connections with the AVR plugged in and turned on could damage the speakers.

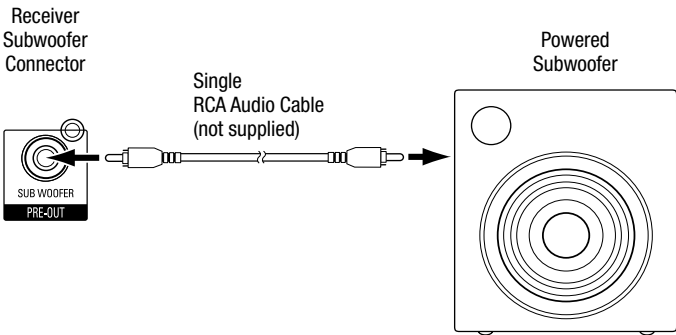
Connect Your Speakers

After you have placed your loudspeakers in the room as explained in *Place Your Speakers*, on page 10, connect each speaker to its color-coded terminal on the AVR as explained in *Speaker Connections*, on page 11. Connect the speakers as shown in the illustration.



Connect Your Subwoofer

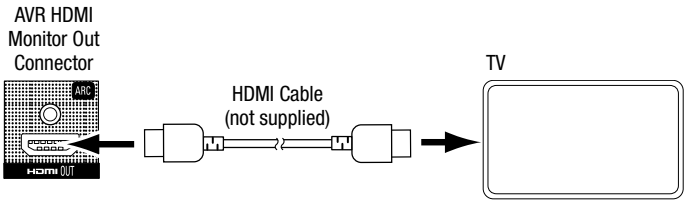
Use a single RCA audio cable to connect the AVR's Subwoofer Pre-Out connector to your subwoofer. Consult your subwoofer's user manual for specific information about making connections to it.



Connect Your TV or Video Display

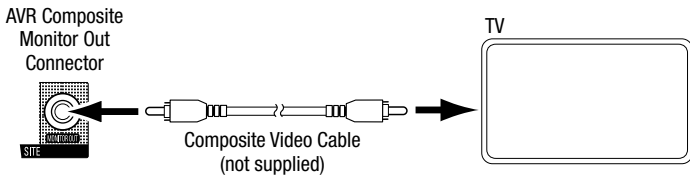
HDMI Monitor Out connector

If your TV has an HDMI connector and you have HDMI or component video source devices, use an HDMI cable (not included) to connect your TV to the AVR's HDMI Monitor Out connector. It will provide the best possible picture quality.



Composite Video Monitor Out connector

If your TV does not have an HDMI connector, or if your TV does have an HDMI connector but you are connecting some source devices with only composite video connectors, use a composite video cable (not included) to connect the AVR's Composite Monitor Out connector to your TV's composite video connector.



Connect Your Audio and Video Source Devices

Source devices are components where a playback signal originates, e.g. a Blu-ray Disc or DVD player; a cable, satellite or HDTV tuner; etc. Your AVR has several different types of input connectors for your audio and video source devices: HDMI, composite video, optical digital audio, coaxial digital audio and analog audio.

Your AVR's various Source Selector buttons have default assignments to different input connectors (listed in the "Default AVR Input Connector" column of the table below). For ease of setup and remote control programming, you should connect each source device to the connector where the corresponding default source button is assigned (e.g., connect your Cable/Satellite tuner box to HDMI 1).

However, you can connect your source devices as you wish and re-assign any of the video and audio input connectors to any of the Source Selector buttons listed in the table according to where you actually connect each of your source devices.

As you connect your various source components, fill out the "Connected Device" and "Assigned AVR Input Connector(s)" columns in the table – it will make it easier for you to assign the connectors to the Source Selector buttons after you have completed making all of the connections. (You will make any changes to the connector assignments later in the setup process.)

Source Selector Button	Default AVR Input Connector	Connected Device	Assigned AVR Input Connector(s)	
			Video	Audio
Cable/Sat	HDMI 1			
TV	HDMI ARC			
Disc	HDMI 2			
Server	HDMI 3			
Aux	COMP. VID. 1/AUX AUDIO			
Game	HDMI 5			
STB	HDMI 6			
Audio	ANALOG AUDIO 2			
Network	NETWORK	Home Network	—	—

Input Connections and Source Buttons

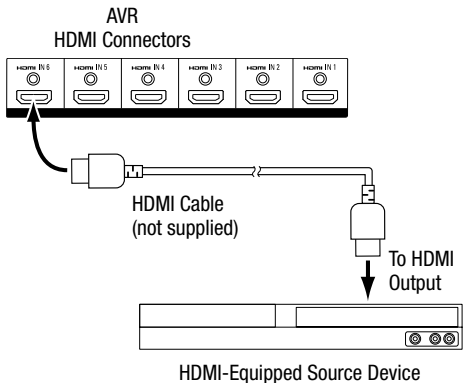


Making Connections, continued

HDMI devices

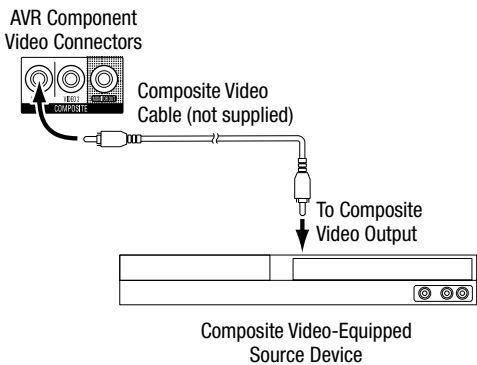
If any of your source devices have HDMI connectors, using those connectors will provide the best possible video and audio performance quality. Since the HDMI cable carries both digital video and digital audio signals, you do not have to make any additional audio connections for devices you connect via HDMI cables.

If you have a TV or other source device equipped with the HDMI Audio Return Channel function, you can feed its sound to the AVR via the HDMI Monitor Out connector's Audio Return Channel, and it will not require additional audio connections to the AVR.



Composite video devices

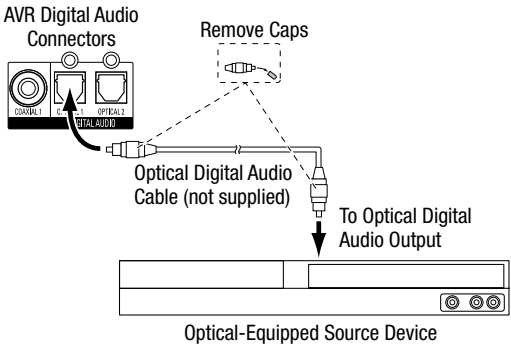
Use composite video connectors for video source devices that don't have HDMI connectors. You will also need to make an audio connection from the source device to the AVR.



Optical digital audio devices

If your non-HDMI source devices have optical digital outputs, connect them to the AVR's Optical Digital Audio connectors. **NOTE:** Make only one type of digital connection (HDMI, optical or coaxial) from each device.

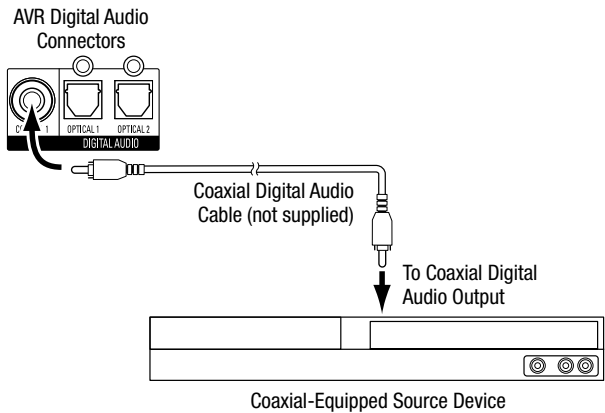
NOTE: Be sure to remove the caps from the tips of the optical cable before inserting them into the AVR and your source device.



Coaxial digital audio devices

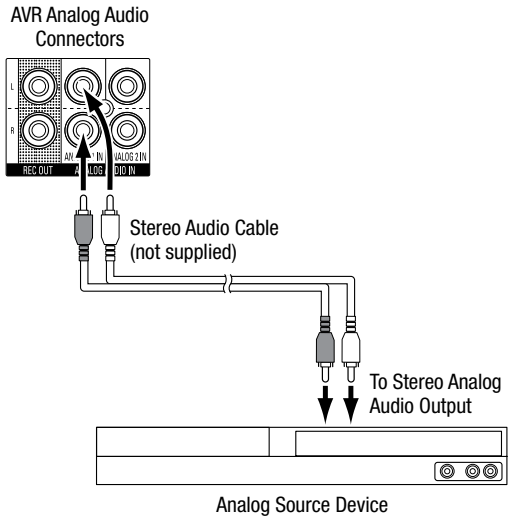
If your non-HDMI source devices have coaxial digital outputs, connect them to the AVR's Coaxial Digital Audio connectors.

NOTE: Make only one type of digital connection (HDMI, optical or coaxial) from each device.



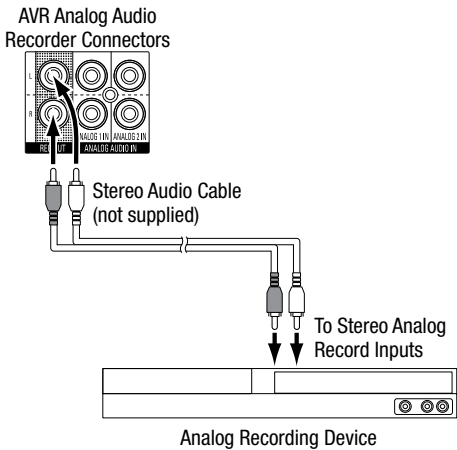
Analog audio devices

Make analog audio connections from your source devices that do not have HDMI or digital audio connectors.



Audio recorders

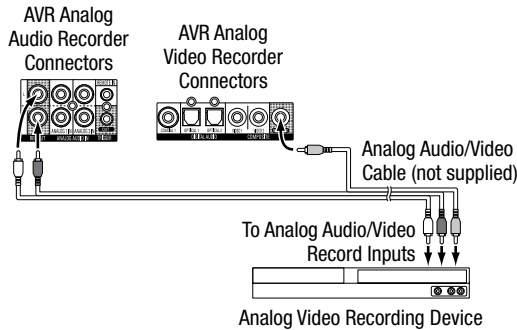
Connect an analog audio recorder's inputs to the AVR's analog audio Rec Out connectors. The recorded signal is determined by the source's Record Out setting in the Source Setup menu. See *Additional Source Setup Menu Items*, on page 19, for more information.



Video recorders

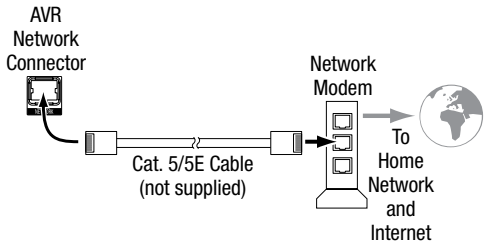
Connect an analog video recorder's video input connector to the AVR's Composite Monitor Out connector. You can record any composite video signal. To record the audio and video from the source device, connect the AVR's Analog Rec Out connectors to the analog video recorder's audio inputs.

NOTE: If you have connected the AVR's Composite Monitor Out video connector to your TV, you cannot connect a VCR to the AVR for recording.



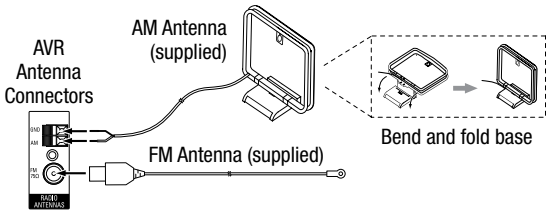
Connect to Your Home Network

Use a Cat. 5 or Cat. 5E cable (not supplied) to connect the AVR's Network connector to your home network to enjoy Internet radio and content from DLNA®-compatible devices that are connected to the network.



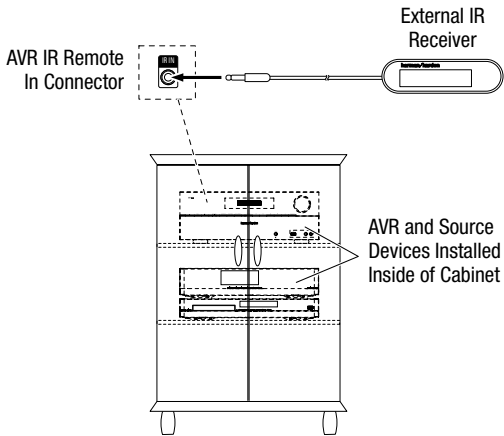
Connect the Radio Antennas

- Connect the supplied FM antenna to the AVR's FM 75Ω Radio Antenna connector. For the best reception, extend the FM antenna as far as possible.
- Bend and fold the base of the supplied AM antenna as shown and connect the antenna wires to the AVR's AM and Gnd connectors. Rotate the antenna as necessary to minimize background noise.



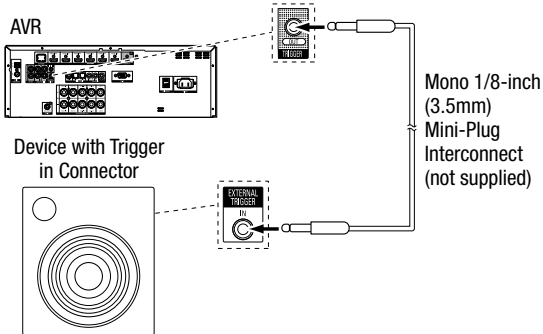
Connect IR Equipment

If you place the AVR inside a cabinet or facing away from the listener so that the AVR's IR sensor is not within line-of-sight of the remote control, connect an external IR receiver, such as the Harman Kardon HE 1000 (available separately) to the AVR's IR In connector.



Connect the Trigger Output

If your system has equipment that can be controlled by a DC trigger signal, connect it to the AVR's Trigger Out connector with a mono 1/8-inch (3.5mm) mini-plug interconnect cable. The AVR will supply a 12V DC (100mA) trigger signal at this connection whenever it is powered on.

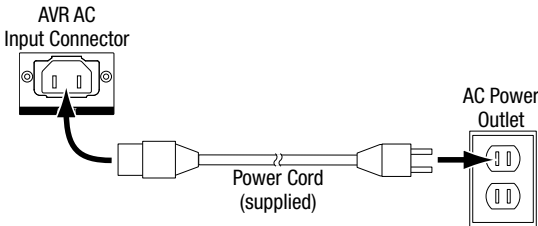




Making Connections, continued, and Set Up the Remote Control

Connect to AC Power

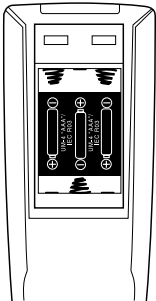
Connect the AC power cord to the AVR's AC Input connector and then to a working AC power outlet.



Set Up the Remote Control

Install the Batteries in the Remote Control

Remove the remote control's battery cover, insert the three supplied AAA batteries as shown in the illustration, and replace the battery cover.



NOTE: Remove the protective film from the AVR's front panel to keep it from reducing the remote control's effectiveness.

Program the Remote to Control Your Source Devices and TV

In addition to using the remote to control the AVR itself and the AM/FM radio, you can program the remote to control up to five additional audio/video source devices plus your TV via the Cable/Sat, Disc, Server, Game, STB and TV Source Selector buttons. The remote is also ready to operate your iPod or iPhone device when the device is connected to the AVR's front-panel USB port.

Once you have programmed the remote, you can switch the remote's control mode to access the functions for a particular source device by pressing the remote's Source Selector button for that device. To control the AVR, press the remote's AVR button.

Before you begin programming the remote, review the connections you filled in on the Input Connections and Source Buttons table on page 13. The Source Selector buttons are assigned to the components that you listed in the table's "Connected Device" column.

Each of the programmable Source Selector buttons is set at the factory to control that specific type of device: the Cable/Sat button is set to control cable/satellite tuners, the Disc button is set to control DVD and Blu-ray Disc players, the Server button is set to control digital music servers, the Game button is set to control game consoles, the STB box is set to control DVRs and TiVo® devices, and the TV button is set to control TVs.

You can program an unused Source Selector button to control a source device that is different from that button's factory setting (such as programming the Server button to control a DVD player or a second TV), but completely different types of devices, such as CD players and VCRs, cannot be controlled at all. See *Advanced Remote Control Programming*, on page 26, for more information.

1. Turn on the source device you want to program the remote to control.
2. Look up the code numbers for the device in Tables A10 – A17 in the Appendix. Write all the applicable code numbers in a convenient place.
3. Press and hold the Source Selector button for that source device until the Program Indicator LED on the remote starts to flash, then release it. (This procedure places the remote in the Programming mode.)
4. Aim the remote at the source device and use the remote's Number buttons to enter a code number from Step 2, above.
 - a) If the device turns off, press the Source Selector button again to save its code. The Source Selector button will flash, and the remote will exit the Programming mode.
 - b) If the device does not turn off, enter another code number.
 - c) If you run out of code numbers for a device, you can search through all of the codes in the remote's library for devices of its type by pressing the Up or Down button repeatedly until the device turns off. When it does, press the Source Selector button to save the code.
5. Check that other functions control the device correctly. Sometimes manufacturers use the same Power code for several models, while other function codes vary. Repeat this process until you've programmed a satisfactory code set that operates most of the device's functions.
6. If you searched through the remote's code library to find the code, you can find out which code number you have programmed by pressing and holding the Source Selector button to re-enter the Programming Mode. Then press the remote's OK button, and the Program Indicator LED will flash in the code sequence. One flash represents "1," two flashes represent "2," and so forth. A series of quick flashes represents "0." Record the code number programmed for each device in Table A6 in the Appendix.

Repeat Steps 3 – 6 for each source device you want to control with the AVR remote.

In general, the label for each button on the remote describes the button's function when used to control the AVR. However, the button may perform a very different function when used to control another device. Refer to the *Remote Control Function List*, Table A9 in the Appendix, for each button's functions with the various product types.

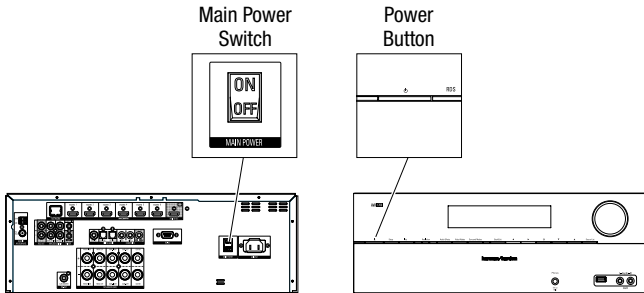
You can also program the remote to perform macros (preprogrammed code sequences that execute many code commands with a single button press) and "punch-through" programming (allowing the remote to operate a device's channel or transport controls when the remote is in another device's mode). See *Advanced Remote Control Programming*, on page 26, for instructions on these functions.



Set Up the AVR

Turn On the AVR

1. Set the rear-panel Main Power switch to “On.” (The front-panel Power indicator will glow amber.)
2. Press the front-panel Power button.



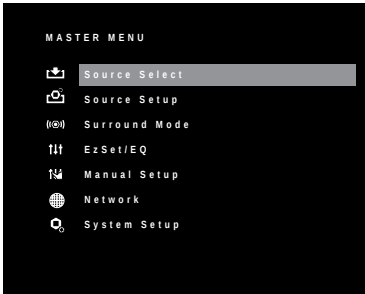
Unless you will not be using the AVR for an extended period of time, leave the Main Power switch set to “On.” When the Main Power switch is turned off, any settings you have programmed will be preserved for up to four weeks.

IMPORTANT NOTE: If the PROTECT message ever appears in the Message display, turn off the AVR and unplug it. Check all speaker wires for a short circuit (“+” and “-” wires touching). If none is found, bring the unit to an authorized Harman Kardon service center for inspection and repair before using it again.

Using the On-Screen Menu System

Although it’s possible to configure the AVR using only the remote and the front-panel Message display, it is easier to use the on-screen menu system.

To access the menu system, press the OSD button on the remote. The Master Menu will appear. (Note: If you have only used a composite video connection to your TV, the OSD menus will not appear on your TV. Follow the steps below using the receiver’s front-panel display.)



The Master menu consists of seven submenus: Source Select, Source Setup, Surround Mode, EzSet/EQ, Manual Setup, Network and System Setup.

Use the Up/Down/Left/Right buttons on the remote to navigate the menu system, and press the OK button to select a menu or setting line, or to enter a new setting.

The current menu, setting line or setting will appear in the front-panel Message display, as well as on screen.

To return to the previous menu, press the remote control’s Back button.

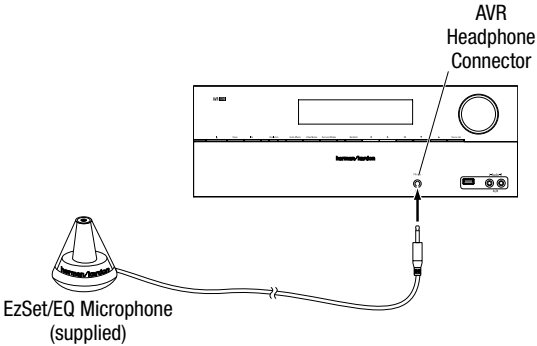
Most users should follow the instructions in this *Set Up the AVR* section to configure a basic home theater system. You may return to these menus at any time to make additional adjustments, such as those described in the *Advanced Functions* section, on pages 23 through 27.

Before you begin initial setup, all loudspeakers, a video display and all source devices should be connected to the AVR. You should be able to turn on the AVR and view the Master menu when you press the OSD button. If necessary, reread the *Making Connections* section and the beginning of this section before continuing.

Configure the AVR for Your Speakers

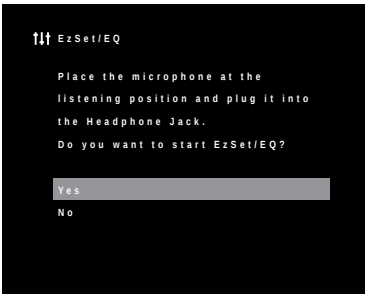
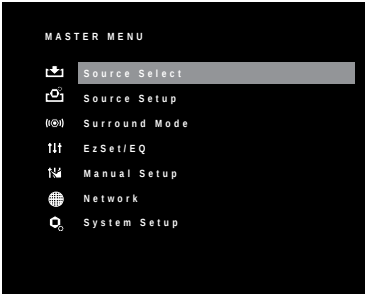
NOTE: If there are fewer than five main speakers in your system, do not use the EzSet/EQ process. Instead, proceed as described in *Manual Speaker Setup*, on page 24.

1. Plug the supplied EzSet/EQ microphone into the AVR’s Headphone connector.
2. Place the microphone at ear height in your listening position. The microphone features a threaded insert on the bottom for mounting on a camera tripod.
3. Set the volume control on your subwoofer to approximately the halfway point.
4. Turn on your TV and select the TV input where you connected the AVR in *Connect Your TV or Video Display*, on page 13.
5. Press the remote control’s OSD button. The AVR’s on-screen display (OSD) Master Menu will appear on the TV.

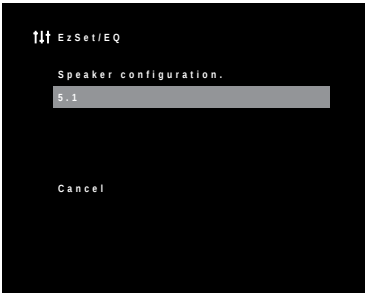


NOTE: If you have only used a composite video connection to your TV, the OSD menus will not appear on your TV. Follow the steps below using the receiver’s front-panel display.

6. Use the remote’s arrow and OK buttons to select “EzSet/EQ.”



7. Select “YES.” The Speaker Configuration menu will appear.





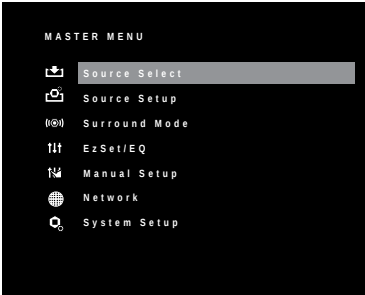
Set Up the AVR, continued

8. Select “5.1.”
9. The test will begin. Make sure that the room is quiet while the test noise is playing through the speakers.
10. When the test finishes, press the remote’s OSD button to exit.

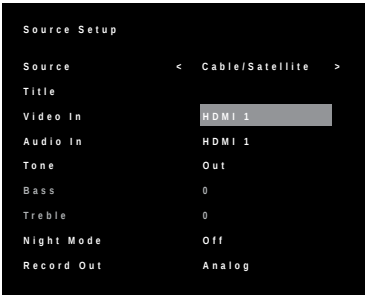
Assign the AVR Input Connectors

1. Review the input connections you listed on the connection table, on page 13. Note what changes (if any) you have made from the default AVR Input Connector assignments that appear on the list. If you connected your source devices according to the entries in the “Default AVR Input Connector” column of the table on page 13, you can skip this section.
2. Turn on your TV and select the TV input where you connected the AVR in *Connect Your TV or Video Display*, on page 13.
3. Press the remote control’s OSD button. The AVR’s on-screen display (OSD) Master Menu will appear on the TV.

NOTE: If you have used a composite video connection to your TV, the OSD menus will not appear on your TV. Follow the steps below using the AVR’s front-panel display.

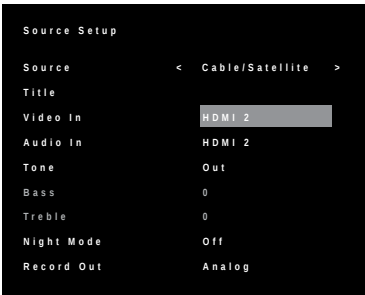


4. Use the remote’s arrow and OK buttons to select “Source Setup.” If there is a Source Selector for which you want to assign different video or audio connections, use the left/right arrow buttons to select it, and press the OK button.



5. Select “Video In” and use the left/right arrow buttons to select the video input connector you want to assign to the Source Selector button. Press the OK button.

NOTE: If you select an HDMI connector for the Video connection the Audio connection will automatically change to the same HDMI connector.



6. Select “Audio In” and use the left/right arrow buttons to select the audio input connector you want to assign to the Source button.

NOTE: If you have assigned an HDMI Video connector for the Source button you cannot assign a different Audio connector.



7. Repeat steps 4 – 6 for the remaining audio/video connections that you want to re-assign.

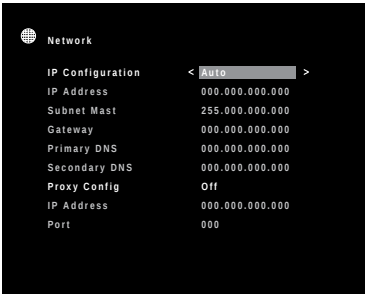
Set Up the Network

To play MP3 or WMA media located on DLNA-compatible devices connected to the network, to use the AVR’s internal Internet radio tuner (vTuner) to listen to audio streams or to stream audio to the AVR via AirPlay, connect the AVR’s Network connector to the Ethernet port on a router or modem that has Internet access, to a home network, or to a PC. (See *Connect to Your Home Network*, on page 15.)

We recommend that you connect the AVR directly to a home-network router so that it can directly access the Internet for Internet radio and access other devices on the network for playback of shared content (see *Listening to Media on Your Home Network*, on page 21, for more information).

If your network uses an automatic IP address, you should not have to perform any network setup procedures. Once you connect the AVR to your home network, the network should automatically assign the AVR an IP address, and the AVR should automatically connect to your network. If your AVR does not automatically connect to your network (in which case the AVR will display a “Not Connected” message when you press the Network source button):

1. Press the OSD button and select Network. The Network setup menu will appear.



2. Select IP Configuration, then press the Left or Right button twice to cycle the setting from “Auto” to “Manual” and back to “Auto.”
3. Scroll to the bottom of the list and select “Apply & Save.” The AVR will enter the Standby mode. When you turn the AVR back on, it will attempt to connect to the network.
4. If the AVR again fails to connect to the network, you may need to enter your network’s settings manually. In this case, you must obtain these settings from your ISP or network administrator. After obtaining your network’s settings:

a) Select IP Address and use the Left or Right button to change the setting to “Manual.” The following settings will become active: IP Address, Subnet Mask, Gateway, Primary DNS and Secondary DNS.

b) Use the Up/Down arrow buttons to select the correct numbers and make the entries for all of these settings.

- c) When you have finished, select “Apply & Save,” and press the OK button. The AVR will refresh the network connection while it remains on. If the AVR cannot connect to the network using the manual settings, contact your ISP or network administrator for assistance.
- Proxy Config: If you have connected the AVR’s Network connection to a proxy network, use the Left/Right buttons to set this to “On”, and use the number buttons to enter the proxy network’s IP address and port.
 - Network Status: This line indicates the AVR’s current network-connection status (Connected/Not Connected/Network Problem).
 - Apply & Save: Any time you make a change in any of the Network settings, the Apply & Save line will become available. Select this line and press the OK button. The AVR will go into the Standby mode. After you turn the AVR back on, the new network settings will be in effect. **IMPORTANT: You must select “Apply & Save” for your network settings to take effect.**

NOTE: If you have trouble connecting to the network at any time, cycle the AVR into the Standby mode, and then turn it back on.

Additional Source Setup Menu Items

You can also adjust the following settings independently for each source:

Title: You may change the display name for any source (except the radio). This feature may help you to select the correct source device even when you have forgotten which physical connections you used.

1. Move the cursor to the Title line and press the OK button. A block cursor will blink.
2. Use the Up/Down buttons to scroll through the alphabet in upper and lower case, the numbers and many punctuation marks. When you have selected the desired character, press the Right button to move to the next space. Press the Right button twice to leave a blank space.
3. Press the OK button when you have finished.

Tone: This setting determines whether the treble and bass controls are active. When this line is set to Out, the tone controls are out of the circuit, with no changes to the sound. When this line is set to In, the bass and treble frequencies are boosted or cut, depending upon the Bass and Treble settings (see below).

Bass and Treble: Boost or cut the low or high frequencies by up to 10dB by using the Left/Right buttons to change the setting by 2dB at a time.

Night Mode: This setting activates Night mode with specially encoded Dolby Digital discs or broadcasts. Night mode compresses the audio so that louder passages are reduced in volume to avoid disturbing others, while dialogue remains intelligible. Each press of the right arrow button advances through the following settings:

- Off: No compression is applied. Loud passages in the program remain as they were recorded.
- Mid: Loud passages in the program are reduced moderately in volume.
- Max: Loud passages in the program are reduced more in volume.

Record Out: This setting determines the source of the signal that appears at the Analog Audio Rec Out connectors for the Cable/Sat, TV, Disc, Server, Aux, Game, STB and Audio sources:

- DSP Down mix: This setting outputs audio from digital audio input connections (HDMI, optical, coaxial) and analog audio input connections (Analog 1/2, Aux).
- Analog: This setting outputs audio only from the analog audio input connections (Analog 1/2, Aux).

NOTE: Although the USB, FM/AM, AirPlay, DLNA, and Internet Radio sources do not have Record Out settings, they are also available for recording.

When you’re finished, press the remote’s OSD button to turn off the on-screen menu.

Operating Your AVR

Now that you have installed your components and completed a basic configuration, you are ready to begin enjoying your home theater system.

Controlling the Volume

Adjust the volume either by turning the front-panel Volume knob (clockwise to increase volume or counterclockwise to decrease volume) or by pressing the Volume Up/Down buttons on the remote. The volume is displayed as a negative number of decibels (dB) below the 0dB reference point.

0dB is the maximum recommended volume for your AVR. Although it’s possible to turn the volume to a higher level, doing so may damage your hearing and your speakers. For certain more dynamic audio materials, even 0dB may be too high, allowing for damage to equipment. Use caution with regard to volume levels.

Muting the Sound

To mute all speakers and the headphones, press the Mute button on the remote. Any recording in progress will not be affected. The MUTE message will appear in the front-panel display as a reminder. To restore the sound, press the Mute button again, or adjust the volume.

Listening Through Headphones

Plug the 1/4-inch stereo plug on a pair of headphones into the front-panel Phones jack for private listening. The default headphone surround mode for all sources except FM and AM is HARMAN Headphone, which will emulate a 5.1-channel speaker system. The default surround mode for FM and AM is 2-Ch Stereo. Press the Surround Mode button on the front panel or use the remote and OSD to switch between HARMAN Headphone and 2-Ch Stereo. No other surround modes are available for headphone listening.

Selecting a Source

There are three different ways to select a source:

- Press the front-panel Source Select buttons.
- Directly select any source by pressing its Source Selector button on the remote.
- Select a source from the Source Select menu in the OSD menu system.

The AVR selects the audio and video inputs you assigned to the source and any other settings you made during setup.

The source name and the surround mode will appear on the front panel.

Video Troubleshooting Tips

If there is no picture:

- Check the source selection.
- Check all connections for a loose or incorrect connection.
- Check the video-input selection on the TV/display device.

Additional Tips for Troubleshooting HDMI Connections

- Turn off all devices (including the TV, the AVR and any source components).
- Unplug the HDMI cables, starting with the cable between the AVR and the TV, and continuing with the cables between the AVR and each source device.
- Carefully reconnect the cables from the source devices to the AVR. Connect the cable from the AVR to the TV last.
- Turn on the devices in this order: TV, AVR, source devices.

NOTE: Depending upon the particular components involved, the complexity of the required communication between HDMI components may cause delays of up to a minute in the completion of some actions, such as input switching or switching between SD and HD channels.



Operating Your AVR, continued

Listening to FM and AM Radio

Select the Radio source. Use the Tuning Up/Down buttons to tune a station, which will be shown on the front-panel display and the TV screen.

The AVR defaults to automatic tuning, meaning each press of the Tuning Up/Down buttons scans until a station with acceptable signal strength is found. To switch to manual tuning, in which each press of a Tuning button steps through a single frequency increment, press the Tuning Mode button. Each press of the Tuning Mode button toggles between the automatic and manual tuning modes.

Once you have tuned an FM station, toggling the Tuning Mode setting also switches the radio between stereo and monaural reception. (Mono reception may improve reception of weaker stations.)

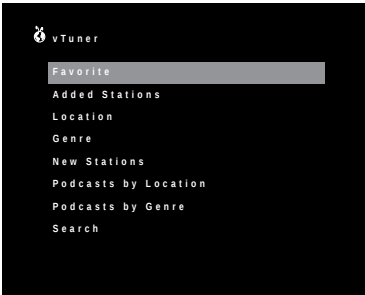
Preset Stations

A total of 30 stations (AM and FM combined) may be stored as presets. When the desired station has been tuned in, press the Memory button on the remote, and two dashes will flash on the front-panel Message display. Use the Number buttons to enter the desired preset number.

To tune a preset station, press the Preset Up/Down buttons or enter the preset number using the Number buttons.

Listening to Internet Radio (vTuner™)

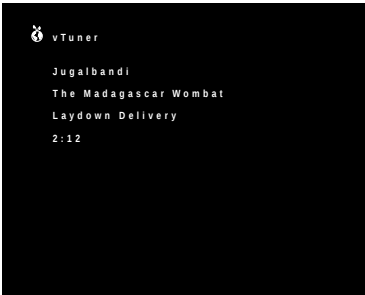
Your AVR's Network connection brings you a world of MP3- and WMA-format streams via the Internet. After you have successfully connected to your home network as described in *Connect to Your Home Network*, on page 15, and set up the network as described in *Set Up the Network*, on page 18, press the Network Source Selector button on the remote until Internet Radio appears on the AVR's front-panel display. (Each press cycles between the Network and Internet Radio sources.)



With the vTuner screen (above) displayed, the AVR will automatically connect to the Internet via the www.radioharmankardon.com portal. To select a stream, use the Up/Down buttons to select a category.

NOTE: The categories displayed may vary by region.

Once you select a stream, the OSD will display the vTuner playback screen, which contains information about the currently playing song.



Favorites: To create a Favorites list:

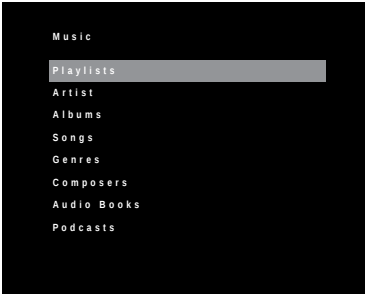
- 1) Write down your AVR's MAC Address number, which is found in the Network Setup menu. See *Set Up the Network*, on page 18, for more information.
- 2) Log onto www.radioharmankardon.com from your computer. Create an account using your AVR's MAC address as its ID number.

Favorites that you select on the Web site will be available when you listen to vTuner on the AVR.

Listening to an iPod/iPhone/iPad Device

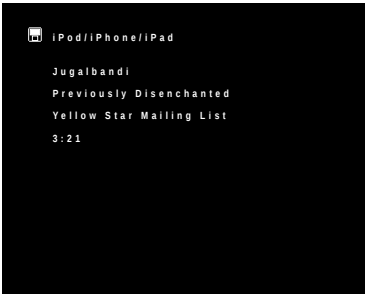
When a compatible iPod, iPhone or iPad is connected to the AVR's USB port, you may play the audio materials on the device through your high-quality audio/video system, operate the iPod, iPhone or iPad using the AVR remote, view navigation messages on the AVR's front panel or a connected video display and charge the connected device.

After connecting your iPod, iPhone or iPad to the AVR's USB port, press the USB Source Selector button. (If "USB" appears as the source, press the button a second time to switch from the USB source to the iPod source.) The iPod menu screen will appear.



Use the Up/Down and OK buttons to navigate through the list and select the desired category. When the category's screen appears, use the Up/Down and OK buttons to navigate within the category and make selections. NOTE: Not all categories may appear with all iPod/iPhone/iPad devices.

Once you select a song the iPod playback screen will appear on the OSD.



The screen will show the currently playing song, artist, album, elapsed time and total track time. Use the remote's Transport Control buttons to control playback.

- To return to a previous menu screen at any time, press the Back button.

Listening to Media on a USB Device

Your AVR is compatible with USB 2.0 or USB 1.1 media in the FAT 16 or FAT 32 file format and is compatible with the following MP3 and WMA media:

- MP3: Bit rates between 96kbps and 320kbps. Fixed bit-rates at 44.1kHz sampling is recommended. Variable bit-rates (VBR) are playable, but playing time may be displayed incorrectly. Files must have an ".mp3" file extension.
- WMA: Bit rates of 64kbps or higher.

NOTE: Bit rates of 80kbps and 256kbps are not compatible. Files must have a ".wma" file extension.

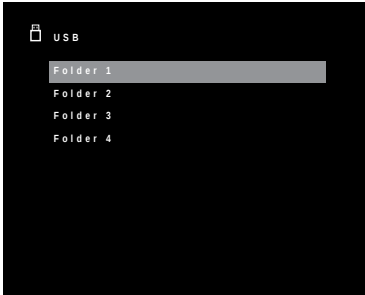
A maximum number of 65,536 folders and files can be supported.

Playing files on a USB device

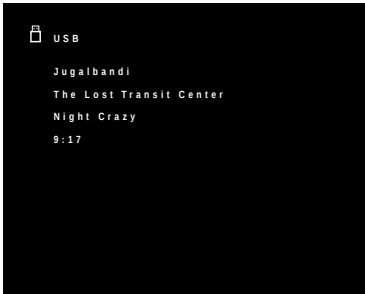
1. Insert the USB drive into the AVR's front-panel USB port.

IMPORTANT: Do not connect a personal computer or peripheral to the USB port. USB hubs are not supported.

2. Select USB as the source device. (If "iPod" appears as the source, press the button a second time to switch from the iPod source to the USB source.) The USB screen will appear.



3. Use the remote's Up, Down and OK buttons to select a folder and display its contents.
4. Use the remote's Up, Down and OK buttons to select a song. The song will play and the USB playback screen will appear on the OSD.



- Use the remote's Transport Control buttons to control playback.
- To access Shuffle and Repeat functions, press the remote's Options button.

When the song is finished playing the remaining contents of the folder will play.

Listening to Media via Your Home Network

Your AVR can play MP3 and WMA audio media that is stored on a PC or Mac computer when both the computer and the AVR are connected to your home network router.

MP3 compatibility: Mono or stereo, constant bit rates (CBR) from 8kbps to 320kbps, variable bit rates (VBR) from lowest to highest quality, with sample rates from 8kHz to 48kHz.

WMA compatibility: Ver. 9.2, stereo CBR with 32kHz – 48kHz sampling rate and 40kbps – 192kbps bit rate, mono CBR with 8kHz – 16kHz sampling rate and 5kbps – 16kbps bit rate, VBR Pass Encoding and Quality Encoding 10 – 98, 44kHz and 48kHz sampling rate.

NOTE:

- A PC must be running Windows Media® Player version 11 or higher, Windows Media Center version 2.0 or 3.0, or Intel® Media Server. We recommend that any firewalls be turned off, although Windows Media Player may automatically make any necessary adjustments to the firewall settings to allow media sharing.
- An Apple Macintosh computer must be running DLNA (Digital Living Network Alliance)-compliant software such as HARMAN Media Manager. To download the free HARMAN Media Manager software, go to <http://www.locale.harmankardon.com/en-US/hmm/mediamanager.html>.

IMPORTANT: Before you can access files located on other devices via the network, each device must first give permission to share files with the AVR:

To share media on PCs:

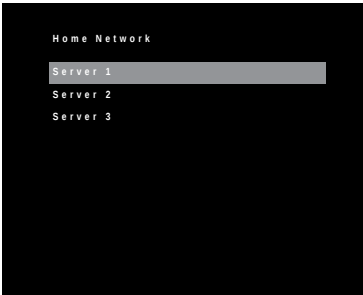
1. Open Windows Media Player.
2. Open the Library menu and select "Media Sharing." The Media Sharing window will appear.
3. Check the "Share My Media" box. An icon for the AVR will appear in the window.
4. Select the AVR icon, select "Allow," then select "OK."

The computer's WMA and MP3 media should now be available to the AVR.

To share media on other types of computers, operating systems or media software, check the instructions for the computer, operating system or media player.

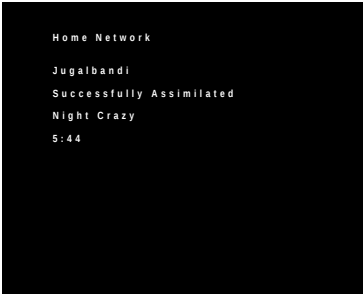
To listen to shared media:

1. Press the Network Source Selector button. (If "Internet Radio" appears as the source, press the button a second time to switch from the Internet Radio source to the Network source.) The Network screen will appear.



The screen should list by name all devices on the network that allow sharing.

2. Use the remote's Up, Down and OK buttons to select a device. The screen will display the device's folder structure.
3. Use the Up and Down buttons to browse the content stored in the device's media player library. Scroll to the desired item and press the OK button to select it. The song will play and the Network playback screen will appear on the OSD.



- Use the remote's Transport Control buttons to control playback.
- To access Shuffle and Repeat functions, press the remote's Options button.

When the song is finished playing the remaining contents of the folder will play.

NOTE:

- The Repeat settings are global for Network playback and USB playback. Changing these settings for one of these sources will change the other source's settings as well.
- Although video content may appear in the menu, the AVR does not support video playback from the Network connection.



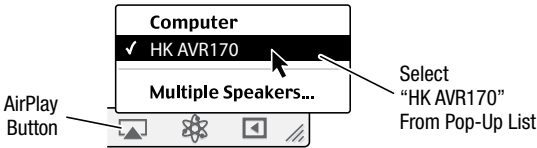
Operating Your AVR, continued, and Advanced Functions

Listening to Media via AirPlay

If you have connected the AVR to a network router that has Wi-Fi® capability, you can wirelessly stream audio to it via AirPlay from compatible Apple devices with iOS 4.2 or newer that are joined on the same Wi-Fi network, and from computers that have iTunes 10.1 or newer that are joined on the same Wi-Fi or wired network.

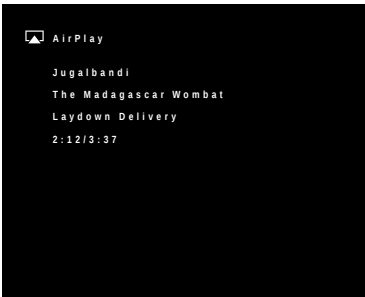
To initiate AirPlay streaming to the AVR:

- To initiate AirPlay streaming from a computer with iTunes, launch iTunes, click on the AirPlay button that appears at the bottom of the computer's iTunes window, and select "HK AVR170" in the pop-up list that appears.



- To initiate AirPlay streaming from an iPod, iPhone or iPad device, tap the AirPlay button on the device's screen and select "HK AVR 170" in the speaker-selection list that appears.

The AirPlay audio stream will break in and interrupt the source that is currently playing through the AVR. The AirPlay screen will appear on the OSD.



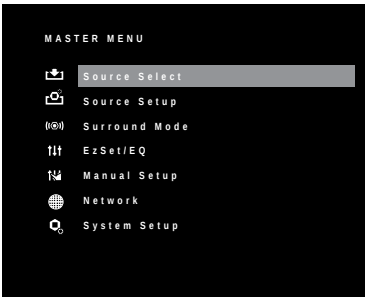
Use the remote's Transport Control buttons to control playback.

To terminate AirPlay streaming and return to the previously playing source, press the remote's Back button at any time while the AirPlay screen is displayed.

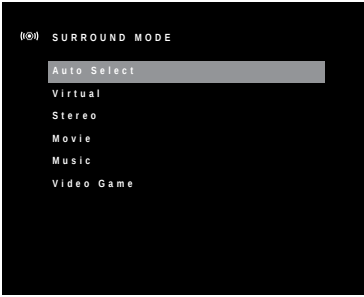
Selecting a Surround Mode

Selecting a surround mode can be as simple or sophisticated as your individual system and tastes. Feel free to experiment, and you may find a few favorites for certain sources or program types. You can find more detailed information on surround modes in *Audio Processing and Surround Sound*, page 23.

To select a surround mode, press the OSD Button on the remote to display the Master menu:



Use the Up/Down and OK buttons to select Surround Mode. The Surround Mode menu will appear:



Use the Up/Down and OK buttons to select the desired surround-mode category.

Auto Select: For a digital program, such as a movie recorded with a Dolby Digital or DTS soundtrack, the AVR will automatically use the soundtrack's native surround format. For 2-channel analog and PCM programs, the AVR uses the Logic 7 Movie, Logic 7 Music or Logic 7 Game mode, depending on the source.

Virtual Surround: When only two main speakers are present in the system, you can use the Virtual Surround mode to create an enhanced sound field that virtualizes the missing speakers.

Stereo: When you want 2-channel playback, select the number of speakers you want to use for playback:

- "2 CH Stereo" uses two speakers.
- "5 CH Stereo" plays the left-channel signal through the front left and surround left speakers, the right-channel signal through the front right and surround right speakers, and a summed mono signal through the center speaker.

Movie: Select from the following when you want a surround mode for movie playback: Logic 7 Movie, DTS NEO:6 Cinema or Dolby Pro Logic II Movie.

Music: Select from the following when you want a surround mode for music playback: Logic 7 Music, DTS NEO:6 Music or Dolby Pro Logic II Music. The Dolby Pro Logic II Music mode provides some additional settings. See *Audio Processing and Surround Sound*, on page 23, for more information.

Video Game: Select from the following when you want a surround mode for game playback: Logic 7 Game or Dolby Pro Logic II Game.

After you select the Surround Mode Category, use the Left/Right buttons to change the surround mode.

You can also select surround modes using the AVR's front-panel buttons:

1. Press the Surr Mode button. The Message display will show the surround-mode category and surround mode.
2. To change the surround mode within the surround-mode category, press the Surround Select Up/Down buttons. Each press will change to the next surround mode.
3. To change the surround-mode category, press the Surr Mode button. Each press will change to the next surround-mode category.



Advanced Functions

Much of the adjusting and configuration your AVR requires is handled automatically, with little intervention required on your part. You can also customize your AVR to suit your system and your tastes. In this section, we will describe some of the more advanced adjustments available to you.

Audio Processing and Surround Sound

Audio signals can be encoded in a variety of formats that can affect not only the quality of the sound but also the number of speaker channels and the surround mode. You may also manually select a different surround mode, when available.

Analog Audio Signals

Analog audio signals usually consist of two channels – left and right. Your AVR offers several options for analog playback:

- **Stereo:** When you want conventional 2-channel playback, select “2-CH STEREO” as the surround mode. Sound will be output from the front left and right speakers (and subwoofer, if your system has one).
- **5-Ch Stereo:** When you want to hear stereo sound through all of the system’s speakers (such as during a party), select “5CH STEREO” as the surround mode. This plays the left-channel signal through the front left and surround left speakers, the right-channel signal through the front right and surround right speakers, and a summed mono signal through the center speaker (in addition to the subwoofer, if your system has one).
- **Multi-Channel Surround Modes:** Your AVR is able to process 2-channel audio signals to produce multichannel surround sound, even when no surround sound has been encoded in the recording. Among the available modes are the Dolby Pro Logic II, Virtual Surround, DTS NEO:6, and Logic 7 modes. To select one of these modes, see *Selecting a Surround Mode*, on page 22.

Digital Audio Signals

Digital audio signals offer greater flexibility and capacity than analog signals and allow the encoding of discrete channel information directly into the signal. The result is improved sound quality and startling directionality, since each channel’s information is transmitted discretely. High-resolution recordings sound extraordinarily distortion-free, especially in the high frequencies.

Surround Modes

Surround-mode selection depends upon the format of the incoming audio signal as well as your personal taste. Although there is never a time when all of the AVR’s surround modes are available, there is usually a wide variety of modes available for a given input. Table A8 in the Appendix, on page 32, offers a brief description of each mode and indicates the types of incoming signals or digital bitstreams the mode may be used with. Additional information about the Dolby and DTS modes is available on the companies’ Web sites: www.dolby.com and www.dtsonline.com.

When in doubt, check the jacket of your disc for more information on which surround modes are available. Usually, nonessential sections of the disc, such as trailers, extra materials or the disc menu, are available only in Dolby Digital 2.0 (2-channel) or PCM 2-channel mode. If the main title is playing and the display shows one of these surround modes, look for an audio or language setup section in the disc’s menu. Also, make sure your disc player’s audio output is set to the original bitstream rather than 2-channel PCM. Stop play and check the player’s output setting.

The channels included in a typical 5.1-channel recording are front left, front right, center, surround left, surround right and LFE (low-frequency effects). The LFE channel is denoted as “.1” to represent the fact that it is limited to the low frequencies.

Digital formats include Dolby Digital 2.0 (two channels only), Dolby Digital 5.1, Dolby Digital Plus (7.1), Dolby TrueHD (7.1), DTS-HD High-Resolution Audio (7.1), DTS-HD Master Audio (7.1), DTS 5.1, DTS 96/24 (5.1), 2-channel PCM modes in 32kHz, 44.1kHz, 48kHz or 96kHz, and 5.1 or 7.1 multichannel PCM. (Your AVR will downmix the discrete surround back-channel information in 6.1-channel and 7.1-channel recordings into your system’s surround left and surround right channels.)

When the AVR receives a digital bitstream, it detects the encoding method and the number of channels, which is displayed briefly as three numbers, separated by slashes (e.g., “3/2/.1”).

The first number indicates the number of front channels in the signal: “1” represents a monophonic recording (usually an older program that has been digitally remastered or, more rarely, a modern program for which the director has chosen mono as a special effect). “2” indicates the presence of the left and right channels but no center channel. “3” indicates that all three front channels (left, right and center) are present.

The second number indicates whether any surround channels are present: “0” indicates that no surround information is present. “1” indicates that a matrixed surround signal is present. “2” indicates discrete surround left and right channels. (Bitstreams with discrete surround back left and right channel signals will be indicated by a “4,” although the AVR downmixes the surround back-channel information into the surround left and right channels.)

The third number is used for the LFE channel: “0” indicates no LFE channel. “.1” indicates that an LFE channel is present.

Dolby Digital 2.0 signals may include a Dolby Surround flag indicating DS-ON or DS-OFF, depending on whether the 2-channel bitstream contains only stereo information or a downmix of a multichannel program that can be decoded by the AVR’s Dolby Pro Logic decoder. By default, these signals are played in Dolby Pro Logic II Movie mode.

When a PCM signal is received, the PCM message and the sampling rate (32kHz, 44.1kHz, 48kHz or 96kHz) will appear.

When only two channels – left and right – are present, the analog surround modes may be used to decode the signal into multiple channels. If you would prefer a different surround format than the native signal’s digital encoding, press the Surround Modes button to display the Surround Modes menu (see *Selecting a Surround Mode*, on page 22).

The Auto Select option sets the surround mode to the native signal’s digital encoding, e.g., Dolby Digital, DTS, Dolby TrueHD or DTS-HD Master Audio. For analog 2-channel materials, the AVR defaults to the Logic 7 Movie mode. For Dolby Digital 2.0 programs, the AVR defaults to the Dolby Pro Logic II Movie mode, which creates a 5.1-channel surround-sound presentation from the 2-channel program. If you prefer a different surround mode, select the surround-mode category: Virtual Surround, Stereo, Movie, Music or Video Game. Press the OK button to change the mode.

Each surround-mode category is set to a default surround mode:

- Virtual: Virtual Surround.
- Stereo: 5-CH Stereo.
- Movie: Logic 7 Movie.
- Music: Logic 7 Music.
- Video Game: Logic 7 Game.

You may select a different mode for each category. Below is a complete list of available surround modes. (The actual surround modes available will depend on the number of speakers in your system.)

- Virtual: Virtual Surround.
- Stereo: 2-CH Stereo or 5-CH Stereo.
- Movie: Logic 7 Movie, Dolby Pro Logic II Movie, DTS NEO:6 Cinema.
- Music: Logic 7 Music, Dolby Pro Logic II Music, DTS NEO:6 Music.
- Video Game: Logic 7 Game, Dolby Pro Logic II Game.

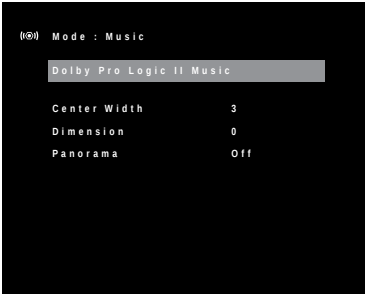
Once you have programmed the surround mode for each type of audio, select the line from the Surround Modes menu to override the AVR’s automatic surround-mode selection. The AVR will use the same surround mode the next time you select that source.

Please refer to Table A8 in the Appendix for more information on which surround modes are available with different bitstreams.



Dolby Pro Logic II Music Mode Adjustments

When you select Dolby Pro Logic II as the music surround mode, additional adjustments become available:



Center Width: This setting affects how vocals sound through the three front speakers. A lower number focuses the vocal information tightly on the center channel. Higher numbers (up to 7) broaden the vocal soundstage. Use the Left/Right buttons to adjust this setting.

Dimension: This setting affects the depth of the surround presentation, allowing you to “move” the sound toward the front or rear of the room. The setting of “0” is a neutral default. Setting “F-3” moves the sound toward the front of the room, while setting “R-3” moves the sound toward the rear. Use the Left/Right buttons to adjust it.

Panorama: With the Panorama mode turned on, some of the sound from the front speakers is moved to the surround speakers, creating an enveloping “wraparound” effect. Each press of the OK button toggles the setting On or Off.

Manual Speaker Setup

Your AVR is flexible and may be configured to work with most speakers and to compensate for the acoustic characteristics of your room.

The EzSet/EQ process automatically detects the capabilities of each connected speaker and optimizes the AVR’s performance with your speakers. If you are unable to run EzSet/EQ calibration, or if you wish to set up your AVR for your speakers manually, use the Manual Setup on-screen menus.

Before beginning, place your loudspeakers as explained in the *Place Your Speakers* section, on page 10, and connect them to the AVR. Consult the owner’s guide for the speakers or the manufacturer’s Web site for their frequency-range specification. Although you may set the AVR’s individual channel levels “by ear,” an SPL (sound-pressure level) meter purchased at a local electronics store will provide greater accuracy.

Record your configuration settings in Tables A3 and A5 in the Appendix for easy re-entry after a system reset or after the AVR’s Master Power switch has been turned off or the unit has been unplugged for more than four weeks.

Step One – Determine Your Speakers’ Crossover Frequencies

Without using the EzSet/EQ process, the AVR can’t detect how many speakers you’ve connected to it; nor can it determine their capabilities. Consult the technical specifications for all of your speakers and locate the frequency response, usually given as a range, e.g., 100Hz – 20kHz (±3dB). Write down the lowest frequency that each of your speakers is capable of playing (100Hz in the above example) as the crossover in Table A6 in the Appendix.

NOTE: This frequency is *not* the same as the “Crossover Frequency” that may be listed in the speaker’s specifications.

For the subwoofer, write down the transducer size. The AVR’s bass management determines which speakers will be used to play back the low-frequency (bass) portion of the source program. Sending the lowest notes to small satellite speakers will result in bad sound and may even damage the speakers. The highest notes may not be heard at all through the subwoofer.

With proper bass management, the AVR divides the source signal at a crossover point. All information above that crossover point is played through your system’s speakers, and all information below the crossover point is played through the subwoofer. This way, each loudspeaker in your system will perform at its best, delivering a more powerful and enjoyable sound experience.

Step Two – Measure the Speaker Distances

Ideally, all of your speakers would be placed in a circle, with the listening position at the center. However, you may have had to place some speakers a little farther away from the listening position than others. Sounds that are supposed to arrive simultaneously from different speakers may blur, due to different arrival times.

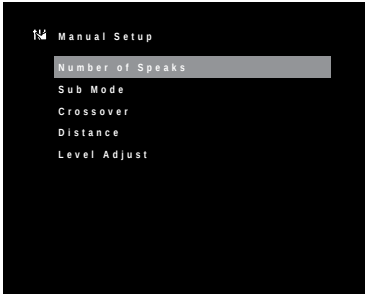
Your AVR provides a Distance adjustment that compensates for these real-world speaker-placement differences.

Measure the distance from each speaker to the listening position, and write it down in Table A3 in the Appendix. Even if all of your speakers are the same distance from the listening position, enter your speaker distances as described in *Set the Speaker Distances*, on this page 25.

Step Three – Manual Setup Menu

Now you are ready to program the AVR. Sit in your usual listening position, and make the room as quiet as possible.

With the AVR and video display turned on, press the OSD button to display the menu system and select Manual Setup. The Manual Setup menu will appear:



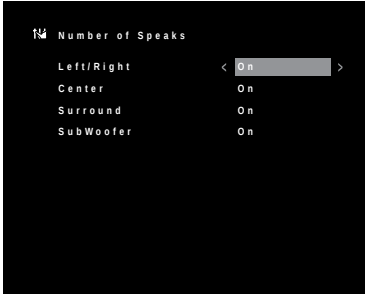
NOTE: To save your settings, press the remote’s Back button

For best results, adjust the submenus in this order: Number of Speakers, Crossover, Sub Mode, Distance and Level Adjust.

Number of Speakers

This selection lets you program the correct setting for each speaker group. The settings in this menu affect the remainder of the speaker-setup process and the availability of various surround modes at any time.

Select “On” when the speakers are present in the system; select “Off” for positions where no speakers are installed. The Front Left & Right setting is always “On” and may not be disabled.



When you have finished, press the remote’s Back button.



Crossover

After you return to the Manual Setup menu, navigate to the Crossover line and press the OK button to display the Crossover menu.



Refer to Table A5 for each speaker's crossover frequency.

NOTE: The AVR will let you adjust settings only for those speaker groups you set to On in the Number of Speakers menu.

For each speaker group, select one of these eight crossover frequencies: LARGE, 40Hz, 60Hz, 80Hz, 100Hz, 120Hz, 150Hz or 200Hz. If the speaker's crossover frequency is below 40Hz, select the first option, LARGE. This setting doesn't refer to the speaker's physical size but to its frequency response, which is also called "full range."

Specify the size of the subwoofer's transducer as 8, 10, 12 or 15 inches. The AVR always sets the subwoofer crossover to 100Hz but uses the transducer size for equalization.

Write down the settings in Table A5 in the Appendix.

When you have finished entering the settings, press the remote's Back button.

Sub Mode

After you return to the Manual Setup menu, navigate to the Sub Mode line and press the OK button to display the Sub Mode menu. This setting depends upon the Crossover setting you selected for the left and right speakers.

- If you set the Left/Right speakers to a numeric crossover frequency, the subwoofer setting will always be SUB. All low-frequency information will always be sent to the subwoofer. If you don't have a subwoofer, either upgrade to full-range front left and right speakers or add a subwoofer at the earliest opportunity.
- If you set the front speakers to LARGE, select one of the three following settings for the subwoofer:

L/R+LFE: This setting sends all low-frequency information to the subwoofer, including a) low-frequency information that is also played through the front left and right speakers and b) the special low-frequency effects (LFE) channel information.

OFF: Select this setting when no subwoofer is in use. All low-frequency information will be sent to the front left and right speakers.

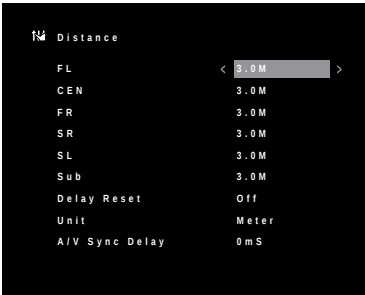
LFE: This setting plays low-frequency information contained in the full-range program channels through the front left and right speakers, and directs only the LFE-channel information to the subwoofer.

When you have finished entering the settings, press the remote's Back button.

Set the Speaker Distances

As described above in Step Two, when you measured the distances from each of your speakers to the listening position, your AVR provides an adjustment that compensates for the different distances so that the sound from each speaker will reach the listening position at the proper time. This process will improve the clarity and detail of the sound.

After you return to the Manual Setup menu, navigate to the Distance line and press the OK button to display the Distance menu.



Enter the distance from each speaker to the listening position that you measured in Step Two and recorded in Table A3 in the Appendix (see page 30). Select a speaker, then use the Left/Right buttons to change the measurement. You can enter distances between 0 and 30 feet (9m). The default distance for all speakers is 10 feet (3m).

The default unit of measurement is meters. To change the unit to feet, scroll down to the Unit line and press the Left/Right buttons.

When you have finished entering the settings, press the remote's Back button.

Step Four – Setting Channel Output Levels Manually

For a conventional stereo AVR, a simple balance control adjusts the stereo imaging by varying the relative loudness of the left and right channels. In a home theater system with up to five main channels plus a subwoofer, achieving proper imaging becomes both more critical and more complex. The goal is to ensure that each channel is heard at the listening position with equal loudness (when signals of equal loudness are played through them).

Your AVR's EzSet/EQ calibration can handle this critical task for you simply and automatically. However, the AVR's Level Adjust menu allows you to calibrate the levels manually, either using the system's built-in test tone or while playing source material.

After you return to the Manual Setup menu, navigate to the Level Adjust line and press the OK button to display the Level Adjust menu.



All of the system's speakers will appear with their current level settings. You can adjust each speaker's level between -10dB and +10dB in 1dB increments.

While making adjustments, you can measure the channel levels in one of these ways:

- Preferably, use a handheld SPL meter set to C-weighting, slow scale. Adjust each speaker so that the meter reads 75dB when the AVR's built-in test noise is playing.
- By ear. Adjust the levels so that the test tone sounds equally loud to you when it plays through each speaker.



Advanced Functions, continued

To set your levels using the AVR's internal test tone, select the menu's Test Tone Seq line and use the Left/Right buttons to select between Auto and Manual. After selecting Auto or Manual, move the cursor to the Test Tone line and use the Left/Right buttons to change the setting to On.

Auto: The test tone will automatically circulate to all speakers, as indicated by the highlight bar. Use the Left/Right buttons to adjust the level for any speaker when the test tone is paused there. Use the Up/Down buttons to move the cursor to another line, and the test tone will follow the cursor. To stop the test tone, use the Up/Down buttons to move the cursor out of the screen's speaker-listings area.

Manual: The test tone will stay on the current speaker until you use the Up/Down buttons to move it to another speaker. Use the Left/Right buttons to adjust the level for the speaker through which the test tone is playing.

If you are listening to an external source while you set your output levels, set Test Tone to Off, use the Up/Down buttons to navigate to each speaker, and use the Left/Right buttons to adjust the speaker's level while the source plays.

NOTE: If you are using a handheld SPL meter with external source material, such as a test disc or an audio selection, play it and adjust the AVR's master volume control until the meter measures 75dB. Then adjust the individual speaker levels.

Channel Reset: To reset all channel levels to their factory defaults of 0dB, select this line and press the Left/Right buttons.

When you have finished adjusting the speaker levels, record the settings in Table A5 in the Appendix. Then press the remote's Back button to return to the previous menu screen, or press the remote's OSD button to exit the menu system.

Notes on Setting Speaker Volumes in Home Theater Systems:

While setting your system's individual speaker volume levels is ultimately up to your personal taste, here are some ideas you may find helpful:

- For films and video-music programs, your overall goal should be to create an enveloping, realistic sound field that draws you into the film or music program without drawing your attention away from the action on the screen.
- For multichannel music recordings, some music producers will create a sound field that places the musicians all around you; others will create a sound field that places the musicians in front of you, with more subtle ambience in the surround speakers (as you would experience in a concert hall).
- In most 5.1-channel film soundtracks, the surround speakers are not intended to be as loud or as active as the front speakers. Adjusting the surround speakers so they are always as loud as the front speakers could make dialogue difficult to understand and will make some sound effects sound unrealistically loud.

Notes on Setting Subwoofer Volume:

- Sometimes the ideal subwoofer volume setting for music is too loud for films, while the ideal setting for films is too quiet for music. When setting the subwoofer volume, listen to both music and films with strong bass content and find a "middle ground" volume level that works for both.
- If your subwoofer always seems too loud or too quiet, you may want to place it in a different location. Placing the subwoofer in a corner will always tend to increase its bass output, while placing it away from any walls or corners will always tend to lessen its bass output.

System Setup

The AVR's System Setup menu lets you customize the way many of the AVR's features operate. Press the OSD button and navigate to the System Setup line. Press the OK button to display the System Setup menu.

VFD Fade Time Out: Some people find the brightness of the AVR's front-panel display distracting during movies or listening sessions. It's possible to dim the front-panel display completely using the remote's Display Dimmer button (see *System Remote Control Functions*, on pages 8 and 9). The VFD Fade Time Out sets the display to remain dark most of the time, lighting up only when a button is pressed or a remote command is received, and going dark again five seconds after the last command. The feature also causes the display to light up only when a button is pressed but the display immediately begins to fade to dark. This setting allows you to program the length of the fade time. Select a time-out period of between three and ten seconds, or select Off if you prefer to leave the displays on at all times or to use the Display Dimmer button.

Volume Default and Default Volume Set: These two settings are used together to program the volume level the AVR defaults to when you turn it on. Set Volume Default to On, and then set the Default Volume Set to the desired turn-on volume. When Volume Default is set to Off, the AVR will turn on at the last-used volume setting from the previous listening session.

HDMI Audio To TV: This setting determines whether HDMI audio signals are passed through the HDMI Monitor Out connector to the video display. In normal operation, leave this setting at Off, as audio will be played through the AVR. To use the TV by itself, without the home theater system, turn this setting to On. In this case, you will need to mute the TV's speakers (or switch the setting to Off) when using the AVR for audio.

Semi OSD Time Out: Program the amount of time (2 to 5 seconds) the two-line semi-OSD status messages remain on screen, or deactivate the semi-OSD display altogether if you find it distracting. These messages will continue to appear on the AVR's front-panel display.

Full OSD Time Out: Program the amount of time (20, 30, 40 or 50 seconds) the full OSD menus remain visible on screen. The full OSD system may not be deactivated.

HDMI Link: This setting allows the communication of control information among the HDMI devices in your system. Turn this setting to On to allow control communication among the HDMI devices; turn the setting to Off to forbid control communication.

Adjust Lip Sync: This setting lets you resynchronize the audio and video signals from a source to eliminate a "lip sync" problem. Lip sync issues can occur when the video portion of a signal undergoes additional processing in either the source device or the video display. Use the Left/Right buttons to delay the audio by up to 180ms.

Upgrade Software: If a software upgrade is released for your AVR, installation instructions will be available in the Product Support section of the Web site or from Harman Kardon customer service. At that time, access this submenu to install the software upgrade.

IMPORTANT: During a system upgrade, do not power off the AVR or use any of its controls. Doing so could permanently damage the AVR.

Advanced Remote Control Programming

Programming an Unused Source Selector Button to Control a Different Device

You can program unused Source Selector buttons to control devices that are different than they are set up for at the factory. For example, you can program the Server button to control a second TV set.

1. Locate the code numbers for the device you want to control from the tables in Appendices 10 – 18, on pages 37 – 46.
2. Turn on the device you want to control.
3. Press the unused Source Selector button that you want to program for three seconds. The button's LED will turn on and Program Indicator LED will flash.
4. Press the Source Selector button that corresponds to the type of device you want to control. (For example, if you want to control a TV, press the TV Source Selector button.) The unused Source Selector button's LED will flash once.
5. Aim the remote toward the device you want to control and use the Number buttons to enter first code number. The Program Indicator LED will flash. If you have selected the correct code number the device will turn off. If it does not turn off, enter the next code number from the table. When the device turns off, proceed to step 6.
6. Press the unused Source Selector button from Step 3. That Source Selector button's LED will turn off and the Program Indicator LED will flash green three times.

The remote will now control the device when the formerly unused Source Selector button is pressed.

Remote Channel-Control Punch-Through

The punch-through feature allows you to operate one component while setting certain groups of controls to operate another component. For example, while using the AVR controls for surround modes and other audio functions, you may also use the remote to operate the transport controls of your Blu-ray Disc player. Or while using the remote to control video functions on your TV, you may also use the remote to change channels on your cable box.



To program punch-through control while operating any device:

1. For three seconds, press and hold the Source Selector button (or the AVR button) for the main device the remote will be operating. The Program Indicator LED will flash, indicating that the remote is in Program mode and that you may release the button.
2. Select the type of punch-through programming.
 - a) To program volume-control punch-through, press the Volume Up button.
 - b) To program channel-control punch-through, press the Volume Down button.
 - c) To program transport-control punch-through, press the Play transport-control button.
3. Press the Source Selector button for the device whose volume, channel or transport-controls you will use while operating the device selected in the first step. The Program Indicator LED will flash to confirm.

To undo punch-through programming, follow the same steps as above, but press the same Source Selector button in Steps 1 and 3.

Programming Macro Commands

Each of the AVR remote's four Macro buttons and the Power On button (see *System Remote Control Functions*, on pages 8 and 9) can be programmed to send out up to 19 commands at one time from a single button push. Any AVR remote control button's function from any mode (except the Mute button, the Dim button and the Channel Up/Down buttons) can be programmed into a macro.

NOTE: Use caution when programming complicated macros. It isn't possible to program a pause or delay before sending additional commands after a "Power On" command, and the component may not be ready to respond to commands immediately after powering on.

To program a macro:

1. Simultaneously press one of the four Macro buttons, or the Power On button, and the Mute button to enter the Programming mode.
2. Press in up to 19 commands that you want stored in that Macro button. Press the Source Selector button for each device (or AVR button for the AVR itself) before you enter individual commands. This step counts as one of the 19 commands allowed for each Macro.
3. For the Power On command, DO NOT press the Power On button. Press the Mute button instead.
4. Press the Power Off button to program the Power Off command.
5. Press the CH+ button to end the programming process and save the macro.

It isn't possible to "edit" a command within a macro. However, you may erase the macro as follows:

1. Simultaneously press and hold the Mute button and the Macro button containing the macro until the Program Indicator LED flashes.
2. Press the Channel Down button to erase the macro.

To execute a macro, press the Macro button (or the Power On button) into which you programmed the macro. Aim the remote at the AVR and the other components until all of the macro commands have been executed.

Recording

Depending on the Record Out settings you made for each source in the Source Setup menu (see *System Setup*, on page 26, for more information), analog or digital audio signals, as well as composite video signals, are normally available at the appropriate recording output connectors. To make a recording, connect your audio or video recorder to the appropriate AVR output connectors as described in the *Making Connections* section, on page 13, insert blank media in the recorder and make sure the recorder is turned on and recording while the source is playing. Refer to the recording device's instructions for complete information about making recordings.

NOTE: Please make certain that you are aware of any copyright restrictions on any material you record. Unauthorized duplication of copyrighted materials is prohibited by law.

Sleep Timer

The sleep timer sets the AVR to play for up to 90 minutes and then turn off automatically.

Press the Sleep button on the remote, and the time until turn-off will be displayed on the front-panel Message display and on a connected TV. Each additional press of the Sleep button decreases the play time by 10 minutes, with a maximum of 90 minutes. The SLEEP OFF setting disables the sleep timer.

When the sleep timer has been set, the front-panel display will automatically dim to half brightness.

If you press the Sleep button after the timer has been set, the remaining play time will be displayed. Press the Sleep button again to change the play time.

Resetting the Remote

To reset the remote to its factory-default condition, simultaneously press and hold any Source Selector button and the "0" Number button. When the Program Indicator LED flashes amber, enter the code "333." When the green LED goes out, the remote control will be reset.

Processor Reset

If the AVR behaves erratically after a power surge, first turn off the rear-panel Main Power switch and unplug the AC power cord for at least 3 minutes. Plug the cord back in and turn the AVR on. If this procedure doesn't help, reset the AVR's processor as described below.

NOTE: A processor reset erases all user configurations, including video resolution, speaker and level settings, and tuner presets. After a reset, reenter all of these settings from your notes in the Appendix worksheets.

To reset the AVR's processor:

1. Press the front-panel Standby/On switch to place the unit in the Standby mode (the Power Indicator LED will turn amber).
2. Press and hold the front-panel Surround Mode button for at least 5 seconds until the RESET message appears on the front-panel Message display.

If the AVR does not function correctly after a processor reset, contact an authorized Harman Kardon service center for assistance. Authorized service centers may be located by visiting our Web site at www.harmankardon.com.

Memory

If the AVR is unplugged or experiences a power outage, it will retain your user settings for up to four weeks.



Troubleshooting

Symptom	Cause	Solution
Unit does not function when Main Power switch is turned on	• No AC power	• Ensure that the power cord is plugged into a live AC power outlet • Check if the AC outlet is switch-controlled
Front-panel Message display lights, but there's no sound or picture	• Intermittent input connection • Mute is on • Volume control is turned down	• Secure all input and speaker connections • Press Mute button • Turn up Volume control
No sound from any speaker; PROTECT message appears on Message display	• Amplifier is in protection mode due to possible short circuit • Amplifier is in protection mode due to internal problems	• Check all speaker wires at speaker and AVR connections for crossed wires • Contact your local Harman Kardon service center
No sound from center or surround speakers	• Incorrect surround mode • Program material is monophonic • Incorrect speaker configuration • Program material is stereo	• Select a surround mode other than stereo • Mono programs contain no surround information • Check the speaker configuration in the setup menu • The surround decoder may not create center- or surround-channel information from nonencoded stereo programs
Unit does not respond to remote control commands	• Weak batteries in remote • AVR not selected • Remote sensor is obscured	• Change batteries in remote • Press the Setup/AVR button • Ensure that the AVR's front-panel remote sensor is in the line of sight of the remote
Intermittent buzzing in tuner	• Local interference	• Move the AVR or antenna away from computers, fluorescent lights, motors or other electrical appliances
Unable to activate remote control Programming mode	• Source Selector button is not held for at least 3 seconds	• Be sure to hold the Source Selector button for at least 3 seconds

Additional information on troubleshooting possible problems with your AVR and installation-related issues may be found in the list of “Frequently Asked Questions,” which is located in the Product Support section of our Web site: www.harmankardon.com



Specifications

Audio Section

Stereo power:	100W per channel, two channels driven @6/8 ohms, 1kHz, <1.0% THD
Multichannel power:	100 watts per channel two channels driven @ 6/8 ohms, 1 kHz, <1.0% THD
Input sensitivity/impedance:	250mV/27k ohms
Signal-to-noise ratio (IHF-A):	100dB
Surround system adjacent-channel separation:	Dolby Pro Logic/PLII: 40dB Dolby Digital: 55dB DTS: 55dB
Frequency response:	10Hz – 100kHz
High instantaneous-current capability (HCC):	±34 amps
Transient intermodulation distortion (TIM):	Unmeasurable

FM Tuner Section

Frequency range:	87.5 – 108.0MHz
Usable sensitivity IHF:	1.3µV/13.2dBf
Signal-to-noise ratio (mono/stereo):	70dB/68dB
Distortion (mono/stereo):	0.2%/0.3%
Stereo separation:	40dB @ 1kHz
Selectivity (±400kHz):	70dB
Image rejection:	80dB
IF rejection:	80dB

AM Tuner Section

Frequency range:	520kHz – 1710kHz (AVR 1700) 522kHz – 1620kHz (AVR 170/AVR 170/230C)
Signal-to-noise ratio:	38dB
Usable sensitivity (loop):	500µV
Distortion (1kHz, 50% mod):	1.0%
Selectivity (±10kHz):	30dB

Video Section

Television format:	NTSC (AVR 1700); PAL (AVR 170/AVR 170/230C)
Input level/impedance:	1Vp-p/75 ohms
Output level/impedance:	1Vp-p/75 ohms
Video frequency response (composite video):	10Hz – 8MHz (–3dB)
HDMI:	witn 3D and 12-bit Deep Color

General Specifications

Power requirement:	120V AC/60Hz (AVR 1700); 220V – 240V AC/50Hz (AVR 170/AVR 170/230C)
Power consumption (maximum):	260W (AVR 1700) 240W (AVR 170/ AVR 170/230C) <0.5W/Eco Standby mode
Dimensions (W x H x D):	17-5/16" x 6-1/2" x 14-13/16" (440mm x 165mm x 377mm)
Weight	12.8 lb (5.8kg)



Appendix – Default settings, worksheets, remote product codes

Table A1 – Recommended Source Component Connections

Device Type	AVR Source	Default Audio Connection	Default Video Connection
Cable TV, Satellite, HDTV or other device that delivers television programs	Cable/Sat	• HDMI 1 Input	• HDMI 1 Input
DVD player, Blu-ray Disc player	Disc	• HDMI 2 Input	• HDMI 2 Input
HDMI-capable music server	Server	• HDMI 3 Input	• HDMI 3 Input
HDMI-capable game console	Game	• HDMI 5 Input	• HDMI 5 Input
HDMI-capable DVR or set-top box	STB	• HDMI 6 Input	• HDMI 6 Input
Analog audio device	Audio	• Analog Audio 2	• Not required
Home network	Network	• Network	• Not required
iPod or iPhone	USB	• USB port	• Not required
Auxiliary source device	Aux	• Front-Panel Aux Input	• Component Video 1 Input

Note: Table A1 is a guideline; you may need to make adjustments to fit your system.

Table A2 – Speaker/Channel Setting Defaults

Speaker	Default Setting	Your Setting
Left/Right Speaker	ON	
Center Speaker	ON	
Surround Speaker	ON	
Subwoofer	ON	
Left/Right Speaker Crossover	100Hz	
Center Speaker Crossover	100Hz	
Surround Speaker Crossover	100Hz	
LFE	PRESENT	
Sub Mode	SUB	

Table A3 – Distance Settings

Speaker Positions	Your Distances from Speaker to Listening Position
Front Left	
Center	
Front Right	
Surround Right	
Surround Left	
Subwoofer	
A/V Sync Delay	0mS

Table A4 – Source Settings

Source	Cable/Sat	TV	Disc	Server	Aux	Game	STB	Audio	Radio	USB	Network
Title											
Video Input		N/A							N/A		N/A
Audio Input		HDMI Audio Return Channel							Internal Tuner		Network Connector
Record Out									N/A	N/A	N/A

Table A5 – Speaker/Channel Settings

	Front Left	Front Right	Center	Surround Left	Surround Right	Subwoofer
Number of Speakers	ON					
Crossover						
Distance						
Channel Level Adjust						

Table A6 – Remote Control Codes

Source Selector	Connected Device	Remote Control Code
Cable/Sat		
TV		
Disc		
Server		
Aux		
Game		
STB		
Audio		

Table A7 – System Settings

Feature	Default Setting	Your Setting
VFD Fade Time-Out	OFF	
Volume Default	OFF	
Default Vol Set	–25dB	
HDMI Audio to TV	OFF	
Semi-OSD Time-Out	5 Seconds	
Full-OSD Time-Out	20 Seconds	
HDMI Link	OFF	
HDMI ARC	OFF	

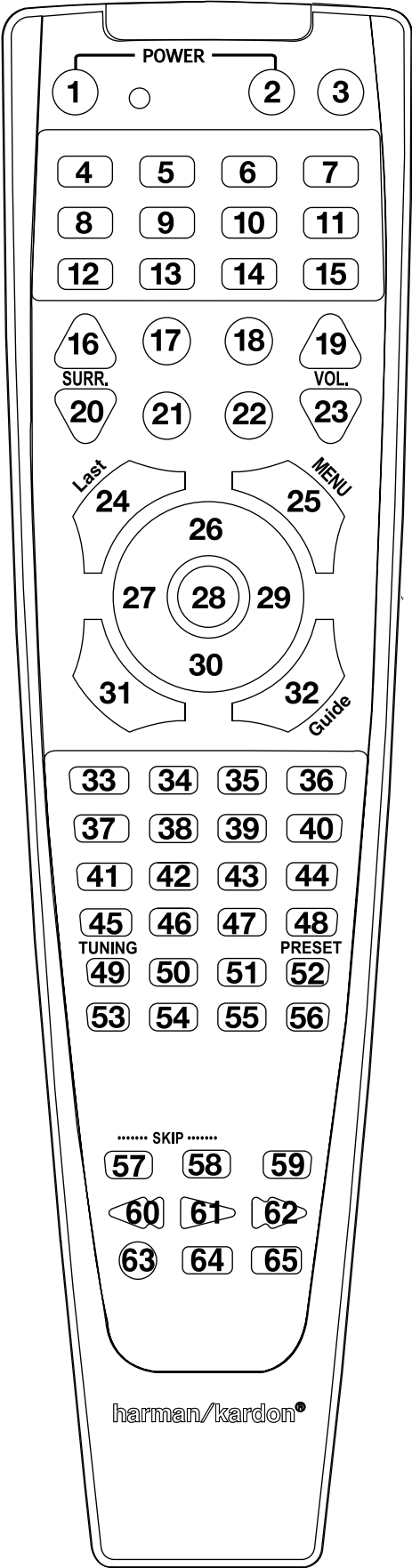


Table A8 – Surround Modes

Surround Mode	Description	Incoming Bitstream or Signal
Dolby Digital	Provides up to five separate main audio channels and a dedicated low-frequency effects (LFE) channel.	• Dolby Digital 1/0/.0 or .1, 2/0/.0 or .1, 3/0/.0 or .1, 2/1/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1 • Dolby Digital EX (played as 5.1) • Dolby Digital Plus decoded and delivered via coaxial or optical connection
Dolby Digital Plus	An enhanced version of Dolby Digital encoded more efficiently, Dolby Digital Plus has the capacity for additional discrete channels and for streaming audio from the Internet, all with enhanced audio quality. Source material may be delivered via an HDMI connection or decoded to Dolby Digital or PCM and transmitted via coaxial or optical digital audio.	• Dolby Digital Plus via HDMI connection (source device decodes to Dolby Digital when a coaxial or optical connection is used)
Dolby TrueHD	Dolby TrueHD is an expansion of MLP Lossless™ audio, the same format used on DVD-Audio discs. Dolby TrueHD adds the features found in Dolby Digital, such as night mode settings, while delivering fully lossless audio that is a true reproduction of studio master recordings.	• Blu-ray Disc or HD-DVD encoded with Dolby TrueHD, delivered via HDMI
Dolby Digital Stereo	Delivers a 2-channel downmix of Dolby Digital materials.	• Dolby Digital 1/0/.0 or .1, 2/0/.0 or .1, 3/0/.0 or .1, 2/1/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1 • Dolby Digital EX
Dolby Pro Logic II Mode Group	Analog decoder that derives five full-range, discrete main audio channels from matrix surround-encoded or 2-channel analog sources. Four variants are available.	See below
Dolby Pro Logic II Movie	Variant of Dolby Pro Logic II that is optimized for movie and television programs.	• Dolby Digital 2.0 or 2.1 • Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Dolby Pro Logic II Music	Variant of Dolby Pro Logic II that is optimized for music selections. Allows adjustment of sound-field presentation in three dimensions: • Center Width (adjusts width of vocal soundstage) • Dimension (adjusts depth of soundstage) • Panorama (adjusts wraparound surround effect)	• Dolby Digital 2.0 or 2.1 • Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Dolby Pro Logic II Game	Variant of Dolby Pro Logic II that emphasizes use of the surround channels and subwoofer for total immersion in the video gaming experience.	• Dolby Digital 2.0 or 2.1 • Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Dolby Pro Logic	Original version of Dolby Pro Logic that steered a mono signal containing information below 7kHz to the surround channels.	• Dolby Digital 2.0 or 2.1 • Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Virtual Speaker	Simulates 5.1 channels when only two speakers are present or a more enveloping sound field is desired.	• Dolby Digital • Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz or 48kHz)
DTS Digital	Using a different encoding/decoding method from Dolby Digital, DTS Digital also provides up to five discrete main channels, plus an LFE channel.	• DTS 1/0/.0 or .1, 2/0/.0 or .1, 3/0/.0 or .1, 3/1/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1 • DTS-ES Matrix (played as 5.1) • DTS-ES Discrete (played as 5.1)

Table A8 – Surround Modes (cont.)

Surround Mode	Description	Incoming Bitstream or Signal
DTS-HD	DTS-HD is a high-definition audio format that complements the high-definition video found on Blu-ray Disc and HD-DVD discs. It is transmitted using a DTS core with high-resolution extensions. Even when only DTS 5.1 surround sound is desired (or available, if the multizone system is in use), the higher capacity of high-resolution discs serves up DTS at twice the bit rate used on DVD-Video discs.	• Blu-ray Disc or HD-DVD discs encoded with DTS-HD modes, delivered via HDMI connection
DTS-HD Master Audio	DTS-HD Master Audio technology delivers bit-for-bit reproductions of studio master recordings for an incredibly accurate performance.	• Blu-ray Disc or HD-DVD discs encoded with DTS-HD Master Audio technology, delivered via HDMI connection
DTS Stereo	Delivers a 2-channel downmix of DTS Digital materials or presents a matrix-encoded surround presentation.	• DTS 1/0/.0 or .1, 2/0/.0 or .1, 3/0/.0 or .1, 3/1/.0 or .1, 2/2/.0 or .1, 3/2/.0 or .1 • DTS 96/24 • DTS-ES Matrix
DTS Neo:6 Cinema	Delivers an enhanced 5.1-channel surround-sound experience for movies	• Analog (two-channel) • AM/FM radio • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
DTS Neo:6 Music	Delivers an enhanced 5.1-channel surround-sound experience for music	• Analog (two-channel) • AM/FM radio • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Logic 7 Mode Group	A HARMAN proprietary technology, Logic 7 enhances two-channel and matrix-encoded recordings by deriving separate information for the surround back channels. It provides more accurate placement of sound, improves panning and expands the sound field, even when used with 5.1-channel systems. Logic 7 technology uses 96kHz processing and is available in 5.1 mode. Three variants are available.	See below
Logic 7 Movie	Especially suited to two-channel sources containing Dolby Surround or matrix encoding, Logic 7 Movie mode increases center-channel intelligibility.	• Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Logic 7 Music	The AVR is programmed at the factory to default to this mode for two-channel signals. Logic 7 Music mode is well suited to conventional two-channel music recordings.	• Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
Logic 7 Game	Use Logic 7 Game mode to enhance enjoyment of video-game consoles.	• Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
5-Channel Stereo	Useful for parties, the left- and right-channel information is played through both the front and surround speakers on each side, while the center speaker plays a summed mono mix.	• Analog (two-channel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)
2-Channel Stereo	Turns off all surround processing and plays a pure 2-channel signal or a downmix of a multichannel signal. The signal is digitized and bass management settings are applied, making it appropriate when a subwoofer is used.	• Analog (two-channel; DSP downmix available for multichannel) • Tuner • PCM (32kHz, 44.1kHz, 48kHz, 96kHz)



Refer to the numbered buttons when using the Remote Control Function List

Table A9 – Remote Control Function List

No.	Button Name	AVR Function	DVD	Blu-ray Disc Player	Game	TV	TiVo/DVR	DMC Music Server	Cable Tuner	Satellite Tuner	iPod/USB
01	Power On	Power On	Power On	Power On		Power On	Power On/Off	Power On	Power On	Power On	Power On
02	Power Off	Power Off	Power Off	Power Off		Power Off	TV Power	Power Off	Power Off	Power Off	Power Off
03	Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute	Mute
04	AVR	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select	AVR Select
05	Cable/Sat	Cable/Sat Select	Cable/Sat Select	Cable/Sat Select	Cable/Sat Select	Cable/Sat Select	Cable/Sat Select	Cable/Sat Select	Cable Select	Sat Select	Cable/Sat Select
06	TV	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select	TV Select
07	Disc	Disc Select	Disc Select	Disc Select	TV Select	Disc Select	Disc Select	Disc Select	Disc Select	Disc Select	Disc Select
08	Server	Server Select	Server Select	Server Select	Server Select	Server Select	Server Select	Server Select	Server Select	Server Select	Server Select
09	Aux	Aux Select	Aux Select	Aux Select	Aux Select	Aux Select	Aux Select	Aux Select	Aux Select	Aux Select	Aux Select
10	Game	Game Select	Game Select	Game Select	Game Select	Game Select	Game Select	Game Select	Game Select	Game Select	Game Select
11	STB	STB Select	STB Select	STB Select	STB Select	STB Select	STB Select	STB Select	STB Select	STB Select	STB Select
12	Audio	Audio Select	Audio Select	Audio Select	Audio Select	Audio Select	Audio Select	Audio Select	Audio Select	Audio Select	Audio Select
13	Radio	Radio Select	Radio Select	Radio Select	Radio Select	Radio Select	Radio Select	Radio Select	Radio Select	Radio Select	Radio Select
14	USB	USB Select	USB Select	USB Select	USB Select	USB Select	USB Select	USB Select	USB Select	USB Select	USB Select
15	Network	Network Select	Network Select	Network Select	Network Select	Network Select	Network Select	Network Select	Network Select	Network Select	Network Select
16	CH+		Audio			Channel +	Channel +	Audio	Channel +	Channel +	Channel +
17	Test Tone	Test Tone		Find				Find			
18	CH.	Channel	Audio or Playlist	Audio				Status			
19	Vol Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up	Volume Up
20	CH-		Disc Menu or Title	Disc Menu or Top Menu	Scan Down	Channel -	Channel -	Title	Channel -	Channel -	Channel -
21	Tone	Tone Controls		PIP Audio or PopUp Menu				V-Off			Tone Controls
22	Delay	Delay Adjust	Repeat	Repeat							Delay Adjust
23	Vol Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down	Volume Down
24	Back/Last	Back	Return or Status	Return or Exit	Enter	Previous Channel	Prev CH or Instant Replay	Return or Back	Previous Channel	Previous Channel	Back
25	Options/Menu	Options	Menu or Setup	Options or Popup/Title Menu	Start	Menu	Menu	Setup	Menu	Menu	Options
26	Up	Move/Adust Up	Up	Up	Up	Up	Up	Up	Up	Up	Up
27	Left	Move/Adjust Left	Left	Left	Left	Left	Left	Left	Left	Left	Left
28	OK	OK	Enter	Enter	Select	Enter	Select	Enter	Enter	Enter	Enter
29	Right	Move/Adjust Right	Right	Right	Right	Right	Right	Right	Right	Right	Right
30	Down	Move/Adjust Down	Down	Down	Down	Down	Down	Down	Down	Down	Down
31	OSD	OSD	HD Mode/SUB On/Off	Home/Subtitle		OSD		Info	OSD	OSD	
32	Sleep/Guide	Sleep	Disc Menu/Title	Status/Display	DVD menu			Disc Menu	Info	Info	Sleep
33	1	1	1	1	1	1	1	1	1	1	1
34	2	2	2	2	2	2	2	2	2	2	2
35	3	3	3	3	3	3	3	3	3	3	3



Table A9 – Remote Control Function List (cont.)

No.	Button Name	AVR Function	DVD	Blu-ray Disc Player	Game	TV	TiVo/DVR	DMC Music Server	Cable Tuner	Satellite Tuner	iPod/USB
36	4	4	4	4	4	4	4	4	4	4	4
37	5	5	5	5	5	5	5	5	5	5	5
38	6	6	6	6	6	6	6	6	6	6	6
39	7	7	7	7	7	7	7	7	7	7	7
40	8	8	8	8	8	8	8	8	8	8	8
41	Direct	Direct Tuner Entry	Chapter+ or Zoom								
42	9	9	9	9	9	9	9	9	9	9	9
43	0	0	0	0	0	0	0	0	0	0	0
44	Clear	Clear	Clear	Clear	Clear		Exit	Clear			Clear
45	Tuning Up	Tuning Up	Next Chapter	Program (Red)	●	Cancel		Mark/Window	PPV	Cancel	
46	Memory	Direct Tuner Entry	Angle	Bookmark (Green)	■		Repeat/Live TV	Angle	FAV	FAV	
47	TUN-M	Tuning Mode		Thumbnail (Yellow)	▲		Jump Up/Slow	A-B	Bypass	Next	
48	Preset Up	Preset Tune Up	Slow Forward	Zoom (Blue)	X		Jump Down/Skip	Source/Menu	Music	Alt	
49	Tuning Down	Tuning Down	Prev Chapter	Setup/Settings		Sleep					
50	Night	Night Mode	Subtitle	Find/Subtitle	Subtitle			Subtitle			
51	D. Skip (AVR 1700); RDS (AVR 170)	Disc Skip (AVR 1700); RDS Mode (AVR 170)	Disc Skip	Angle				Play Mode			
52	Preset Down	Preset Tune Down	Slow Rev	A-B				Zoom			
53	M1	Macro 1	Macro 1	Macro 1	Macro 1	Macro 1	Macro 1	Macro 1	Macro 1	Macro 1	Macro 1
54	M2	Macro 2	Macro 2	Macro 2	Macro 2	Macro 2	Macro 2	Macro 2	Macro 2	Macro 2	Macro 2
55	M3	Macro 3	Macro 3	Macro 3	Macro 3	Macro 3	Macro 3	Macro 3	Macro 3	Macro 3	Macro 3
56	M4	Macro 4	Macro 4	Macro 4	Macro 4	Macro 4	Macro 4	Macro 4	Macro 4	Macro 4	Macro 4
57	Skip Down	Skip –	Step –	Skip –		Scan –	Thumbs Down	Skip –	Skip – (DVD)	Skip – (DVD)	Skip –
58	Skip Up	Skip +	Step +	Skip +		Scan +	Thumbs Up	Skip +	Skip + (DVD)	Skip + (DVD)	Skip +
59	Dim	Dimmer	Dimmer					Dimmer			
60	Rewind ◀◀	R. Search	R. Search	R. Search	Rewind	Rewind	R. Search	R. Search	R. Search	R. Search	R. Search
61	Play ▶	Play	Play	Play	R. Play/F. Play	Play	Play	Play	Play (DVD)	Play (DVD)	Play
62	FF ▶▶	F. Search	F. Search	F. Search	Fast Fwd	Fast Fwd	F. Search	F. Search	F. Search	F. Search	F. Search
63	Record		Open/Close	Open/Close	Record/Pause	Record	Record	Record	Record	Record	Record
64	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
65	Pause	Pause	Pause	Pause	Pause	Pause	Pause	Pause	Pause	Pause	Pause



Table A10 – Remote Control Product Codes: TV

TV Manufacturer/Brand	Setup Code Number
A MARK	132 122
ACER	143 167
ADMIRAL	192 105 088 023
ADVENT	151
AIWA	027 110
AKAI	053 093 089 056 042 022 020 011
AKAL	160 123
AKURA	020
ALBA	040 020
AMPRO	164
ANAM	122 112 109 106 045
ANSONIC	049 144 145 146 147 148
AOC	128 123 122 037 146 150
APEX	154
ARC EN CIEL	059 056 024 019 017
ARCAM	017
ARISTONA	086 060 048 047 033 025 023 022
ASA	201 096 088 023 012
AUDIOVOX	012 155
AUTOVOX	088 044 025
BANG & OLUFSEN	088
BARCO	202
BASICLINE	020
BAUR	102 077 076 075
BEKO	022
BENQ	166 170 165
BLAUPUNKT	084 077 076 075 011
BLU:SENS	174 178 185 098 109 112 120 138 170 171 175
BLUE SKY	144 148 149 150 151 152 153 154 155 156 157 158
BRANDT ELECTRONIQUE	059 056 024 019 017
BRION VEGA	203 088 023
BROCKSONIC	206 205 072

TV Manufacturer/Brand	Setup Code Number
BRUNS	088 023
BUSH	092 043 040 020 010
BUSH (UK)	044
CANDLE	128 123
CAPEHART	059
CELLO	178 182
CENTURION	171 123
CENTURY	088 023
CETRONIC	045
CGE	105
CIHAN	032
CITIZEN	132 128 123 045
CLASSIC	045
COBY	104
COMTEL	032
CONCERTO	128
CONTEC	045 010
CONTINENTAL EDISON	059 056 024 019 017
CORANDO	172
CORONADO	132
CRAIG	159 158 157 045
CROSLEY	088 023
CROWN	132 045
CURTIS MATHES	128 123 132 080 082
CXC	045
DAEWOO	132 128 127 119 116 114 111 108 106 105 102 087 045 022
DANSAI	022
DAYTRON	132 128
DECCA	091 022
DECCA (UK)	038
DEGRAAF	015
DELL	075
DGM	190



Table A10 – Remote Control Product Codes: TV (cont.)

TV Manufacturer/Brand	Setup Code Number							
DIBOSS	186							
DIGIFUSION	184							
DIGI LINK	200							
DIGITREX	192							
DISH NETWORK	188							
DIXI	022							
DORIC	029							
DUMONT	201	199	096	088	023			
DUMONT-FINLUX	044	012						
DYNASTY	045							
DYNATECH	063							
DYNATRON	022	020						
DYNEX	014	083	107	189				
ELBE	211	105	095					
DYNATRON	022	020						
DYNEX	014	083	107	189				
ELBE	211	105	095					
ELCIT	032	023						
ELECTROGRAPH	064							
ELECTROHOME	132	115						
ELEMENT	048	113						
EMERSON	205 123	162 045	159 126	158 195	157 096	139 088	132 023	128
EMOTION	189							
EPSON	074							
ERRES	033	022						
FENNER	022							
FERGUSON	197 024	196 001	099	077	076	075	062	047
FIDELITY	047							
FIDELITY (UK)	099							
FINHER	204							
FINLANDIA	018							
FINLUX	201	199	096	088	044	012		

TV Manufacturer/Brand	Setup Code Number							
FIRST LINE	157 169	159	160	161	163	164	166	168
FISHER	088	043	023					
FORGESTONE	099	047						
FORMENTI	088							
FORMENTI-PHOENIX	088							
FUNAI	045	195						
FUJITSU	041	042	249	250	195			
FUTURETECH	045							
GATEWAY	198	199						
GBC	043							
GE	163 029	159	145	133	128	123	121	087
GEC (UK)	061							
GOODMANS	043	022	010	036	041			
GORENJE	124	034						
GRANADA	104	033	029	022	018	010		
GRANADA (UK)	043							
GRUNDIG	193	203	200	096	077	076	075	011
GVA	131							
HAIER	135	213	028					
HALL MARK	128							
HANNSPREE	185							
HANSEATIC	043	022	020	010				
HARMAN KARDON	201							
HIFIVOX	080	059	056	024	019	017		
HINARI	195	043	020	010				
HISENSE	137	140	216					
HITACHI	147	144	132	128	123	206	101	094
	093	085	082	080	066	061	059	058
	056	055	043	035	026	024	018	015
	012	010						
HP	076	218						
HUMAX	217	030						
HYPER	206							
HYPERION	073							



Table A10 – Remote Control Product Codes: TV (cont.)

TV Manufacturer/Brand	Setup Code Number
HYTEK	016
HYUNDAI	220 236
IKASU	212
ILO	009 056
IMPERIAL	105
INFINITY	148
INKEL	120
INNO HIT	068
INSIGNIA	099 107
INTERFUNK	104 088 056 033 024 023 022 020
INTERVISION	121 119 118 117 116 115 114 113 111
ISIS	186
ITT	100 092 046 040
ITT-NOKIA	100 092 058 040
JBL	148
JCPENNY	145 132 128 123 115
JENSEN	019
JET POINT	208
JOHN LEWIS	193
JVC	134 087 079 092 056 053 047 043 010
KARCHER	068 012
KATHREIN	124 034
KAWASHO	173
KEC	045
KENMARK	183
KENNEDY	025
KENWOOD	204 123
KLEGG	066
KLH	006
KMC	132
KNEISSEL	105
KNOLL SYSTEMS	224

TV Manufacturer/Brand	Setup Code Number
KOGAN	180
KONKA	225
KORTING	088 023
KRIESLER	060 048 047 033 025 023 022
KTV	162 132 123 045
LEVEL	191
LG (GOLDSTAR)	132 128 122 110 101 002 013 086 022 073
LINSAR	187
LLOYTRON	173 172
LODGENET	069
LOEWE	227 027
LOEWE OPTA	088 023 022 020
LOGIK	069 099 091 047 038
LUMA	022
LUXMAN	128
LUXOR	058
LXI	148 145 077
M ELECTRONIC	201
MADNADYNE	088 023
MAGNASONIC	015
MAGNAVOX	148 145 132 128 123 030 040 088 138
MANESTH	022
MARANTZ	148 123 115 022
MARELLI	088
MARK	022
MARKS & SPENCER	182
MATSUI	148 091 043 040 038 020 001
MAXENT	199
MEDION	031
MEMOREX	128 069
METZ	084 088 077 076 075 023 011
MGA	128 123 115



Table A10 – Remote Control Product Codes: TV (cont.)

TV Manufacturer/Brand	Setup Code Number							
MINERVA	084	200	096	077	076	075	011	
MINTEK	065							
MISAKI	195							
MITSUBISHI	168	167	160	128	123	115	077	124
	092	091	090	089	083	082	079	076
	075	057	050	046	043	039	038	034
	029	023	022	020	013	011	010	007
MTC	176	175						
MURPHY	021							
NATIONAL	182	181	180	179	177	148		018
NEC	125	123	121	115	010		043	
NECKERMANN	102	088	078	023				
NEON	182							
NIKEI	045							
NOBLEX	204	205						
NOKIA	100	092	046	040				
NORDMENDE	094	093	080	069	059	056	053	024
	019	017	009					
OKI	045	049	081	087	097			
OLEVIA	007							
ONKING	045							
ONWA	045							
OPTOMA	229							
OPTONICA	077							
ORION	211	210	209	208	207	230	091	040
	038							
OTTO VERSAND	207	102	092	078	077	076	075	043
	022	020	010					
PANASONIC	169	148	087	061	137	136	135	134
	133	132	131	130	129	128	002	004
PATHE' MARCONI	059	056	024	019	017			
PHILCO	148	132	128	123	115	045	105	088
	023							
PHILIPS	148	145	132	128	123	036	035	034
	033	089	108	107	104	100	099	095
	086	084	078	071	070	068	067	061
	060	054	048	047	046	033	032	027
	025	023	022	020	014	008	176	177
	179	181	213					
PHOENIX	088							

TV Manufacturer/Brand	Setup Code Number							
PIONEER	128	123	024	069	056	024	022	020
POLAROID	003	004	005	006	043			
PORTLAND	132	128	231					
PROLINE	209	020						
PROSCAN	133							
PROTECH	022							
PROTON	165	132	128	122	059	008		
QUELLE	200	096	077	076	075	044	038	022
	020	012	011					
QUASAR	087	032						
RADIO SHACK	197	196	180	132	128	045		
RADIOLA	078	060	048	047	033	025	023	022
RADIOMARELLI	088	083	082	029	023	022		
RBM (UK)	044							
RCA	163	161	145	133	128	123	115	021
	089	188						
REALISTIC	196	167	045					
REDIFFUSION	083	082	029					
REX	198	025	022					
RFT	127	126	125	124	123	122		
RTF	023							
RUNCO	153	152	044	046				
SAA	183							
SABA	094	093	088	080	069	059	056	024
	023	019	017	009				
SALORA	058	018						
SAMPO	128	123	059					
SAMSUNG	226	145	132	128	124	022	020	226
	208	205	204	068				
SANYO	054	026	091	092	043	038	023	012
	010							
SBR	086	084	061	047	046	033	022	
SCEPTRE	232							
SCHNEIDER	196	086	078	060	048	033	025	023
	022							
SCOTT	132	128	045	195				
SEARS	145	132	128					



Table A10 – Remote Control Product Codes: TV (cont.)

TV Manufacturer/Brand	Setup Code Number							
SELECO	078	199	198	195	025	022		
SHARP	132	128	077	062	092	207	043	010
SHERWOOD	067							
SIEMENS	084	077	076	075	015	011	010	
SIGNATURE	069							
SINGER	105	088	023					
SINUDYNE	209	210						
SOLE	068	233						
SONY	212	194	136	130	117	031	028	060
	093	106	102	091	065	064	062	043
	038	016	010	006	172	173	174	103
SOUND WAVE	020							
SOUNDESIGN	128	045						
SPECTRICON	122							
SSS	045							
STERN	198	025	022					
SUNKAI	210							
SUPERSCAN	195							
SUPRATECH	139	140	141	142	143			
SYLVANIA	148	145	128	123	025	057	094	098
	142							
SYMPHONIC	184	195						
TANDBERG	080	056	023					
TANDY	077							
TATUNG	063							
TCL	234							
TEAC	095	244						
TECHNICS	181							
TECHWOOD	128							
TEKNIKA	132	128	123	115	069	045	195	
TELEFUNKEN	069	059	056	024				
TELERENT	069							
TENSAI	022							
TERA	156							

TV Manufacturer/Brand	Setup Code Number							
THOMSON	191	190	094	093	082	080	074	072
	069	059	056	053	044	040	024	09
	017	009	005	003				
THORN	099	047						
THORN-FERGUSON	196	197	201	103	102	099	047	024
TiVo	051	052						
TMK	128							
TOSHIBA	202	129	063	058	096	103	105	044
	092	063	043	042	037	010	001	162
TOTEVISION	132							
TRISTAR	099							
TRIUMPH	199	044						
TRUTECH	055							
UHER	044							
ULTRAVOX	088	023						
UNIVERSUM	201	102	077	076	075	012		
VIDEO CONCEPTS	160							
VIDEOCON	188							
VIDIKRON	235	253						
VIDTECH	128							
VIEWSONIC	011	038	047	254	255			
VIORE	245	237						
VISTRON	194							
VISUAL INNOVATIONS	183							
VITO	070							
VIZIO	001	002	049	050	246			
VOXSON	088	023						
WARDS	148	132	128	069				
WATSON	077	076	075					
WEGA	088	043	010					
WEGA COLOR	023							
WELTBlick	022							
WESTINGHOUSE	017	018	023	060	100	022		
WINBOOK	071							
WINTERNITZ	206							



Table A10 – Remote Control Product Codes: TV (cont.)

TV Manufacturer/Brand	Setup Code Number
YAMAHA	128 123 238 239
YORK	128
YUPITERU	045
ZANUSSI	198 025 022
ZENITH	090 069 240
ZONDA	122

Table A11 – Remote Control Product Codes: DVD

DVD Manufacturer/Brand	Setup Code Number
APEX	033
APEX DIGITAL	061
ARCAM	029
BUSH	070
CALIFORNIA AUDIO	040
COBY	007 013
DENON	051 019 020
DYNEX	014
GE	004 103
HARMAN KARDON	001 002 003 032
INSIGNIA	050 046
JVC	006
KENWOOD	069
KLH	068
LG (GOLDSTAR)	066 064 055 005 010 047
LINN	031
MAGNAVOX	056 022 025
MARANTZ	059
MITSUBISHI	036 023
NAD	062
ONKYO	048 009
PANASONIC	044 035 030 024 008 042
PHILIPS	056 016

Table A11 – Remote Control Product Codes: DVD (cont.)

DVD Manufacturer/Brand	Setup Code Number
PIONEER	065 041 038 018 027
PROCEED	060
PROSCAN	004 103 037
RCA	004 103 037
SAMSUNG	054 053 017 034
SHARP	028 049
SONY	167 045 043 011 012 015 052 057
THOMSON	004 103
TOSHIBA	067 058 009 021 026
XENTA	071
YAMAHA	063 030
ZENITH	064 055 005
ZENITH DIVX	039

Table A12 – Remote Control Product Codes: SAT

SAT Manufacturer/Brand	Setup Code Number
AIWA	441
AKAI	333
ALBA	411 301
ALPHASTAR	472
ALPHASTAR DBS	450
ALPHASTAR DSR	442
AMSTRAD	432
ANKARO	421
ASTRO	483 482 481 480 479 478 477 476
BARCOM	421
BIRDVIEW	425
BLAUPUNKT	390 338
BUSH	406 348
BUSH(UK)	353
CANAL	313 378
CANAL DIGITAL	313



Table A12 – Remote Control Product Codes: SAT (cont.)

SAT Manufacturer/Brand	Setup Code Number							
CANAL PLUS (CANAL+)	313							
CHANNEL MASTER	361	325	321	320				
CHAPARRAL	451	316	315					
CITOH	360							
DIRECTV	302	303	305	309	310	314		
DISH NETWORK	364							
DRAKE	481	413	318	317	313			
DX ANTENNA	483	379	352	331				
ECHOSTAR	347 463	321 453	325 397	328 395	485 364	484 308	478 338	477 340
ELECTRO HOME	392							
FERGUSON	424 348	411 345	406	367	364	363	353	352
FINLUX	310	309						
FOXTEL	316	376						
FTE	380							
FUBA	421	347	314					
FUJITSU	334	329	324					
GOLDEN INTERSTAR	320							
GOODMANS	411							
GRUNDIG	390	367	353	338	315	374		
HITACHI	411	406	455	304				
HOUSTON TRACKER	463							
HUGHES	489	437	305	306				
HUMAX	307	372						
ITT	367							
ITT-NOKIA	367							
JANIEL	366							
JERROLD	484	468	454					
KATHREIN	390	380	333	301	410			
KCPI	337	380						
KOSMOS	380							
KYOTO GMI ATLAN	443							
LEGEND	453							

SAT Manufacturer/Brand	Setup Code Number							
LEMON	474							
LOEWE	475							
LORENZEN	474	465	464	463	461			
MACOM	371	370	369	365	317			
MAGNAVOX	473	461						
MARANTZ	333							
MASPRO	406	353						
MEMOREX	453							
METZ	390							
MINERVA	390							
MITSUBISHI	390	307						
MOTOROLA	312	319						
MULTISTAR	380							
NEC	373	346	336	330				
NETA P562	440							
NEXTWAVE	423							
NOKIA	367							
NORSAT	346	373						
OPTIMUS	466							
OTTO VERSAND	390							
PACE	424 487	367 328	364 343	363 382	353	348	317	339
PACE MSS SERIES	367							
PANASONIC	424	331	469	366	457	353		
PANSAT	420							
PERSONAL CABLE	418							
PHILIPS	424	421	353	333	332	319	375	
PICO	407							
PREMIERE	308	357						
PRESIDENT	404	381						
PRIMESTAR	475	468	454	412	302			
QUADRAL	473	472	471	470	469	468	467	466
QUELLE	390							



Table A12 – Remote Control Product Codes: SAT (cont.)

SAT Manufacturer/Brand	Setup Code Number								
RADIOLA	353								
RADIX	347								
RCA	335	490	465	439	301	458	358	367	
REALISTIC	480	349							
SAMSUNG	432	427	380	334	442	322	326	345	
SAT	427								
SATELLITE SERVICE	388	335							
SCIENTIFIC ATLANTA	339	356							
SCHNEIDER	353								
SIEMENS	390	338							
SKY	306	317	318	343	344				
SKY MASTER	433								
SKYLAB	421								
SONY	329	405	362	341					
STAR CHOICE DBS	459								
STARCAST	347								
SUPER GUIDE	423	327							
TECHNISAT	347								
TEECOM	409	393	391	390	333	330			
TELECOM	341								
TELEFUNKEN	383								
THORN-FERGUSON	367	364	348	363	353	352	345	323	
TOPFIELD	311	363							
TOSHIBA	470	462	461	460	426	302			
UNIDEN	480	479	466	403	389	381	355	354	
	351	350	349	348	332	323			
VIASAT	312	377							
VORTEC	442	432							
WISI	427	347	326	327	322	304			
ZEHNDER	427	380							
ZENITH	344	488	419	394	387	385	384	359	

Table A13 – Remote Control Product Codes: Cable

Cable Manufacturer/Brand	Setup Code Number							
ABC	011	001						
ALLEGRO	111							
AMERICAST	212							
AMINO	015	031						
ARCHER	112							
BELCOR	113							
BT CABLE	007							
CABLE STAR	113	033						
CABLETIME	016	012	011	008				
CISCO	016	021	032	033				
CITIZEN	111							
CLYDE CABLE VISION	017							
COLOUR VOICE	090	085						
COMCAST	007	040	054	014	015			
DESCAT CANAL	010							
DIGI LINK	114							
EAGLE	186							
EASTERN	070	066						
ELECTRICORD	039							
EMERSON	112							
FILMNET	020	018						
FOCUS	116							
FOXTEL	043	019						
FRANCE TELECOM	021	013						
GEC	017							
G.I	097	096	017	011	001			
GC ELETRONICS	113							
GEMINI	060	032						
GENERAL	210							
GENERAL INSTRUMENT	210	054	040					
GOODMIND	112							
HANLIN	208	175	117	101	100	099	056	



Table A13 – Remote Control Product Codes: Cable (cont.)

Cable Manufacturer/Brand	Setup Code Number								
HITACHI	188	001							
JASCO	111								
JERROLD	210 002	188 001	162	097	096	073	017	011	
LINSAY	118								
MACOM	191								
MAGNAVOX	068	019	017						
MOTOROLA	022	023	026	031	034	035	036	038	
MOVIE TIME	039	035							
NSC	190	035							
OAK	220	197							
PACE	179								
PANASONIC	214	189	177	176	053				
PANTHER	114								
PHILIPS	090	085	020	019	013	023			
PIONEER	216	215	209	171	119	041	001	002	
POPULAR MECHANIC	116								
PRELUDE	120								
PRIMESTAR	162								
QUEST	037	041							
RADIOSHACK	213	112	111						
RCA	214	053							
RECOTON	116								
REGAL	208	101	100	099	056				
REMBRANT	032								
SAGEM	028								
SAMSUNG	003	186	072	002	024				
SATBOX	004								
SCIENTIFIC ATLANTA	222 006	221 005	203	183	038	039	026	025	
SEAM	121								
SIGNATURE	188	001							
SPRUCER	189	177	081	053					
STARCOM	163	011	002						

Cable Manufacturer/Brand	Setup Code Number								
STARGATE	120								
TANDY	024								
TELECAPATION	028								
TELESERVICE	011								
TEXSCAN	036								
TFC	122								
TIMELESS	123								
TiVo	029	030							
TOCOM	205	170							
TUDI	027								
UNITED CABLE	011	001							
UNIVERSAL	113	042	039	034	033				
VIDEOWAY	211	124							
VISIOPASS	009								
VIEWSTAR	190	089	086	053	025	019			
WESTMINSTER CABLE	007								
ZENITH	219	211	125	065					
ZENTEK	116								

Table A14 – Remote Control Product Codes: Game Console

Game Console/Brand	Setup Code Number								
MS (X-BOX, XBOX360)	001	003							
NYKO (PS3)	005								
SONY (PS2, PS3)	002	004							

Table A15 – Remote Control Product Codes: Music Server

Music Server/Brand	Setup Code Number								
APPLE	008	009	014						
ASUS	016								
BEYOND	003								
ESCIENT (FIREBALL)	004	005	006	007					
HARMAN KARDON	001	002							



Table A15 – Remote Control Product Codes: Music Server (cont.)

Music Server/Brand	Setup Code Number
IOMEGA	022 023
LOGITECH	012
MICROSOFT	003
NAIM	011
NETGEAR	020 021
NIXEUS	024
REQUEST	010
ROKU	015
SONOS	013
SONY	017 018
WESTERN DIGITAL	019

Table A16 – Remote Control Product Codes: DVR

DVR/Brand	Setup Code Number
DAEWOO	004 001
ECHOSTAR	016 015 014
EXPRESSVU	014
HUGHES	027 017
HYUNDAI	018
KEEN	009
PANASONIC	023 010
PHILIPS	024 017 011 027
PROSCAN	019
RCA	019 027
REPLAYTV	026 025 012 010 008
SONICBLUE	012 010
SONY	024 023 022 021 020 013 007

Table A17 – Remote Control Product Codes: TiVo

TiVo/Brand	Setup Code Number
TiVo Series2™ DT DVR	302
TiVo HD DVR	304
TiVo HD XL DVR	310
TiVo Series3	309
TiVo Series4	309
PREMIERE	309
DIRECTV TiVo	306 312
PIONEER TiVo	301
TOSHIBA TiVo	303
HUMAX TiVo	303
COMCAST TiVo	311
Nero LiquidTV TiVo	303
RCN TiVo	309
SUDDENLINK TiVo	309
ONO TiVo	309
VIRGIN MEDIA TiVo	313
OTHER TiVo	305 307 308



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8500 Balboa Boulevard, Northridge, CA 91329 USA

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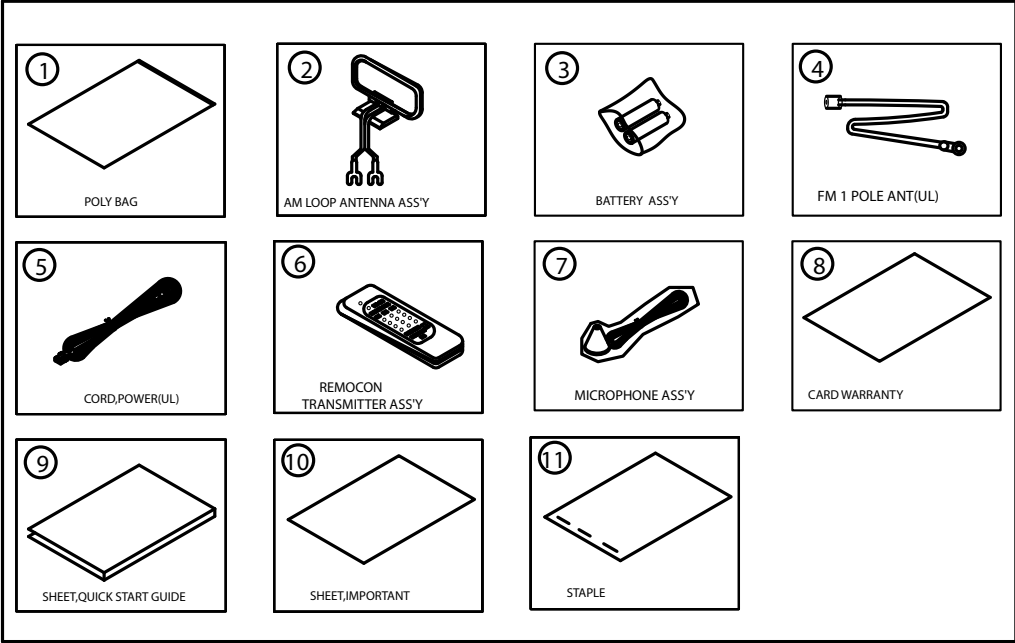
Features, specifications and appearance are subject to change without notice.

HKP4052 Rev: A



www.harmankardon.com

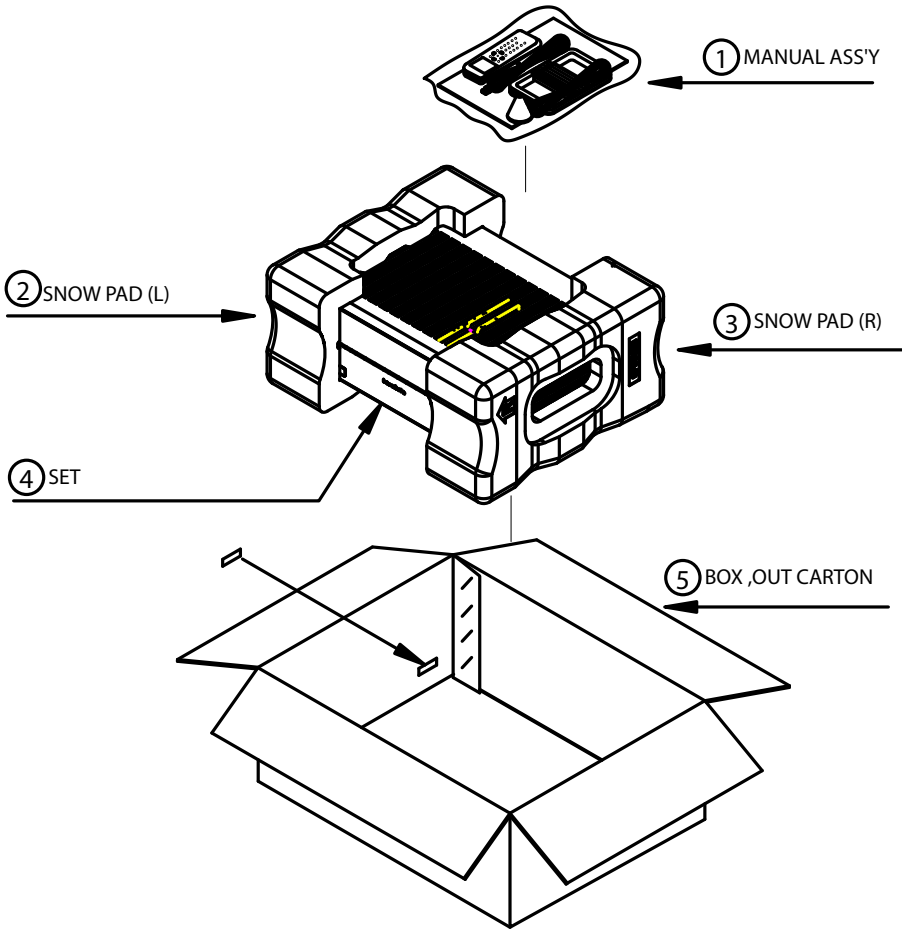
1. Instruction manual ass'y - Accessories(CQXAVR1700)



NO	DESCRIPTION	PARTS NO.	Q.ty
1	POLY BAG	CPB1A190Z	1
2	ANT, AM LOOP	CSA1A039Z	1
3	BATTERY	CABR03P3PB	3
4	FM 1 POL ANT	CSA1A018Z	1
5	CORD,POWER	CJA2A119Z	1
6	REMOCON ASS'Y	CARTAVR1700-HK	1
7	MICRO PHONE ASS'Y	CJXAVR365MICRO	1
8	CARD WARRANTY	CQE1A172X	1
9	SHEET,QUICK START GUIDE	CQE1A560Z	1
10	SHEET,IMPORTANT	CQE1A522Z	1
11	STAPLE	CPL0905	3

2. Package Drawing

AVR1700



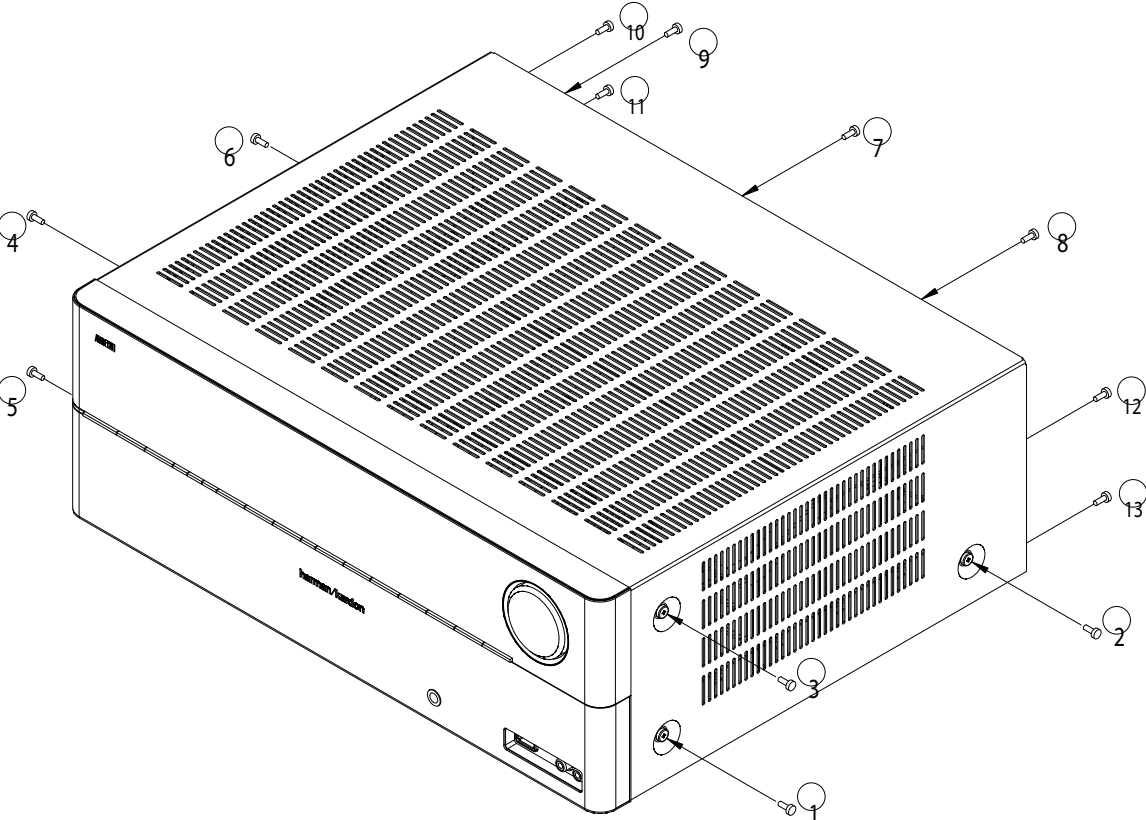
NO	DESCRIPTION	PARTS NO.	Q.ty
1	ACCESSORY	CQXAVR1700	1
2	PAD,LEFT	CP51A920	1
3	PAD,RIGHT	CP51A921	1
4	SET	AVR1700SET	1
5	BOX,OUT CARTON	CPG1A967W	1

DISASSEMBLY

AVR170

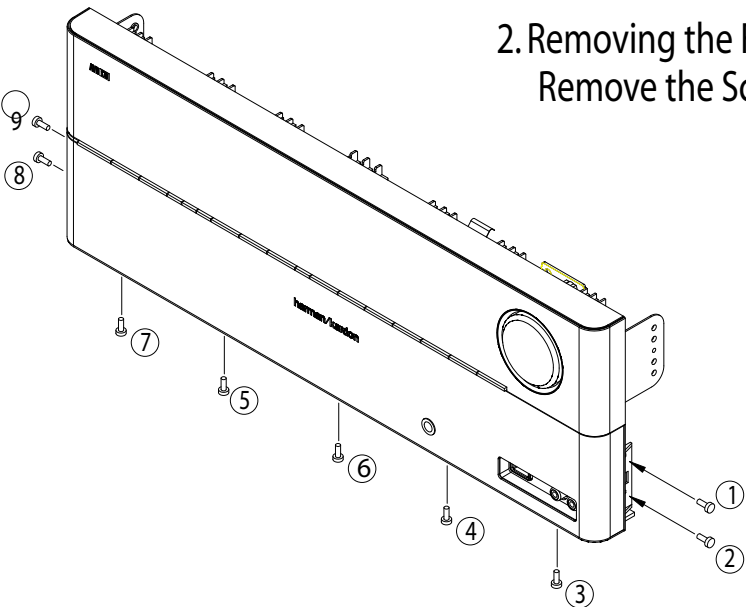
1. Removing the Top Cabinet
Remove the Screws

① ~ ⑬



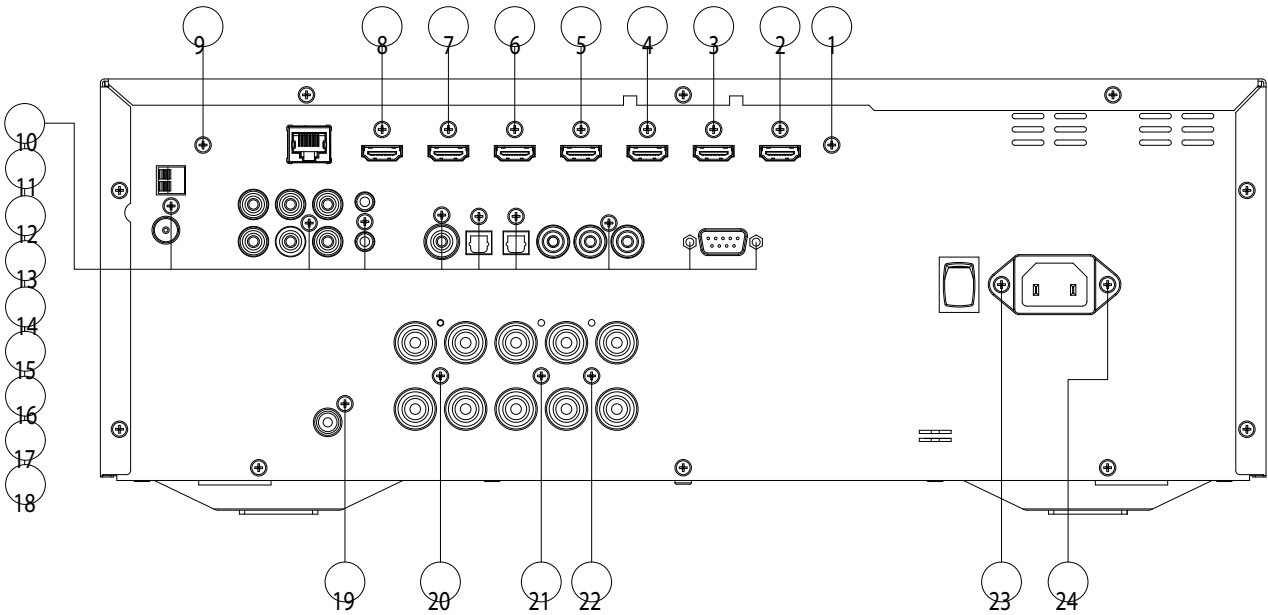
2. Removing the Front Panel
Remove the Screws

① ~ ⑨



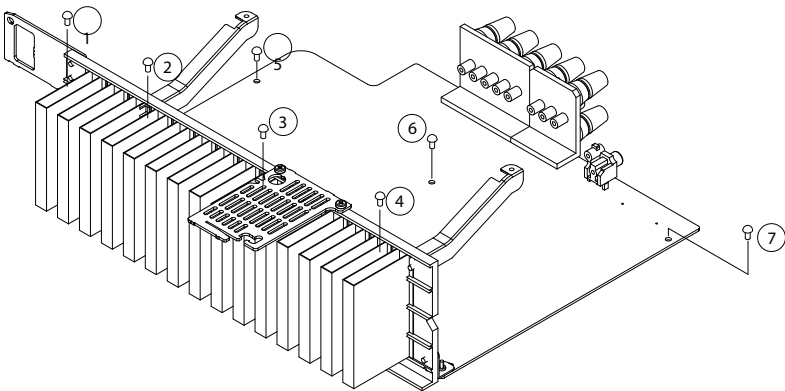
3. Removing the Rear Panel
Remove the Screws

① ~ ⑲



4. Removing the Main PCB
Remove the Screws

① ~ ⑦



Exploded view diagram of the AVR170/230 receiver chassis. The diagram shows the front panel assembly, the main chassis, and various internal components like the power supply, tuner, and amplifier modules. Callouts indicate the part number and quantity for each component.

NO.	DESCRIPTION	PARTS NO.	Qty
S1	SCREW	CTB3+8JFZR	61
S2	SCREW	CTB4+6FFZR	6
S3	SCREW	CTWS3+10GR	1
S4	SCREW	CTB3+8JR	18
S5	SCREW	CTB3+6FFZR	11
S6	SCREW	CTW3+8JR	4
S7	SCREW	CTW3+12JR	2
S8	SCREW	CTS3+8JFZR	4
S9	SCREW	CTB3+6JR	2
S10	SCREW SPECIAL	CHD1A012R	18
S11	SCREW SPECIAL	CHD3A012R	5
S12	SCREW SPECIAL	CHD4A012R	5

NO.	DESCRIPTION	PARTS NO.	Qty
1	KNOB,VOLUME	CGH1A269865	
2	INDICATOR,VOLUME	CGL1A300	
3	BADGE,HARMANN/KARDON	CGB3A158Z	
4	SHEET,AL FRONT	CGK3A390CB2Z	
5	WINDOW, FIP	CGJ2A10A251	
6	BADGE,AVR170	CGB1A248Z	
7	FILTER, FIP	CMZ1A127	
8	ORNAMENT,COVER	CGK1A392C82	
9	COVER, JACK B	CGB4A37	
10	KNOB, STANDBY	CBT2A1064	
11	KNOB, TUNING	CBT2A1065	
12	ORNAMENT, RING	CGK1A386S	
13	PANEL, FRONT	CGH1A3278F2B24	
14	INDICATOR,POWER	CGL1A265Y	
15	SHEET, BLIND	CPH1A009	
16	BRACKET, SIDE	CMJ2A443	
17	PLATE,EARTH	CMC3A338	
18			
19	HOLDER, USB	CMH1A297	
20	PLATE, EARTH	CMC2A326	
21	SHEET, VOLUME	CGK1A476Z	
22	HOLDER, LED	CMH3A215	
23	PLATE, EARTH TOP	CMC1A416	
24			
25			
26	CHASSIS,BOTTOM	CUA1A337	
27	FOOT A	CKL1A094	
28	FOOT B	CKL1A095	
29	CUSHION, FOOT	CHG1A373	
30	HOLDER, PCB	CHT170	
31	CABINET, TOP	CKG3A1458B4	
32	HEAT SINK	CMY1A383	
33	BRACKET,H/S	CMO1A802	
34	COVER, SCREW	CMO1A815	
35	BRACKET, PCB	CMO1A810	
36			
37	SUPPORT,PCB	CRE1A108	
38	BRACKET, HDMI	CMO1A809	
39	PANEL,REAR	CKF1A400Z	
40	INLET ASSY	CJH8A006ZWA	
41	MOM'S S/W ASSY	CSH1A209ZVB	
42	FRONT PCB ASSY	COP1A455B	
42-1	FIP & KEY PCB		
42-2	POWER LED PCB		
42-3	VOLUME PCB		
42-4	PHONE PCB		
42-5	USB PCB		
43	MAIN PCB ASSY	COP1A455C	
43-1	MAIN PCB		
43-2	GUIDE PCB(HDMI CABLE)		
44	DIGITAL PCB ASSY	COP1A455C	
44-1	POWER PCB A		
44-2	POWER PCB B		
45	JACK PCB ASSY	COP1A460B	
46	SMPS PCB ASSY	COP1A461C	

	NO	DESCRIPTION	PARTS NO	Q.ty
	S1	SCREW	CTB3+8I/FZr	61
	S2	SCREW	CTB44+6FFZr	6
	S3	SCREW	CTW53+10GR	1
	S4	SCREW	CTB3+8JR	18
	S5	SCREW	CTB3+6FFZr	11
	S6	SCREW	CTW3+8JR	4
	S7	SCREW	CTW3+12JR	2
	S8	SCREW	TCS3+8IJF.ZR	4
	S9	SCREW	CTB3+6JR	2
	S10	SCREW,SPECIAL	CHD1A012R	18
	S11	SCREW,SPECIAL	CHD3A012R	5
	S12	SCREW,SPECIAL	CHDA0012R	2

[illegible]

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
0,2		CBN1A269B65	KNOB , VOLUME		1	EA
0,2		CGL1A300	INDICATOR , VOLUME		1	EA
0,2		CGR6A437	COVER B		1	EA
0,2		CGWAVR1700	FRONT PANEL ASS'Y		1	EA
...3		CBT2A1064	KNOB , STANDBY		1	EA
...3		CBT2A1065	KNOB , BACK		1	EA
...3		CGB1A251Z	BADGE , AVR1700		1	EA
...3		CGB3A158Z	BADGE , HARMAN/KARDON (FRONT)		1	EA
...3		CGL1A265Y	INDICATOR , POWER AVR155		1	EA
...3		CGR1A538G5	ORNAMENT , RING		1	EA
...3		CGU2A410A25I	WINDOW , FIP AVR1700		1	EA
...3		CGW1A527RHZB24	PANEL , FRONT AVR170/230		1	EA
...3		CGX1A476Z	SHEET , VOLUME		1	EA
...3		CGX3A390C82Y	SHEET , AL FRONT		1	EA
...3		CMC1A416	PLATE , EARTH TOP		2	EA
...3		CMC2A326	PLATE , EARTH AVR350		2	EA
...3		CMC3A338	PLATE , EARTH		2	EA
...3		CMD2A443	BRACKET , SIDE		2	EA
...3		CMH2A297	HOLDER , USB		1	EA
...3		CMH3A215	HOLDER , LED		1	EA
...3		CMZ1A127	FILTER , FIP AVR255		1	EA
...3		COP12455B	AVR170 FRONT PCB ASS'Y		1	EA
....6	C121	CCUS1H151JA	CAP, CHIP(1608, 50V/150pF)		1	EA
....6	C151	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C161	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C213	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....6	C214	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....6	C311	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....6	C322	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....6	C431	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C441	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....6	C442	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....6	C451	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C456	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C504	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C522	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C531	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C533	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C553	CCUS1H821JA	CAP, CHIP(1608, 50V/820pF)		1	EA
....6	C554	CCUS1H821JA	CAP, CHIP(1608, 50V/820pF)		1	EA
....6	C601	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C602	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C603	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C604	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C605	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C631	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C651	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C652	CCUS1H471JA	CAP, CHIP(1608, 50V/470pF)		1	EA
....6	C653	CCUS1H471JA	CAP, CHIP(1608, 50V/470pF)		1	EA
....6	C714	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C732	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C751	CCUS1H222KC	CAP, CHIP(1608, 50V/2200pF)		1	EA
....6	C752	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....6	C753	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....6	C754	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C801	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C802	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C813	CCUS1H470JA	CAP, CHIP(1608, 50V/47pF)		1	EA
....6	C821	CCUS1H471JA	CAP, CHIP(1608, 50V/470pF)		1	EA
....6	C822	CCUS1H151JA	CAP, CHIP(1608, 50V/150pF)		1	EA
....6	C830	CCUS1H473KC	CAP, CHIP(1608, 50V/0.047uF)		1	EA
....6	C911	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C912	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C923	CCUS1H681JA	CAP, CHIP(1608, 50V/680pF)		1	EA
....6	C924	CCUS1H681JA	CAP, CHIP(1608, 50V/680pF)		1	EA
....6	C951	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C952	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	D531	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12455B	AVR170 FRONT PCB ASS'Y		1	EA
....6	D532	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D533	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D534	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D631	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D632	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D955	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	IC13	CVISN74ACT04DR	I.C , HEX INVERTERS(SOIC/D-14P)	SN74ACT04DR / TEXAS INSTRUMENT	1	EA
....6	IC14	CVIAZ4580MTR-E1	EOL item I.C , OPAMP(DUAL/LOW NOISE)	AZ4580MTR-E1/SOIC8/BCD	1	EA
....6	IC14	CVIAZ4580MTR-E1-CU	I.C , OPAMP(DUAL/LOW NOISE)_Copper	AZ4580MTR-E1-CU	1	EA
....6	IC91	HVTKTC812TB	T.R , CHIP(TS6)	KTC812T-B-RTK	1	EA
....6	IC92	HVTKTC812TB	T.R , CHIP(TS6)	KTC812T-B-RTK	1	EA
....6	L451	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....6	Q111	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....6	Q112	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....6	Q113	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....6	Q114	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....6	Q252	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....6	Q721	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....6	Q906	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....6	Q907	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....6	Q955	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....6	R101	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)		1	EA
....6	R102	CRJ10DJ681T	RES, CHIP(1608/5%/680ohm)		1	EA
....6	R104	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R108	CRJ10DJOR0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R109	CRJ10DJOR0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R110	CRJ10DJOR0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R111	CRJ10DJOR0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R112	CRJ10DJOR0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R113	CRJ10DJOR0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R122	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)		1	EA
....6	R151	CRJ10DJOR0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R201	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R202	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R203	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R211	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R213	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....6	R214	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....6	R251	CRJ10DJ222T	RES, CHIP(1608/5%/2.2Kohm)		1	EA
....6	R252	CRJ10DJ393T	RES, CHIP(1608/5%/39Kohm)		1	EA
....6	R312	CRJ10DF1001T	RES, CHIP(1608/1%/1Kohm)		1	EA
....6	R313	CRJ10DF1501T	RES, CHIP(1608/1%/1.5Kohm)		1	EA
....6	R314	CRJ10DF1801T	RES, CHIP(1608/1%/1.8Kohm)	1.8K /1/10W/F	1	EA
....6	R315	CRJ10DF2701T	RES, CHIP(1608/1%/2.7Kohm)		1	EA
....6	R316	CRJ10DF3301T	RES, CHIP(1608/1%/3.3Kohm)		1	EA
....6	R322	CRJ10DF1001T	RES, CHIP(1608/1%/1Kohm)		1	EA
....6	R323	CRJ10DF1501T	RES, CHIP(1608/1%/1.5Kohm)		1	EA
....6	R324	CRJ10DF1801T	RES, CHIP(1608/1%/1.8Kohm)	1.8K /1/10W/F	1	EA
....6	R325	CRJ10DF2701T	RES, CHIP(1608/1%/2.7Kohm)		1	EA
....6	R326	CRJ10DF3301T	RES, CHIP(1608/1%/3.3Kohm)		1	EA
....6	R327	CRJ10DF5601T	RES, CHIP(1608/1%/5.6Kohm)		1	EA
....6	R328	CRJ10DF5601T	RES, CHIP(1608/1%/5.6Kohm)		1	EA
....6	R401	CRJ14CJ3R3T	RES, CHIP(3216/5%/3.3ohm)		1	EA
....6	R402	CRJ14CJ2R2T	RES, CHIP(3216/5%/2.2ohm)	3216 SIZE	1	EA
....6	R404	CRJ14CJ2R2T	RES, CHIP(3216/5%/2.2ohm)	3216 SIZE	1	EA
....6	R431	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)		1	EA
....6	R432	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)		1	EA
....6	R451	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R452	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R453	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R454	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R455	CRJ14CJ101T	RES, CHIP(3216/5%/100ohm)	3216 SIZE	1	EA
....6	R456	CRJ14CJ101T	RES, CHIP(3216/5%/100ohm)	3216 SIZE	1	EA
....6	R457	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R551	CRJ10DJ471T	RES, CHIP(1608/5%/470ohm)		1	EA
....6	R552	CRJ10DJ471T	RES, CHIP(1608/5%/470ohm)		1	EA
....6	R553	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R554	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12455B	AVR170 FRONT PCB ASS'Y		1	EA
....6	R558	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R559	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R560	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R561	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R601	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R602	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R603	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R604	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R605	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R651	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R652	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R653	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R654	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R655	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R701	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R702	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R703	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R711	CRJ10DJ470T	RES, CHIP(1608/5%/47ohm)		1	EA
....6	R712	CRJ10DJ470T	RES, CHIP(1608/5%/47ohm)		1	EA
....6	R713	CRJ10DJ470T	RES, CHIP(1608/5%/47ohm)		1	EA
....6	R721	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R722	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R731	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)		1	EA
....6	R735	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....6	R741	CRJ10DJ123T	RES, CHIP(1608/5%/12Kohm)		1	EA
....6	R742	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R800	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R811	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R812	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R813	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R821	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R822	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R823	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R834	CRJ10DJ222T	RES, CHIP(1608/5%/2.2Kohm)		1	EA
....6	R835	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R836	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....6	R900	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R901	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R902	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R921	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R922	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R923	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....6	R924	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....6	R925	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R926	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R931	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R932	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R933	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)		1	EA
....6	R934	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)		1	EA
....6	R935	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)		1	EA
....6	R936	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)		1	EA
....6	R941	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R942	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R943	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R944	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R955	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	ZD451	CVDUDZS5.6BSRH	DIODE , ZENER (CHIP,5.6V)	MM3Z5V6B(SOD-323)	1	EA
....6	ZD452	CVDUDZS5.6BSRH	DIODE , ZENER (CHIP,5.6V)	MM3Z5V6B(SOD-323)	1	EA
....6	ZD453	CVDUDZS5.6BSRH	DIODE , ZENER (CHIP,5.6V)	MM3Z5V6B(SOD-323)	1	EA
....5	C108	CCEA1AH471TC	CAP, ELECT(10V/470uF)	GS SERIES	1	EA
....5	C122	CCEA1AKS331TC	CAP, ELECT(10V/330uF)-S		1	EA
....5	C152	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C251	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C252	CCEA1HKS2R2TC	CAP, ELECT(50V/2.2uF)-S		1	EA
....5	C401	CCEA1HH470TC	CAP , ELECT (50V/47uF)		1	EA
....5	C452	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C453	CCEA1JH470TCS	CAP , ELECT(63V/47uF),105'C		1	EA
....5	C454	CCME2E273JX14T	CAP , POLYESTER FILM(250V/0.027UF, 5%)	CL11 (250V / 0.027UF, J)	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12455B	AVR170 FRONT PCB ASS'Y		1	EA
....5	C455	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C515	CCEA0JH102TC	CAP, ELECT(6.3V/1000uF)		1	EA
....5	C521	CCEA1AKS101TC	CAP, ELECT(10V/100uF)-S		1	EA
....5	C721	CCEA1HKS2R2TC	CAP, ELECT(50V/2.2uF)-S		1	EA
....5	C731	CCEA1AH471TC	CAP, ELECT(10V/470uF)	GS SERIES	1	EA
....5	C811	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C823	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C901	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C902	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C931	CCEA1CH331TC	CAP, ELECT(16V/330uF)		1	EA
....5	C932	CCEA1CH331TC	CAP, ELECT(16V/330uF)		1	EA
....5	C933	CCEA1EH470TC	CAP, ELECT(25V/47uF)		1	EA
....5	C944	CCEA1EH470TC	CAP, ELECT(25V/47uF)		1	EA
....5	L452	CLZ9Z112Z	COIL , CHOKE (220uH)		1	EA
....5	Q251	HVTKTA1271YT	T.R	KTA1271Y	1	EA
....5	S311	CST1A024ZT	SW , TACT		1	EA
....5	S312	CST1A024ZT	SW , TACT		1	EA
....5	S313	CST1A024ZT	SW , TACT		1	EA
....5	S314	CST1A024ZT	SW , TACT		1	EA
....5	S315	CST1A024ZT	SW , TACT		1	EA
....5	S316	CST1A024ZT	SW , TACT		1	EA
....5	S317	CST1A024ZT	SW , TACT		1	EA
....5	S318	CST1A024ZT	SW , TACT		1	EA
....5	S319	CST1A024ZT	SW , TACT		1	EA
....5	S320	CST1A024ZT	SW , TACT		1	EA
....5	S321	CST1A024ZT	SW , TACT		1	EA
....5	S322	CST1A024ZT	SW , TACT		1	EA
....5	S323	CST1A024ZT	SW , TACT		1	EA
....5	S330	CST1A024ZT	SW , TACT		1	EA
..4		CQB1D022	A-ROHS/LABEL,SERIAL		1	EA
..4	BK71	CMD1A572-V1	BRACKET , FIP		1	EA
..4	BK72	CMD1A572-V1	BRACKET , FIP		1	EA
..4	BN71	CWB1B007180HC	WIRE ASS'Y Locking (YH) (7P,2MM,180MM,#26)		1	EA
..4	BN72	CWB1B00512077	WIRE ASS'Y (5PIN,2.0mm,120mm)		1	EA
..4	BN73	CJP06GB142ZB	PIN HEADER(6P, 2.54mm)		1	EA
..4	BN74	CJP06GB142ZB	PIN HEADER(6P, 2.54mm)		1	EA
..4	BN75	CWB1C003350LC001	WIRE ASS'Y (3P,2.0mm,350mm,Shield)		1	EA
..4	BN77	CWB1C207350LC001	WIRE ASS'Y (7P,2.0mm,350mm,Shield)_USB		1	EA
..4	CN73	CJP06GB143ZB	FEMALE HEADER(6P, 2.54mm)		1	EA
..4	CN74	CJP06GA221ZB	FEMALE HEADER (6P,2.54mm) , STRAIGHT TYPE	FAS2851	1	EA
..4	D101	CVD1L0345W31BOCT201V	L.E.D , WHITE	CVD1L0345W31BOCT201	1	EA
..4	D102	CVD30ASOGCAA-S7	L.E.D , ORANGE	T0L-30ASOGCAA-S7	1	EA
..4	D201	CVD1L0345W31BOCT201V	L.E.D , WHITE	CVD1L0345W31BOCT201	1	EA
..4	D202	CVD1L0345W31BOCT201V	L.E.D , WHITE	CVD1L0345W31BOCT201	1	EA
..4	D203	CVD1L0345W31BOCT201V	L.E.D , WHITE	CVD1L0345W31BOCT201	1	EA
..4	ET63	CMC2A325	PLATE , EARTH AVR155		1	EA
..4	FIP1	CFL162BD01GINK	V.F.D	162-BD-01GINK	1	EA
..4	IC12	CRVKSM603TE5B	SENSOR , REMOCON		1	EA
..4	IC15	HVINJM4556AL	I.C , HEADPHONE (JRC)	NJM4556AL	1	EA
..4	JK51	CJ9X011Z	JACK, USB STRAIGHT(BLACK 1.5A)	YS-UA-002-13-C2	1	EA
..4	JK52	CJ4N094Z	JACK , RCA(2P, WH/RD, NO SHIELD)	RCA-251H-00A-01	1	EA
..4	JK63	CJ2E026Z	JACK, PHONES(6.35mm,SILVER)	PJ-612A-51/YUQUIU	1	EA
..4	JW20	CWE8202150RV	WIRE ASS'Y		1	EA
..4	Q451	CVTKSD1691GSTU	T.R (HFE 200-400, TO-126, EPITAXIAL NPN)	KSD1691	1	EA
..4	Q452	CVTKSD1691GSTU	T.R (HFE 200-400, TO-126, EPITAXIAL NPN)	KSD1691	1	EA
..4	RL91	CSL4A016ZU	RELAY,BC3-12H,DC12V,2C2P	BC3-12H/HANDOUK	1	EA
..4	TF94	CLT9Z079ZE	TRANS , DC-AC (AVR170/270/370)	EE1312V	1	EA
..4	VR74	CSR2A037Z	ENCODER		1	EA
..4	WF70	CJP23GA285ZN	WAFER,FPC 1.25mm,stright	1.25-2-NP	1	EA
..3		CPE1A009	SHEET , BLIND		1	EA
..3		CTB3+10JR	SCREW		28	EA
..3		CTWS3+10GR	SCREW		1	EA
0,2		CGX1A392C82	ORNAMENT , COVER		1	EA
0,2		CKC9A145B64	CABINET , TOP AVR170		1	EA
0,2		CQB1A1117Z	LABEL , POP		1	EA
0,2		CQB1A549Y	LABEL , ATTENTION DVD48		1	EA
0,2		CQB1A622	LABEL , SERIAL NO		1	EA
0,2		CTB3+8JFZR	SCREW		15	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12455B	AVR170 FRONT PCB ASS'Y		1	EA
0,2		CTB4+6FFZR	SCREW		6	EA
0,2		CUAAVR1700	BOTTOM CHASSIS ASS'Y		1	EA
..3		CHD4A012R	SCREW , SPECIAL		4	EA
..3		CHE170	HOLDER , PCB		4	EA
..3		CHG1A373	CUSHION , FOOT AVR350		4	EA
..3		CHR301-V1	CLAMPER	YOU QIANG	2	EA
..3		CHS1A032	TAPE , HEMELON		4	EA
..3		CKF1A459W	PANEL , REAR AVR1700		1	EA
..3		CKL1A094	FOOT , A AVR350		2	EA
..3		CKL1A095	FOOT , B AVR350		2	EA
..3		CMD1A809	BRACKET , HDMI		2	EA
..3		CMD1A815	COVER , SCREW		1	EA
Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	CN53	CJP12GA300ZB	PIN SOCKET,SMD(12PIN,2.54mm,8.5mm Height,STRAIGHT)	FAM2851-0601A01B1AA	1	EA
....7	CN54	CJP22GA300ZB	PIN SOCKET,SMD(22PIN,2.54mm,8.5mm Height,STRAIGHT)	FAM2851-1101A01B1AA	1	EA
....7	C1005	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1006	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1008	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1009	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1010	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1070	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1103	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1112	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1113	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1114	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1115	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1116	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1117	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1118	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1119	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1120	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1121	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1122	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1123	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1124	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1125	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1126	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1127	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1128	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1129	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1130	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1131	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1132	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1133	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1134	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1135	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1136	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1137	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1138	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1139	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1140	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1141	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1142	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1143	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1144	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1145	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1146	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1147	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1148	CCUI1E103KC	CAP, CHIP(1005, 25V/0.01uF)		1	EA
....7	C1149	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1150	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1151	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1171	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1203	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1212	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1213	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	C1214	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1215	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1216	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1224	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1225	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1226	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1227	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1229	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1231	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1232	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1234	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1235	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1241	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1242	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1243	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1244	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1245	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1246	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1247	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1248	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1249	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1250	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1251	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1252	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1253	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1254	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1255	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1256	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1257	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1258	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1259	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1260	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1261	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1262	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1263	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1264	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1265	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1266	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1267	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1268	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1269	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1270	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1271	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1272	CCUI1H100JA	CAP, CHIP(1005, 50V/10pF)		1	EA
....7	C1302	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1303	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1304	CCUS1A105KC	CAP, CHIP(1608, 10V/1uF)		1	EA
....7	C1306	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1308	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1321	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1322	CCUS1H471JA	CAP, CHIP(1608, 50V/470pF)		1	EA
....7	C1323	CCUS1A105KC	CAP, CHIP(1608, 10V/1uF)		1	EA
....7	C1326	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1328	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1331	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1401	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1403	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1405	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1407	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1409	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1412	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1413	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1414	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1415	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1426	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1427	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1500	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)		1	EA
....7	C1501	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	C1502	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1503	CCUS1H151JA	CAP, CHIP(1608, 50V/150pF)		1	EA
....7	C1506	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1507	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)		1	EA
....7	C1508	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1509	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1510	CCUS1H151JA	CAP, CHIP(1608, 50V/150pF)		1	EA
....7	C1512	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1513	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1514	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1515	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1516	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1517	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1518	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1521	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1522	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1523	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1525	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1526	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1528	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1532	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1533	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....7	C1536	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1538	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1540	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1541	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1543	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1546	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1547	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1548	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1550	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1553	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1554	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1557	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1558	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1559	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1560	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1561	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1562	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1564	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)		1	EA
....7	C1565	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)		1	EA
....7	C1568	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1569	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1572	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1573	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1574	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1575	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1576	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1577	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1578	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1579	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1580	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1581	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1582	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1583	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1584	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1585	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1586	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1587	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1588	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1592	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1593	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1594	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1601	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1602	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1603	CCUS1H221JA	CAP, CHIP(1608, 50V/220pF)		1	EA
....7	C1604	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1605	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	C1608	CCUC1A225KC	CAP, CHIP(2012, 10V/2.2uF)	0805B225K500C	1	EA
....7	C1609	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1610	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1611	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1612	CCUC1A225KC	CAP, CHIP(2012, 10V/2.2uF)	0805B225K500C	1	EA
....7	C1625	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1626	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1627	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1628	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1629	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1630	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1631	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1632	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1633	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1634	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1635	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1650	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1666	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1702	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1705	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1707	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1708	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1710	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1711	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1715	CCUS1H683KC	CAP, CHIP(1608, 50V/0.068uF)		1	EA
....7	C1718	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1720	CCUS1H822KC	CAP, CHIP(1608, 50V/8200pF)		1	EA
....7	C1721	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1724	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1725	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1729	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1732	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1734	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1735	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1737	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1738	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1742	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1743	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1750	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)		1	EA
....7	C1751	CCUS1H101JA	CAP, CHIP(1608, 50V/100pF)		1	EA
....7	C1754	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....7	C1755	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....7	C1757	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1758	CCUS1H100JA	CAP, CHIP(1608, 50V/10pF)		1	EA
....7	C1771	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....7	C1778	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....7	C1779	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....7	C1789	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1792	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1794	CCUS1H222KC	CAP, CHIP(1608, 50V/2200pF)		1	EA
....7	C1795	CCUS1H222KC	CAP, CHIP(1608, 50V/2200pF)		1	EA
....7	C1801	CCUS1H151JA	CAP, CHIP(1608, 50V/150pF)		1	EA
....7	C1803	CCUS1H151JA	CAP, CHIP(1608, 50V/150pF)		1	EA
....7	C1804	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1805	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1808	CCUS1H561JA	CAP, CHIP(1608, 50V/560pF)		1	EA
....7	C1809	CCUS1H561JA	CAP, CHIP(1608, 50V/560pF)		1	EA
....7	C1810	CCUS1H561JA	CAP, CHIP(1608, 50V/560pF)		1	EA
....7	C1811	CCUS1H561JA	CAP, CHIP(1608, 50V/560pF)		1	EA
....7	C1821	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1822	CCUS0J225KC	CAP, CHIP(1608, 6.3V/2.2uF)		1	EA
....7	C1824	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1826	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	D1036	CVDRB521S-30H	DIODE, SCHOTTKY, 30V	RB521S-30(SOD-523)	1	EA
....7	D1600	CVDBAR43C	DIODE, SCHOTTKY	BAR43C	1	EA
....7	D1700	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....7	D1703	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....7	D1801	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	D1802	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....7	IC1201	CVIH27U1G8F2BTR-BC	I.C, 1G NAND FLASH(48P-TSOP1)	H27U1G8F2BTR-BC/HYNIX	1	EA
....7	IC1506	CVICS4344CZZR	I.C , DAC(192kHz STEREO DAC /TSSOP 10)	CS4344CZZR	1	EA
....7	IC1602	CVIML61C282PR	I.C , RESET (2.8V , SOT-89)	ML61C282PRG	1	EA
....7	IC1711	CVIAZ4580MTR-E1	EOL item I.C , OPAMP(DUAL/LOW NOISE)	AZ4580MTR-E1/SOIC8/BCD	1	EA
....7	IC1711	CVIAZ4580MTR-E1-CU	I.C , OPAMP(DUAL/LOW NOISE)_Copper	AZ4580MTR-E1-CU	1	EA
....7	IC1713	CVINU7181RB1	IC , SIGNAL LEVEL SENSOR	NJU7181RB1	1	EA
....7	IC1714	CVIPCM5100PWR	I.C , 2CH DAC(32BIT,384KHZ,TSSOP-20P)	PCM5100PWR	1	EA
....7	IC1717	CVIAZ4580MTR-E1	EOL item I.C , OPAMP(DUAL/LOW NOISE)	AZ4580MTR-E1/SOIC8/BCD	1	EA
....7	IC1717	CVIAZ4580MTR-E1-CU	I.C , OPAMP(DUAL/LOW NOISE)_Copper	AZ4580MTR-E1-CU	1	EA
....7	L1101	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1102	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1103	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1104	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1105	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1106	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1107	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1108	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1200	CLZ9R018V	FERRITE CHIP BEAD(2012/220R, CB05YTYH221)	CB05YTYH221	1	EA
....7	L1201	CLZ9R018V	FERRITE CHIP BEAD(2012/220R, CB05YTYH221)	CB05YTYH221	1	EA
....7	L1202	CLZ9R018V	FERRITE CHIP BEAD(2012/220R, CB05YTYH221)	CB05YTYH221	1	EA
....7	L1310	CLZ9R018V	FERRITE CHIP BEAD(2012/220R, CB05YTYH221)	CB05YTYH221	1	EA
....7	L1406	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1407	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1408	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1419	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1420	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1500	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1502	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1503	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1701	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	Q1001	CVTRT1N241C	T.R,RT1N241C(22K-22K)	RT1N241C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1007	CVTRT1N441C	T.R,RT1N441C(47K-47K)	RT1N441C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1008	CVTRT1N441C	T.R,RT1N441C(47K-47K)	RT1N441C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1101	CVTRT1N241C	T.R,RT1N241C(22K-22K)	RT1N241C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1107	CVTRT1N241C	T.R,RT1N241C(22K-22K)	RT1N241C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1400	CVTRT1N441C	T.R,RT1N441C(47K-47K)	RT1N441C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1500	CVTRT1N241C	T.R,RT1N241C(22K-22K)	RT1N241C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1603	CVTINC2001AC1	T.R , MUTE	INC2001AC1(NPN,SC-59,MUTE)	1	EA
....7	Q1604	CVT2SC3052	T.R,2SC3052	2SC3052(NPN,SC-59,GENERAL)	1	EA
....7	Q1605	CVT2SC3052	T.R,2SC3052	2SC3052(NPN,SC-59,GENERAL)	1	EA
....7	Q1606	CVTRT1N141C	T.R,RT1N141C(10K-10K)	RT1N141C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1701	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1702	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1703	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1704	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1705	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1706	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....7	Q2	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....7	Q3	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....7	RN1200	CRJ064IJ103T	RES, CHIP(1005/5%/10Kohm*4)		1	EA
....7	RN1201	CRJ064IJ103T	RES, CHIP(1005/5%/10Kohm*4)		1	EA
....7	RN1202	CRJ064IJ103T	RES, CHIP(1005/5%/10Kohm*4)		1	EA
....7	RN1206	CRJ064IJ103T	RES, CHIP(1005/5%/10Kohm*4)		1	EA
....7	RN1207	CRJ064IJ103T	RES, CHIP(1005/5%/10Kohm*4)		1	EA
....7	RN1210	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1211	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1212	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1215	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1218	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1219	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1503	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	R1004	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1025	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1026	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1027	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1028	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1029	CRJ10DJOR0T	RES, CHIP(1608/5%/0ohm)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	R1030	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1032	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1034	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1038	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1039	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1040	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1104	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1126	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1127	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1130	CRJ10DF1001T	RES, CHIP(1608/1%/1Kohm)		1	EA
....7	R1131	CRJ10DF1001T	RES, CHIP(1608/1%/1Kohm)		1	EA
....7	R1140	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1141	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1142	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1147	CRJ06IJ222T	RES, CHIP(1005/5%/2.2Kohm)		1	EA
....7	R1148	CRJ06IJ222T	RES, CHIP(1005/5%/2.2Kohm)		1	EA
....7	R1155	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1156	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1157	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1158	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1170	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1201	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1211	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1219	CRJ06IJ152T	RES, CHIP(1005/5%/1.5Kohm)		1	EA
....7	R1222	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1223	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1224	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1226	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1231	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1232	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1233	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1302	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1303	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1304	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1305	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1318	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1319	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1323	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1325	CRJ10DF1501T	RES, CHIP(1608/1%/1.5Kohm)		1	EA
....7	R1329	CRJ10DF1000T	RES, CHIP(1608/1%/100ohm)		1	EA
....7	R1333	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1402	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1403	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1427	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1428	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1429	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1430	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1500	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1501	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1502	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1503	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1504	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....7	R1505	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....7	R1506	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1507	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1508	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1509	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1510	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....7	R1511	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....7	R1512	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1513	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1514	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1515	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1516	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1517	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1518	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1519	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1520	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	R1521	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1523	CRJ10DF1371T	RES, CHIP(1608/1%/1.37Kohm)		1	EA
....7	R1524	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....7	R1525	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....7	R1526	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1527	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)		1	EA
....7	R1534	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1535	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1536	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1540	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1544	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)		1	EA
....7	R1545	CRJ10DF5101T	RES, CHIP(1608/1%/5.1Kohm)		1	EA
....7	R1547	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1550	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1555	CRJ10DJ820T	RES, CHIP(1608/5%/82ohm)		1	EA
....7	R1556	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1557	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1558	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1570	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1571	CRJ10DJ560T	RES, CHIP(1608/5%/56ohm)		1	EA
....7	R1572	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1573	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1574	CRJ10DJ471T	RES, CHIP(1608/5%/470ohm)		1	EA
....7	R1575	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1576	CRJ10DJ471T	RES, CHIP(1608/5%/470ohm)		1	EA
....7	R1580	CRJ10DJ820T	RES, CHIP(1608/5%/82ohm)		1	EA
....7	R1600	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1601	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1602	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1603	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1604	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1608	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1609	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1612	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1617	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1618	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1620	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1631	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....7	R1632	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....7	R1633	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1634	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1636	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1641	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1645	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1661	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1662	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1663	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1664	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1665	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1666	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1667	CRJ10DJ225T	RES, CHIP(1608/5%/2.2Mohm)		1	EA
....7	R1668	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1669	CRJ10DJ224T	RES, CHIP(1608/5%/220Kohm)		1	EA
....7	R1674	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1675	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1677	CRJ10DJ203T	RES, CHIP(1608/5%/20Kohm)		1	EA
....7	R1679	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1680	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1681	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1682	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1700	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1702	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1705	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1706	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1707	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1710	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1711	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1712	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	R1713	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1715	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1716	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1717	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1718	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1720	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1723	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1724	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1757	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1760	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1761	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1762	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1763	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1765	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1766	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1767	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1768	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1770	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1773	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1774	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1775	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1778	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1779	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1780	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1781	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1783	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1784	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1785	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1788	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1789	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1790	CRJ10DJ271T	RES, CHIP(1608/5%/270ohm)		1	EA
....7	R1791	CRJ10DJ271T	RES, CHIP(1608/5%/270ohm)		1	EA
....7	R1793	CRJ10DJ271T	RES, CHIP(1608/5%/270ohm)		1	EA
....7	R1794	CRJ10DJ271T	RES, CHIP(1608/5%/270ohm)		1	EA
....7	R1795	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1796	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1798	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1800	CRJ10DJ561T	RES, CHIP(1608/5%/560ohm)		1	EA
....7	R1801	CRJ10DJ561T	RES, CHIP(1608/5%/560ohm)		1	EA
....7	R1803	CRJ10DJ561T	RES, CHIP(1608/5%/560ohm)		1	EA
....7	R1804	CRJ10DJ222T	RES, CHIP(1608/5%/2.2Kohm)		1	EA
....7	R1805	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1806	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1807	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1808	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1809	CRJ10DJ561T	RES, CHIP(1608/5%/560ohm)		1	EA
....7	R1812	CRJ10DJ271T	RES, CHIP(1608/5%/270ohm)		1	EA
....7	R1814	CRJ10DJ271T	RES, CHIP(1608/5%/270ohm)		1	EA
....7	R1815	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1816	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1817	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1818	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1819	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1820	CRJ10DJ223T	RES, CHIP(1608/5%/22Kohm)		1	EA
....7	R1821	CRJ10DJ224T	RES, CHIP(1608/5%/220Kohm)		1	EA
....7	R1822	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1823	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1824	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1825	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1826	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1827	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1828	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1829	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1830	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1831	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1832	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)		1	EA
....7	R1833	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)		1	EA
....7	R1839	CRJ10DJ393T	RES, CHIP(1608/5%/39Kohm)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12456B	AVR1700 DIGITAL PCB ASS'Y		1	EA
....7	R1840	CRJ10DJ393T	RES, CHIP(1608/5%/39Kohm)		1	EA
....7	R1841	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1849	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1850	CRJ10DJ471T	RES, CHIP(1608/5%/470ohm)		1	EA
....7	R1852	CRJ10DJ471T	RES, CHIP(1608/5%/470ohm)		1	EA
....7	R1853	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1854	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1855	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1856	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1859	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1860	CRJ10DJ562T	RES, CHIP(1608/5%/5.6Kohm)		1	EA
....7	R1861	CRJ10DJ122T	RES, CHIP(1608/5%/1.2Kohm)		1	EA
....7	R1862	CRJ10DJ562T	RES, CHIP(1608/5%/5.6Kohm)		1	EA
....7	R1863	CRJ10DJ122T	RES, CHIP(1608/5%/1.2Kohm)		1	EA
....7	R1864	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1865	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1866	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1867	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1872	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....7	R1873	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1874	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1876	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	BN10	CJP03GA208ZY	WAFER , SMD (2MM PITCH)-3P	20022WS-03C	1	EA
....7	CN10	CJP03GA208ZY	WAFER , SMD (2MM PITCH)-3P	20022WS-03C	1	EA
....7	CN1000	CJP07GA193ZY	WAFER, FFC, SMD(07P-1mm, STRAIGHT)		1	EA
....7	CN1200	CJP07GA193ZY	WAFER, FFC, SMD(07P-1mm, STRAIGHT)		1	EA
....7	CN1602	CJP09GA193ZY	WAFER, FFC, SMD(09-1mm, STRAIGHT)		1	EA
....7	CN1603	CJP07GA193ZY	WAFER, FFC, SMD(07P-1mm, STRAIGHT)		1	EA
....7	CN52	CJP15GB276ZY	WAFER, 20037WR-NN Series, 2mm, SMD, ANGLE, 15P	20037WR-NN	1	EA
....7	CN75	CJP03GA208ZY	WAFER , SMD (2MM PITCH)-3P	20022WS-03C	1	EA
....7	CN76	CJP07GA208ZY	WAFER, 2mm, SMD, Vertical, 07p	20022WS-NN SERIES	1	EA
....7	C1000	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1001	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1002	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1003	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1004	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1007	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1011	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1100	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1101	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1102	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1104	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)		1	EA
....7	C1105	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)		1	EA
....7	C1106	CCUS1A105KC	CAP, CHIP(1608, 10V/1uF)		1	EA
....7	C1107	CCUS1A105KC	CAP, CHIP(1608, 10V/1uF)		1	EA
....7	C1108	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1109	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1110	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1111	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1204	CCUS1H080DA	CAP, CHIP(1608, 50V/8pF)		1	EA
....7	C1205	CCUS1H080DA	CAP, CHIP(1608, 50V/8pF)		1	EA
....7	C1210	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1211	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1217	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1218	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1219	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1220	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1221	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1222	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1223	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1228	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1230	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1233	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1236	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	C1237	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1238	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1239	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1240	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	C1300	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1301	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1305	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1307	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1315	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1316	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1317	CCUI1H102KC	CAP, CHIP(1005, 50V/1000pF)		1	EA
....7	C1318	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1319	CCUI1H150JA	CAP, CHIP(1005, 50V/15pF)		1	EA
....7	C1320	CCUI1H150JA	CAP, CHIP(1005, 50V/15pF)		1	EA
....7	C1324	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1325	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1327	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1332	CCUS1A475KC	CAP, CHIP(1608, 10V/4.7uF)		1	EA
....7	C1400	CCEC0JMVG221T	CAP,ALUMINUM ELECTROLYTIC (6.3V/220uF)	MVG SERIES	1	EA
....7	C1402	CCEC0JMVG221T	CAP,ALUMINUM ELECTROLYTIC (6.3V/220uF)	MVG SERIES	1	EA
....7	C1404	CCEC0JMVG221T	CAP,ALUMINUM ELECTROLYTIC (6.3V/220uF)	MVG SERIES	1	EA
....7	C1406	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1408	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1410	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1411	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1416	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1417	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1418	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1419	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1422	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1423	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1424	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1425	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1428	CCUSSP1E106KC	CAP, CHIP(3216, 25V/10uF)	CL31A106KAHNNE	1	EA
....7	C1429	CCUSSP1E106KC	CAP, CHIP(3216, 25V/10uF)	CL31A106KAHNNE	1	EA
....7	C1430	CCUSSP1E106KC	CAP, CHIP(3216, 25V/10uF)	CL31A106KAHNNE	1	EA
....7	C1431	CCUSSP1E106KC	CAP, CHIP(3216, 25V/10uF)	CL31A106KAHNNE	1	EA
....7	C1432	CCUYAPOJ226KC	CAP , CHIP (3216, 6.3V/22uF)	CC1206KKX5R5BB226	1	EA
....7	C1433	CCUYAPOJ226KC	CAP , CHIP (3216, 6.3V/22uF)	CC1206KKX5R5BB226	1	EA
....7	C1434	CCUYAPOJ226KC	CAP , CHIP (3216, 6.3V/22uF)	CC1206KKX5R5BB226	1	EA
....7	C1435	CCUYAPOJ226KC	CAP , CHIP (3216, 6.3V/22uF)	CC1206KKX5R5BB226	1	EA
....7	C1440	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1441	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1442	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1443	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1445	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1446	CCEC0JMVG470T	CAP,ALUMINUM ELECTROLYTIC (6.3V/47uF)		1	EA
....7	C1447	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1448	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1504	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1505	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1511	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1519	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1520	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1524	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1527	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1529	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1530	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1531	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....7	C1534	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1535	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1537	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1539	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1544	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1549	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1551	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)		1	EA
....7	C1552	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	C1556	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1563	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1566	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1567	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1570	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1571	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1589	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1590	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1591	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1595	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1596	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1597	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1598	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1606	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)		1	EA
....7	C1607	CCUS1H120JA	CAP, CHIP(1608, 50V/12pF)		1	EA
....7	C1613	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1614	CCUS1H151JA	CAP, CHIP(1608, 50V/150pF)		1	EA
....7	C1620	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1621	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1622	CCUS0J475KC	CAP, CHIP(1608, 6.3V/4.7uF, MURATA GRM18)		1	EA
....7	C1637	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1700	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1701	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1703	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1704	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1706	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1709	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1712	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1713	CCUS1H683KC	CAP, CHIP(1608, 50V/0.068uF)		1	EA
....7	C1714	CCUS1H822KC	CAP, CHIP(1608, 50V/8200pF)		1	EA
....7	C1716	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1717	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1719	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1722	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1723	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1726	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1727	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1728	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1730	CCUS1H272KC	CAP, CHIP(1608, 50V/2700pF)		1	EA
....7	C1731	CCUS1H391JA	CAP, CHIP(1608, 50V/390pF)		1	EA
....7	C1733	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1736	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1739	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1740	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1741	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1744	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1745	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1746	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1747	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1748	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1749	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1752	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1753	CCEC1CMVG101T	CAP,ALUMINUM ELECTROLYTIC CAPACITORS(16V/100uF)	MVG SERIES	1	EA
....7	C1756	CCUC1A226KC	CAP, CHIP(2012, 10V/22uF)		1	EA
....7	C1759	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1760	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1767	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1768	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1769	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1770	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1772	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1773	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....7	C1774	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1775	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1776	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1777	CCUS1H223KC	CAP, CHIP(1608, 50V/0.022uF)		1	EA
....7	C1780	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1781	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	C1782	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1783	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1784	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1785	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1786	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1787	CCEC1CMVG471T	CAP,ALUMINUM ELECTROLYTIC (16V/470uF)	MVG SERIES	1	EA
....7	C1788	CCEC1CMVG471T	CAP,ALUMINUM ELECTROLYTIC (16V/470uF)	MVG SERIES	1	EA
....7	C1791	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1796	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1798	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1799	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....7	C1800	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1802	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1806	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1807	CCEC1CMVG100T	CAP,ALUMINUM ELECTROLYTIC (16V/10uF)	MVG SERIES	1	EA
....7	C1823	CCUS0J225KC	CAP, CHIP(1608, 6.3V/2.2uF)		1	EA
....7	C1825	CCUC0J106KC	CAP, CHIP(2012, 6.3V/10uF, X5R)		1	EA
....7	C1827	CCUI1C104KC	CAP, CHIP(1005, 16V/0.1uF)		1	EA
....7	D1040	CVDRB521S-30H	DIODE, SCHOTTKY, 30V	RB521S-30(SOD-523)	1	EA
....7	D1601	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....7	D1602	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....7	D1603	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....7	D1701	CVD1SR159-200H	DIODE, SCHOTTKY	US1D(DO-214AC)	1	EA
....7	D1702	CVD1SR159-200H	DIODE, SCHOTTKY	US1D(DO-214AC)	1	EA
....7	IC1000	CVIADV3002BSTZ	I.C , HDMI MUX	ADV3002BSTZ	1	EA
....7	IC1001	CVITC74VHC4051AFT	I.C , DE/MUX (8CH ANALOG,TSSOP-16P)		1	EA
....7	IC1100	CVIADV7623BSTZ_A	I.C , HDMI Transceiver (LQFP-144P)	ADV7623BSTZ	1	EA
....7	IC1101	CVIMX25L8006EM2I-12G	I.C , SERIAL FLASH(8M)	MX25L8006EM2I-12G	1	EA
....7	IC1102	CVITC74VXC541FT	I,C , OCTAL BUS BUFFER (TOSHIBA)		1	EA
....7	IC1200	CVIDM860A-AQE-HK	I.C , Network Media processor(LFBGA-320P)	DM860A-AQE	1	EA
....7	IC1202	CVIW9825G6JH-6	I.C , 256M SDRAM	W9825G6JH-6	1	EA
....7	IC1300	CVILAN8720ACPTR	I.C , Ethernet Transceiver(QFN-24P)	LAN8720A-CP-TR	1	EA
....7	IC1301	CVIISL54220IUZ-T	I.C , USB2.0 Multiplexer(TQFN-10P)		1	EA
....7	IC1302	CVISY6288CAAC	IC, CURRENT LIMIT, 2A	SY6288CAAC	1	EA
....7	IC1304	CVIMFI337S3959-HK	IC, Apple iPod Authentication coprocessor 2.0c	MFI337S3959	1	EA
....7	IC1401	CVIEML3418-00SE08GRR	I.C , DCDC CONVERTER(SOP-8FD)	EML3418-00SE08GRR	1	EA
....7	IC1402	CVILM1117S12	I.C, REGULATOR(1.0A, 1.2V, SOT-223)		1	EA
....7	IC1403	CVTTPC6111	MOSFET,TPC6111(P-CH,U-MOSV)	TPC6111	1	EA
....7	IC1404	CVIEML3418-00SE08GRR	I.C , DCDC CONVERTER(SOP-8FD)	EML3418-00SE08GRR	1	EA
....7	IC1405	CVIEML3418-00SE08GRR	I.C , DCDC CONVERTER(SOP-8FD)	EML3418-00SE08GRR	1	EA
....7	IC1406	CVIEML3418-00SE08GRR	I.C , DCDC CONVERTER(SOP-8FD)	EML3418-00SE08GRR	1	EA
....7	IC1440	CVTTPC6111	MOSFET,TPC6111(P-CH,U-MOSV)	TPC6111	1	EA
....7	IC1500	CVICS497024CVZ	EOL item I.C , DSP (CIRRUS LOGIC)		1	EA
....7	IC1501	HVICS42528-CQ	I.C , CODEC + DIR (CIRRUS LOGIC)	CS42528-CQ	1	EA
....7	IC1502	CVIM12L16161A5TG2Q	I.C, 16MB SDRAM(TSOP-50P)	M12L16161A5TG2Q	1	EA
....7	IC1503	CVITC74VXC541FT	I,C , OCTAL BUS BUFFER (TOSHIBA)		1	EA
....7	IC1504	CVIMX25L8006EM2I-12G	I.C , SERIAL FLASH(8M)	MX25L8006EM2I-12G	1	EA
....7	IC1505	HVITC74VHC157FT	I.C, QUAD 2-CHANNEL MUX(TSSOP-16)	TC74VHC157FT/TOSHIBA	1	EA
....7	IC1507	HVINJM2115MDTE1	IC, OP AMP		1	EA
....7	IC1508	HVINJM2115MDTE1	IC, OP AMP		1	EA
....7	IC1509	CVINJM2845DL118	I.C, REGULATOR(1.8V/TO-252)	NJM2845DL1-18(Te1) JRC	1	EA
....7	IC1600	CVISTM32F205ZGT6	I.C , FLASH MCU (32 BIT, 1MB, LQFP 144)	STM32F205ZGT6	1	EA
....7	IC1603	CVIM24C32WMN6TP	I.C , EEPROM (32 Kbit) ST		1	EA
....7	IC1604	CRTLM94022BIMG	SENSOR , TEMPERATURE	LM94022BIMG	1	EA
....7	IC1605	CVIDB1510BT3TR33	I.C, REGULATOR(1.0A,3.3V,TO252-(1))		1	EA
....7	IC1700	CVINJU72340AFH3	I.C , INPUT WITH 8CH VOLUME(52P LQFP)	CVINJU72340AFH3	1	EA
....7	IC1701	CVIAZ4580MTR-E1	EOL item I.C , OPAMP(DUAL/LOW NOISE)	AZ4580MTR-E1/SOIC8/BCD	1	EA
....7	IC1701	CVIAZ4580MTR-E1-CU	I.C , OPAMP(DUAL/LOW NOISE)_Copper	AZ4580MTR-E1-CU	1	EA
....7	IC1702	CVIAZ4580MTR-E1	EOL item I.C , OPAMP(DUAL/LOW NOISE)	AZ4580MTR-E1/SOIC8/BCD	1	EA
....7	IC1702	CVIAZ4580MTR-E1-CU	I.C , OPAMP(DUAL/LOW NOISE)_Copper	AZ4580MTR-E1-CU	1	EA
....7	IC1703	CVIAZ4580MTR-E1	EOL item I.C , OPAMP(DUAL/LOW NOISE)	AZ4580MTR-E1/SOIC8/BCD	1	EA
....7	IC1703	CVIAZ4580MTR-E1-CU	I.C , OPAMP(DUAL/LOW NOISE)_Copper	AZ4580MTR-E1-CU	1	EA
....7	IC1704	CVIAZ4580MTR-E1	EOL item I.C , OPAMP(DUAL/LOW NOISE)	AZ4580MTR-E1/SOIC8/BCD	1	EA
....7	IC1704	CVIAZ4580MTR-E1-CU	I.C , OPAMP(DUAL/LOW NOISE)_Copper	AZ4580MTR-E1-CU	1	EA
....7	IC1705	CVIAZ4580MTR-E1	EOL item I.C , OPAMP(DUAL/LOW NOISE)	AZ4580MTR-E1/SOIC8/BCD	1	EA
....7	IC1705	CVIAZ4580MTR-E1-CU	I.C , OPAMP(DUAL/LOW NOISE)_Copper	AZ4580MTR-E1-CU	1	EA
....7	IC1706	HVTKTC812TB	T.R , CHIP(TS6)	KTC812T-B-RTK	1	EA
....7	IC1707	HVTKTC812TB	T.R , CHIP(TS6)	KTC812T-B-RTK	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	IC1708	HVTKTC812TB	T.R , CHIP(TS6)	KTC812T-B-RTK	1	EA
....7	IC1709	HVTKTC812TB	T.R , CHIP(TS6)	KTC812T-B-RTK	1	EA
....7	IC1710	HVTKTC812TB	T.R , CHIP(TS6)	KTC812T-B-RTK	1	EA
....7	IC1712	HVTKTC812TB	T.R , CHIP(TS6)	KTC812T-B-RTK	1	EA
....7	IC1715	CVILM7808RTRL	IC, REGULATOR(1A, 8V)	LM7808RTRL	1	EA
....7	IC1716	CVILM7908RTRL	IC, REGULATOR(1A, -8V)	LM7908RTRL	1	EA
....7	JK1000	CJJ9H008Y	JACK, HDMI(TYPE-A, SMT-19P)	H050FS019G643BY	1	EA
....7	JK1001	CJJ9H008Y	JACK, HDMI(TYPE-A, SMT-19P)	H050FS019G643BY	1	EA
....7	JK1002	CJJ9H008Y	JACK, HDMI(TYPE-A, SMT-19P)	H050FS019G643BY	1	EA
....7	JK1100	CJJ9H008Y	JACK, HDMI(TYPE-A, SMT-19P)	H050FS019G643BY	1	EA
....7	JK1101	CJJ9H008Y	JACK, HDMI(TYPE-A, SMT-19P)	H050FS019G643BY	1	EA
....7	JK1102	CJJ9H008Y	JACK, HDMI(TYPE-A, SMT-19P)	H050FS019G643BY	1	EA
....7	JK1103	CJJ9H008Y	JACK, HDMI(TYPE-A, SMT-19P)	H050FS019G643BY	1	EA
....7	JK1300	CJJ9L026Z	Jack, RJ-45 With TR (SMT)	TM-10043-13	1	EA
....7	L1000	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1100	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1301	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1304	CLZ9Z127Z	COIL, CHOKE CHIP(2012/180R)	DLW21SN181SQ2L/MURATA	1	EA
....7	L1306	CLZ9Z128Z	COIL, CHOKE CHIP(2012/90R)	DLW21SN900SQ2L/MURATA	1	EA
....7	L1307	CLZ9Z128Z	COIL, CHOKE CHIP(2012/90R)	DLW21SN900SQ2L/MURATA	1	EA
....7	L1308	CLZ9R018V	FERRITE CHIP BEAD(2012/220R, CB05YTYH221)	CB05YTYH221	1	EA
....7	L1309	CLZ9R018V	FERRITE CHIP BEAD(2012/220R, CB05YTYH221)	CB05YTYH221	1	EA
....7	L1311	CLZ9R018V	FERRITE CHIP BEAD(2012/220R, CB05YTYH221)	CB05YTYH221	1	EA
....7	L1400	CLQ12E100MRZ	COIL , SMD POWER (10uH/3A)	CMI-SPC9H45F-SERIES	1	EA
....7	L1403	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1404	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1405	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1409	CLQ18E1R5NRZ	COIL,SMD POWER(1.5uH/2A)		1	EA
....7	L1410	CLQ18E1R5NRZ	COIL,SMD POWER(1.5uH/2A)		1	EA
....7	L1411	CLQ18E1R5NRZ	COIL,SMD POWER(1.5uH/2A)		1	EA
....7	L1412	CLQ18E1R5NRZ	COIL,SMD POWER(1.5uH/2A)		1	EA
....7	L1415	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1416	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1421	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	L1422	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1430	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1501	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....7	L1602	CLZ9R005V	FERRITE CHIP BEAD(1608/60R, CB03YTYH600)	CB03YTYH600	1	EA
....7	Q1000	CVTRT1P141C	T.R,RT1P141C(10K-10K)	RT1P141C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1002	CVTRT1P141C	T.R,RT1P141C(10K-10K)	RT1P141C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1003	CVTRT1N241C	T.R,RT1N241C(22K-22K)	RT1N241C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1004	CVTRT1P141C	T.R,RT1P141C(10K-10K)	RT1P141C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1005	CVTRT1N241C	T.R,RT1N241C(22K-22K)	RT1N241C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1100	CVTRT1P141C	T.R,RT1P141C(10K-10K)	RT1P141C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1102	CVTRT1P141C	T.R,RT1P141C(10K-10K)	RT1P141C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1103	CVTRT1N241C	T.R,RT1N241C(22K-22K)	RT1N241C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1104	CVTRT1P141C	T.R,RT1P141C(10K-10K)	RT1P141C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1105	CVTRT1N241C	T.R,RT1N241C(22K-22K)	RT1N241C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1200	CVTRT1P141C	T.R,RT1P141C(10K-10K)	RT1P141C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1201	CVTRT1N141C	T.R,RT1N141C(10K-10K)	RT1N141C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1401	CVT2SA1954	T.R,2SA1954	2SA1954(PNP,SWITCHING/MUTING)	1	EA
....7	Q1402	CVTRT1N441C	T.R,RT1N441C(47K-47K)	RT1N441C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1440	CVTRT1N441C	T.R,RT1N441C(47K-47K)	RT1N441C(NPN,SC-59,SWITCHING)	1	EA
....7	Q1600	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....7	Q1601	HVTKTA1504SYRTK	T.R , CHIP , SOT-23	KTA1504S Y RTK	1	EA
....7	Q1602	HVTKTC3875SYRTK	T.R , CHIP , SOT-23	KTC3875S Y RTK	1	EA
....7	Q1700	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....7	RN1100	CRJ104DJ330T	RES, CHIP(1608/5%/33ohm*4)		1	EA
....7	RN1101	CRJ104DJ330T	RES, CHIP(1608/5%/33ohm*4)		1	EA
....7	RN1102	CRJ104DJ330T	RES, CHIP(1608/5%/33ohm*4)		1	EA
....7	RN1103	CRJ104DJ330T	RES, CHIP(1608/5%/33ohm*4)		1	EA
....7	RN1104	CRJ104DJ220T	RES, CHIP(1608/5%/22ohm*4)		1	EA
....7	RN1105	CRJ104DJ220T	RES, CHIP(1608/5%/22ohm*4)		1	EA
....7	RN1203	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1204	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1205	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1208	CRJ064IJ103T	RES, CHIP(1005/5%/10Kohm*4)		1	EA
....7	RN1209	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	RN1213	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1214	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1216	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1217	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1300	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1301	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1302	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1500	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1501	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1502	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1504	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1505	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1506	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1507	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1508	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1510	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1511	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1512	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1513	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1514	CRJ064IJ330T	RES, CHIP(1005/5%/33ohm*4)		1	EA
....7	RN1600	CRJ104DJ101T	RES, CHIP(1608/5%/100ohm*4)	100R (1608)	1	EA
....7	RN1601	CRJ104DJ101T	RES, CHIP(1608/5%/100ohm*4)	100R (1608)	1	EA
....7	RN1602	CRJ104DJ101T	RES, CHIP(1608/5%/100ohm*4)	100R (1608)	1	EA
....7	RN1603	CRJ104DJ101T	RES, CHIP(1608/5%/100ohm*4)	100R (1608)	1	EA
....7	RN1604	CRJ104DJ330T	RES, CHIP(1608/5%/33ohm*4)		1	EA
....7	RN1605	CRJ104DJ330T	RES, CHIP(1608/5%/33ohm*4)		1	EA
....7	R1000	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1001	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1002	CRJ06IJ223T	RES, CHIP(1005/5%/22Kohm)		1	EA
....7	R1003	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1005	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1006	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1007	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1008	CRJ06IJ223T	RES, CHIP(1005/5%/22Kohm)		1	EA
....7	R1009	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1010	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1011	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1012	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1013	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1014	CRJ06IJ223T	RES, CHIP(1005/5%/22Kohm)		1	EA
....7	R1015	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1016	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1017	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1018	CRJ06IJ222T	RES, CHIP(1005/5%/2.2Kohm)		1	EA
....7	R1019	CRJ06IJ222T	RES, CHIP(1005/5%/2.2Kohm)		1	EA
....7	R1020	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1021	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1022	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1035	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1041	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1050	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1051	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1052	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1100	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1101	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1102	CRJ06IJ223T	RES, CHIP(1005/5%/22Kohm)		1	EA
....7	R1103	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1105	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1106	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1107	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1108	CRJ06IJ223T	RES, CHIP(1005/5%/22Kohm)		1	EA
....7	R1109	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1110	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1111	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1112	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1113	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1114	CRJ06IJ223T	RES, CHIP(1005/5%/22Kohm)		1	EA
....7	R1115	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	R1116	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1117	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1118	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1119	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1120	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1121	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1122	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1123	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1128	CRJ06IJ0R0T	RES, CHIP(1005/5%/0ohm)		1	EA
....7	R1129	CRJ10DJ394T	RES, CHIP(1608/5%/390Kohm)		1	EA
....7	R1132	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1133	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1134	CRJ10DF1601T	RES, CHIP(1608/1%/1.6Kohm)		1	EA
....7	R1135	CRJ10DF2001T	RES, CHIP(1608/1%/2Kohm)		1	EA
....7	R1136	CRJ10DF51R0T	RES, CHIP(1608/1%/51ohm)		1	EA
....7	R1137	CRJ10DF51R0T	RES, CHIP(1608/1%/51ohm)		1	EA
....7	R1138	CRJ10DJ5R1T	RES, CHIP(1608/5%/5.1ohm)		1	EA
....7	R1143	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1144	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1145	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1146	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1149	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1151	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1152	CRJ10DJ182T	RES, CHIP(1608/5%/1.8Kohm)		1	EA
....7	R1153	CRJ10DJ182T	RES, CHIP(1608/5%/1.8Kohm)		1	EA
....7	R1154	CRJ06IJ473T	RES, CHIP(1005/5%/47Kohm)		1	EA
....7	R1159	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1160	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1161	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1202	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1203	CRJ06IJ152T	RES, CHIP(1005/5%/1.5Kohm)		1	EA
....7	R1204	CRJ06IJ102T	RES, CHIP(1005/5%/1Kohm)		1	EA
....7	R1205	CRJ06IJ123T	RES, CHIP(1005/5%/12Kohm)		1	EA
....7	R1206	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1207	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1208	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1209	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....7	R1210	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)		1	EA
....7	R1212	CRJ06IJ182T	RES, CHIP(1005/5%/1.8Kohm)		1	EA
....7	R1213	CRJ06IJ122T	RES, CHIP(1005/5%/1.2Kohm)		1	EA
....7	R1220	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1221	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1225	CRJ06IJ101T	RES, CHIP(1005/5%/100ohm)		1	EA
....7	R1234	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1236	CRJ06IJ472T	RES, CHIP(1005/5%/4.7Kohm)		1	EA
....7	R1238	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1241	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1242	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1243	CRJ06IJ272T	RES, CHIP(1005/5%/2.7Kohm)		1	EA
....7	R1244	CRJ06IJ152T	RES, CHIP(1005/5%/1.5Kohm)		1	EA
....7	R1300	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1301	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1308	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1309	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1312	CRJ06IJ100T	RES, CHIP(1005/5%/10ohm)		1	EA
....7	R1313	CRJ10DJ510T	RES, CHIP(1608/5%/51ohm)		1	EA
....7	R1314	CRJ10DJ510T	RES, CHIP(1608/5%/51ohm)		1	EA
....7	R1315	CRJ10DJ510T	RES, CHIP(1608/5%/51ohm)		1	EA
....7	R1316	CRJ10DJ510T	RES, CHIP(1608/5%/51ohm)		1	EA
....7	R1317	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1321	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1327	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1328	CRJ10DF1202T	RES, CHIP(1608/1%/12Kohm)		1	EA
....7	R1331	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1401	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1404	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1405	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1406	CRJ10DF1502T	RES, CHIP(1608/1%/15Kohm)	NJM2831	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	R1407	CRJ10DF6802T	RES, CHIP(1608/1%/68Kohm)		1	EA
....7	R1408	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1409	CRJ10DF1002T	RES, CHIP(1608/1%/10Kohm)		1	EA
....7	R1410	CRJ10DJ203T	RES, CHIP(1608/5%/20Kohm)		1	EA
....7	R1411	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1412	CRJ10DF1502T	RES, CHIP(1608/1%/15Kohm)	NJM2831	1	EA
....7	R1413	CRJ10DF6802T	RES, CHIP(1608/1%/68Kohm)		1	EA
....7	R1414	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1415	CRJ10DF1002T	RES, CHIP(1608/1%/10Kohm)		1	EA
....7	R1416	CRJ10DF4702T	RES, CHIP(1608/1%/47Kohm)		1	EA
....7	R1418	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1419	CRJ06IJ332T	RES, CHIP(1005/5%/3.3Kohm)		1	EA
....7	R1420	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1421	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1422	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1423	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1424	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1425	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1426	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1431	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1440	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1441	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1460	CRJ14CJ0R0T	RES, CHIP(3216/5%/0ohm)		1	EA
....7	R1461	CRJ14CJ0R0T	RES, CHIP(3216/5%/0ohm)		1	EA
....7	R1522	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1528	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1529	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1530	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1531	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1532	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1533	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1537	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1538	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1541	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1542	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1543	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1546	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1548	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)		1	EA
....7	R1549	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1551	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1552	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1553	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1554	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1559	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1560	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1561	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1562	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1563	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1564	CRJ06IJ820T	RES, CHIP(1005/5%/82ohm)		1	EA
....7	R1565	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1567	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1568	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1590	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1591	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1592	CRJ06IJ330T	RES, CHIP(1005/5%/33ohm)		1	EA
....7	R1605	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1606	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)		1	EA
....7	R1607	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1610	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1611	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1614	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1615	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1619	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1621	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)		1	EA
....7	R1622	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)		1	EA
....7	R1623	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1624	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1625	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
....7		CUP12456Z	PCB , DIGITAL (268X155/FR-4/4L) AVR1700		1	EA
....7	R1626	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1627	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1628	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1639	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1640	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1642	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1643	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1644	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1646	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1647	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1648	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1649	CRJ10DJ100T	RES, CHIP(1608/5%/10ohm)		1	EA
....7	R1650	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1651	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1652	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1653	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1654	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1671	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1672	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....7	R1676	CRJ10DJ330T	RES, CHIP(1608/5%/33ohm)		1	EA
....7	R1690	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....7	R1701	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1703	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1704	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1708	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1709	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1714	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1719	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1721	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1722	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1758	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	R1759	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1764	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1769	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1771	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1772	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1776	CRJ10DJ682T	RES, CHIP(1608/5%/6.8Kohm)		1	EA
....7	R1777	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....7	R1782	CRJ10DJ332T	RES, CHIP(1608/5%/3.3Kohm)		1	EA
....7	R1786	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1787	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1792	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1797	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1799	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1802	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1810	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1811	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1813	CRJ10DJ392T	RES, CHIP(1608/5%/3.9Kohm)		1	EA
....7	R1836	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1837	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....7	R1838	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....7	R1845	CRJ10DJ271T	RES, CHIP(1608/5%/270ohm)		1	EA
....7	R1848	CRJ10DJ271T	RES, CHIP(1608/5%/270ohm)		1	EA
....7	R1851	CRJ06IJ103T	RES, CHIP(1005/5%/10Kohm)		1	EA
....7	R1857	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1858	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....7	R1875	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....7	WF61	CJP23GA299ZN	WAFER, FFC, SMD(23P-1.25mm, STRAIGHT)	F12509Y-23-A012	1	EA
....7	WF70	CJP23GA299ZN	WAFER, FFC, SMD(23P-1.25mm, STRAIGHT)	F12509Y-23-A012	1	EA
....7	X1100	COX28636I120ST	X-TAL, SMD 3.2X2.5, 28.636MHz, 12PF		1	EA
....7	X1200	COX24000I080ST	X-TAL, SMD 3.2X2.5, 24.000MHz, 8PF	7V24000002	1	EA
....7	X1500	COX24576I120ST	X-TAL, SMD 3.2X2.5, 24.576MHz, 12PF	7V24500006	1	EA
....7	X1600	COX25000I120ST	X-TAL, SMD 3.2X2.5, 25.000MHz, 12PF	7V25000009	1	EA
...4		CQB1D022	A-ROHS/LABEL,SERIAL		1	EA
Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12458B	AVR170 MAIN PCB ASS'Y		1	EA
....6	C726	CCUS1H221JA	CAP, CHIP(1608, 50V/220pF)		1	EA

....6	C924	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C927	CCUS1H102KC	CAP, CHIP(1608, 50V/1000pF)		1	EA
....6	D501	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D502	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D503	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D504	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D802	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D803	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D903	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D973	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D974	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D981	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	Q541	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q542	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q543	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q544	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q681	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q682	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q683	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q684	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q801	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q824	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q911	CVTMMBT5401	High Voltage PNP Transistors(SOT-23)		1	EA
....6	Q912	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q913	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q937	CVTMMBT5401	High Voltage PNP Transistors(SOT-23)		1	EA
....6	Q938	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....6	Q939	CVTRT1P144C	T.R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....6	Q940	CVTMMBT5401	High Voltage PNP Transistors(SOT-23)		1	EA
....6	Q941	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q942	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q945	CVTMMBT5551	High Voltage NPN Transistors(SOT-23)		1	EA
....6	Q960	CVTRT1N144C	T.R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....6	R686	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R687	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R688	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R689	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R706	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R801	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R901	CRJ10DJ272T	RES, CHIP(1608/5%/2.7Kohm)		1	EA
....6	R902	CRJ10DJ333T	RES, CHIP(1608/5%/33Kohm)		1	EA
....6	R917	CRJ14CJ473T	RES, CHIP(3216/5%/47Kohm)		1	EA
....6	R918	CRJ14CJ473T	RES, CHIP(3216/5%/47Kohm)		1	EA
....6	R919	CRJ14CJ473T	RES, CHIP(3216/5%/47Kohm)		1	EA
....6	R920	CRJ14CJ473T	RES, CHIP(3216/5%/47Kohm)		1	EA
....6	R925	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R927	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R928	CRJ10DJ333T	RES, CHIP(1608/5%/33Kohm)		1	EA
....6	R939	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R940	CRJ10DJ152T	RES, CHIP(1608/5%/1.5Kohm)		1	EA
....6	R971	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R972	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R986	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R989	CRJ10DJ302T	RES, CHIP(1608/5%/3Kohm)		1	EA
....5	C501	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C502	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C503	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C504	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C506	CCKT1H331KB	CAP, CERAMIC(50V/330pF/K)		1	EA
....5	C507	CCKT1H331KB	CAP, CERAMIC(50V/330pF/K)		1	EA
....5	C508	CCKT1H331KB	CAP, CERAMIC(50V/330pF/K)		1	EA
....5	C509	CCKT1H331KB	CAP, CERAMIC(50V/330pF/K)		1	EA
....5	C561	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C562	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C563	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C564	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C566	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C567	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C568	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C569	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12458B	AVR170 MAIN PCB ASS'Y		1	EA
....5	C571	CCBS1H271KBT	CAP , CERAMIC(270PF/50V)	CH UP025 B271K-A-B Z	1	EA
....5	C572	CCBS1H271KBT	CAP , CERAMIC(270PF/50V)	CH UP025 B271K-A-B Z	1	EA
....5	C573	CCBS1H271KBT	CAP , CERAMIC(270PF/50V)	CH UP025 B271K-A-B Z	1	EA
....5	C574	CCBS1H271KBT	CAP , CERAMIC(270PF/50V)	CH UP025 B271K-A-B Z	1	EA
....5	C601	CCCT1H120JC	CAP, CERAMIC(50V/12pF/J)		1	EA
....5	C602	CCCT1H120JC	CAP, CERAMIC(50V/12pF/J)		1	EA
....5	C603	CCCT1H120JC	CAP, CERAMIC(50V/12pF/J)		1	EA
....5	C604	CCCT1H120JC	CAP, CERAMIC(50V/12pF/J)		1	EA
....5	C606	CCCT1H330JC	CAP, CERAMIC(50V/33pF/J)		1	EA
....5	C607	CCCT1H330JC	CAP, CERAMIC(50V/33pF/J)		1	EA
....5	C608	CCCT1H330JC	CAP, CERAMIC(50V/33pF/J)		1	EA
....5	C609	CCCT1H330JC	CAP, CERAMIC(50V/33pF/J)		1	EA
....5	C631	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C632	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C633	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C634	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C636	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C637	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C638	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C639	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C681	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C682	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C683	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C684	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C716	CCEA1CH220TC	CAP, ELECT(16V/22uF)	GS SERIES	1	EA
....5	C801	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C803	CCCT1H330JC	CAP, CERAMIC(50V/33pF/J)		1	EA
....5	C805	CCCT1H120JC	CAP, CERAMIC(50V/12pF/J)		1	EA
....5	C807	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C808	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C811	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C813	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C815	CCKT1H331KB	CAP, CERAMIC(50V/330pF/K)		1	EA
....5	C817	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C819	CCBS1H271KBT	CAP , CERAMIC(270PF/50V)	CH UP025 B271K-A-B Z	1	EA
....5	C852	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C854	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C855	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C856	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C857	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C900	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C901	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C910	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C917	CCEA1JH470TC	CAP , ELECT(63V/47uF)	GS SERIES	1	EA
....5	C918	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C919	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C925	CCEA1HH2R2TC	CAP, ELECT(50V/2.2uF)	GS SERIES	1	EA
....5	C931	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C932	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C939	CCEA1HH4R7TC	CAP, ELECT(50V/4.7uF)	GS SERIES	1	EA
....5	C940	CCEA1AH471TC	CAP, ELECT(10V/470uF)	GS SERIES	1	EA
....5	C971	HCQ11H562JZT	CAP, MYLAR(50V/5600pF/J)		1	EA
....5	C972	HCQ11H562JZT	CAP, MYLAR(50V/5600pF/J)		1	EA
....5	C973	HCQ11H562JZT	CAP, MYLAR(50V/5600pF/J)		1	EA
....5	C980	HCQ11H562JZT	CAP, MYLAR(50V/5600pF/J)		1	EA
....5	C981	HCQ11H562JZT	CAP, MYLAR(50V/5600pF/J)		1	EA
....5	C990	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C992	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C993	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C995	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	C997	HCQ11H473JZT	CAP, MYLAR(50V/0.047uF/J)		1	EA
....5	D581	CVD1SS133MT	DIODE , SWITCHING	1SS133/HOMI(HK) COMPANY LTD	1	EA
....5	D582	CVD1SS133MT	DIODE , SWITCHING	1SS133/HOMI(HK) COMPANY LTD	1	EA
....5	D583	CVD1SS133MT	DIODE , SWITCHING	1SS133/HOMI(HK) COMPANY LTD	1	EA
....5	D584	CVD1SS133MT	DIODE , SWITCHING	1SS133/HOMI(HK) COMPANY LTD	1	EA
....5	D801	CVD1SS133MT	DIODE , SWITCHING	1SS133/HOMI(HK) COMPANY LTD	1	EA
....5	D902	HVDMTZJ3.3BT	DIODE , ZENER	MTZJ3.3B 1/2W	1	EA
....5	D954	CVD1N4003SRT	DIODE , RECT	1N4003	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12458B	AVR170 MAIN PCB ASS'Y		1	EA
....5	D955	CVD1N4003SRT	DIODE , RECT	1N4003	1	EA
....5	G901	CJT1A026	PLATE , EARTH(TRONIC ELECTRONICS)		1	EA
....5	Q501	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q502	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q503	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q504	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q511	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q512	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q513	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q514	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q516	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q517	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q518	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q519	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q556	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q557	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q558	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q559	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q561	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q562	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q563	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q564	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q601	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q602	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q603	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q604	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q812	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q813	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q816	CVTKSA992FTA	PNP, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSA992FTA HFE F(300~600)	1	EA
....5	Q818	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q819	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q820	CVTKSC1845FTA	NPN, TO-92, LOW NOISE, HFE:300-600, FAILCHILD	KSC1845FTA HFE F(300~600)	1	EA
....5	Q961	HVTKTA1024YT	T.R		1	EA
....5	R501	CRD20TJ433T	RES, CARBON(1/5W,43Kohm,J)		1	EA
....5	R502	CRD20TJ433T	RES, CARBON(1/5W,43Kohm,J)		1	EA
....5	R504	CRD20TJ433T	RES, CARBON(1/5W,43Kohm,J)		1	EA
....5	R505	CRD20TJ433T	RES, CARBON(1/5W,43Kohm,J)		1	EA
....5	R506	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R507	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R508	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R509	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R511	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R512	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R513	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R514	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R516	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R517	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R518	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R519	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R521	CRD20TJ471T	RES, CARBON(1/5W,470ohm,J)		1	EA
....5	R522	CRD20TJ471T	RES, CARBON(1/5W,470ohm,J)		1	EA
....5	R523	CRD20TJ471T	RES, CARBON(1/5W,470ohm,J)		1	EA
....5	R524	CRD20TJ471T	RES, CARBON(1/5W,470ohm,J)		1	EA
....5	R531	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R532	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R533	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R534	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R536	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R537	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R538	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R539	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R541	CRD20TJ271T	RES, CARBON(1/5W,270ohm,J)		1	EA
....5	R542	CRD20TJ271T	RES, CARBON(1/5W,270ohm,J)		1	EA
....5	R543	CRD20TJ271T	RES, CARBON(1/5W,270ohm,J)		1	EA
....5	R544	CRD20TJ271T	RES, CARBON(1/5W,270ohm,J)		1	EA
....5	R556	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R557	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R558	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12458B	AVR170 MAIN PCB ASS'Y		1	EA
....5	R559	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R561	CRD20TJ222T	RES, CARBON(1/5W,2.2Kohm,J)		1	EA
....5	R562	CRD20TJ222T	RES, CARBON(1/5W,2.2Kohm,J)		1	EA
....5	R563	CRD20TJ222T	RES, CARBON(1/5W,2.2Kohm,J)		1	EA
....5	R564	CRD20TJ222T	RES, CARBON(1/5W,2.2Kohm,J)		1	EA
....5	R566	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R567	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R568	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R569	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R571	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R572	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R573	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R574	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R576	CRD20TJ100T	RES, CARBON(1/5W,10ohm,J)		1	EA
....5	R577	CRD20TJ100T	RES, CARBON(1/5W,10ohm,J)		1	EA
....5	R578	CRD20TJ100T	RES, CARBON(1/5W,10ohm,J)		1	EA
....5	R579	CRD20TJ100T	RES, CARBON(1/5W,10ohm,J)		1	EA
....5	R581	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R582	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R583	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R584	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R586	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R587	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R588	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R589	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R591	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R592	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R593	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R594	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R596	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R597	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R598	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R599	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R601	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R602	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R603	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R604	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R606	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R607	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R608	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R609	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R611	CRD20TJ100T	RES, CARBON(1/5W,10ohm,J)		1	EA
....5	R631	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R632	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R633	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R634	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R636	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R637	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R638	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R639	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R646	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R647	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R648	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R649	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R651	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R652	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R653	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R654	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R666	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R667	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R668	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R669	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R671	CRD20TJ472T	RES, CARBON(1/5W,4.7Kohm,J)		1	EA
....5	R672	CRD20TJ472T	RES, CARBON(1/5W,4.7Kohm,J)		1	EA
....5	R673	CRD20TJ472T	RES, CARBON(1/5W,4.7Kohm,J)		1	EA
....5	R674	CRD20TJ472T	RES, CARBON(1/5W,4.7Kohm,J)		1	EA
....5	R676	CRD25TJ182T	RES, CARBON(1/4W,1.8Kohm,J)		1	EA
....5	R677	CRD25TJ182T	RES, CARBON(1/4W,1.8Kohm,J)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12458B	AVR170 MAIN PCB ASS'Y		1	EA
....5	R678	CRD25TJ182T	RES, CARBON(1/4W,1.8Kohm,J)		1	EA
....5	R679	CRD25TJ182T	RES, CARBON(1/4W,1.8Kohm,J)		1	EA
....5	R681	CRD20TJ562T	RES, CARBON(1/5W,5.6Kohm,J)		1	EA
....5	R682	CRD20TJ562T	RES, CARBON(1/5W,5.6Kohm,J)		1	EA
....5	R683	CRD20TJ562T	RES, CARBON(1/5W,5.6Kohm,J)		1	EA
....5	R684	CRD20TJ562T	RES, CARBON(1/5W,5.6Kohm,J)		1	EA
....5	R696	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R697	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R698	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R699	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R711	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R712	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R713	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R714	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R715	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R716	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R717	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R718	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R719	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R720	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R721	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R722	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R723	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R724	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R725	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R726	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R727	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R728	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R729	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R730	CRG2SANJR47RT	RES, M-OXIDE FILM(2W/0.47ohm)		1	EA
....5	R771	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R772	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R773	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R774	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R776	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R781	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R782	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R783	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R784	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R786	CRD20TJ750T	RES, CARBON(1/5W,75ohm,J)		1	EA
....5	R803	CRD20TJ562T	RES, CARBON(1/5W,5.6Kohm,J)		1	EA
....5	R805	CRD20TJ472T	RES, CARBON(1/5W,4.7Kohm,J)		1	EA
....5	R808	CRD25TJ182T	RES, CARBON(1/4W,1.8Kohm,J)		1	EA
....5	R812	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R813	CRD25TJ470T	RES, CARBON(1/4W,47ohm,J)		1	EA
....5	R817	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R818	CRD25FJ3R3T	RES , CARBON	3.3 OHM 1/4W J	1	EA
....5	R821	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R822	CRD25FJ180T	RES , CARBON (18 OHM) NONFLAMMABLE		1	EA
....5	R830	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R831	CRD20TJ223T	RES, CARBON(1/5W,22Kohm,J)		1	EA
....5	R834	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R835	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R836	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R837	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R842	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R843	CRD20TJ561T	RES, CARBON(1/5W,560ohm,J)		1	EA
....5	R848	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R850	CRD20TJ222T	RES, CARBON(1/5W,2.2Kohm,J)		1	EA
....5	R852	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R853	CRD20TJ152T	RES, CARBON(1/5W,1.5Kohm,J)		1	EA
....5	R856	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R857	CRD20TJ101T	RES, CARBON(1/5W,100ohm,J)		1	EA
....5	R860	CRD20TJ271T	RES, CARBON(1/5W,270ohm,J)		1	EA
....5	R862	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R870	CRD20TJ433T	RES, CARBON(1/5W,43Kohm,J)		1	EA
....5	R872	CRD20TJ471T	RES, CARBON(1/5W,470ohm,J)		1	EA
....5	R875	CRD20TJ331T	RES, CARBON(1/5W,330ohm,J)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
...3		COP12458B	AVR170 MAIN PCB ASS'Y		1	EA
....5	R877	CRD20TJ331T	RES, CARBON(1/5W,330ohm,J)		1	EA
....5	R878	CRD20TJ331T	RES, CARBON(1/5W,330ohm,J)		1	EA
....5	R879	CRD20TJ331T	RES, CARBON(1/5W,330ohm,J)		1	EA
....5	R880	CRD20TJ331T	RES, CARBON(1/5W,330ohm,J)		1	EA
....5	R883	CRD20TJ122T	RES, CARBON(1/5W,1.2Kohm,J)		1	EA
....5	R885	CRD20TJ122T	RES, CARBON(1/5W,1.2Kohm,J)		1	EA
....5	R886	CRD20TJ122T	RES, CARBON(1/5W,1.2Kohm,J)		1	EA
....5	R887	CRD20TJ122T	RES, CARBON(1/5W,1.2Kohm,J)		1	EA
....5	R888	CRD20TJ122T	RES, CARBON(1/5W,1.2Kohm,J)		1	EA
....5	R891	CRD20TJ391T	RES, CARBON(1/5W,390ohm,J)		1	EA
....5	R893	CRD20TJ391T	RES, CARBON(1/5W,390ohm,J)		1	EA
....5	R894	CRD20TJ391T	RES, CARBON(1/5W,390ohm,J)		1	EA
....5	R896	CRD20TJ391T	RES, CARBON(1/5W,390ohm,J)		1	EA
....5	R897	CRD20TJ391T	RES, CARBON(1/5W,390ohm,J)		1	EA
....5	R908	CRD20TJ333T	RES, CARBON(1/5W,33Kohm,J)		1	EA
....5	R909	CRD20TJ333T	RES, CARBON(1/5W,33Kohm,J)		1	EA
....5	R933	CRD20TJ472T	RES, CARBON(1/5W,4.7Kohm,J)		1	EA
....5	R941	CRD20TJ103T	RES, CARBON(1/5W,10Kohm,J)		1	EA
....5	R942	CRD20TJ103T	RES, CARBON(1/5W,10Kohm,J)		1	EA
....5	R944	CRD20TJ103T	RES, CARBON(1/5W,10Kohm,J)		1	EA
....5	R946	CRD20TJ103T	RES, CARBON(1/5W,10Kohm,J)		1	EA
....5	R947	CRD20TJ103T	RES, CARBON(1/5W,10Kohm,J)		1	EA
....5	R951	CRD20TJ1R0T	RES, CARBON(1/5W,1ohm,J)		1	EA
....5	R954	CRD20TJ102T	RES, CARBON(1/5W,1Kohm,J)		1	EA
....5	R955	CRD20TJ564T	RES, CARBON(1/5W,560Kohm,J)		1	EA
....5	R960	CRD20TJ472T	RES, CARBON(1/5W,4.7Kohm,J)		1	EA
....5	R961	CRD20TJ331T	RES, CARBON(1/5W,330ohm,J)		1	EA
....5	R962	CRD20TJ273T	RES, CARBON(1/5W,27Kohm,J)		1	EA
....5	R966	CRD20TJ472T	RES, CARBON(1/5W,4.7Kohm,J)		1	EA
....5	R967	CRD20TJ103T	RES, CARBON(1/5W,10Kohm,J)		1	EA
....5	R990	CRG1SANJ100RT	RES, M-OXIDE FILM(1W/10ohm)		1	EA
....5	R993	CRG1SANJ100RT	RES, M-OXIDE FILM(1W/10ohm)		1	EA
....5	R995	CRG1SANJ100RT	RES, M-OXIDE FILM(1W/10ohm)		1	EA
....5	R997	CRG1SANJ100RT	RES, M-OXIDE FILM(1W/10ohm)		1	EA
....5	R999	CRG1SANJ100RT	RES, M-OXIDE FILM(1W/10ohm)		1	EA
....5	VR82	CVN12A221B03T	RES , SEMI FIXED (220 OHM)	NVZ6TLTAB221 / HOKURIKU	1	EA
....5	VR84	CVN12A221B03T	RES , SEMI FIXED (220 OHM)	NVZ6TLTAB221 / HOKURIKU	1	EA
....5	VR85	CVN12A221B03T	RES , SEMI FIXED (220 OHM)	NVZ6TLTAB221 / HOKURIKU	1	EA
....5	VR86	CVN12A221B03T	RES , SEMI FIXED (220 OHM)	NVZ6TLTAB221 / HOKURIKU	1	EA
....5	VR87	CVN12A221B03T	RES , SEMI FIXED (220 OHM)	NVZ6TLTAB221 / HOKURIKU	1	EA
...4		CMYAVR1700	HEAT SINK ASS'Y		1	EA
....5		CHD1A012R	SCREW , SPECIAL		15	EA
....5		CHD4A012R	SCREW , SPECIAL		1	EA
....5		CMD1A802	BRACKET,H/S PCB		2	EA
....5		CMD1A810	BRACKET , PAC		2	EA
....5		CMY1A383-V1	HEAT SINK		1	EA
....5		CTB3+8JR	SCREW		8	EA
....5		K8AYG6260	COMPOUND , SILICONE		3	G
....5	Q652	HVT2SB1560	T.R , POWER		1	EA
....5	Q653	HVT2SB1560	T.R , POWER		1	EA
....5	Q654	HVT2SB1560	T.R , POWER		1	EA
....5	Q657	HVT2SD2390	T.R , POWER		1	EA
....5	Q658	HVT2SD2390	T.R , POWER		1	EA
....5	Q659	HVT2SD2390	T.R , POWER		1	EA
....5	Q660	HVT2SD2390	T.R , POWER		1	EA
....5	Q661	HVT2SB1560	T.R , POWER		1	EA
....5	Q803	HVT2SD2390	T.R , POWER		1	EA
....5	Q804	HVT2SB1560	T.R , POWER		1	EA
....5	Q852	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1	EA
....5	Q854	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1	EA
....5	Q855	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1	EA
....5	Q856	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1	EA
....5	Q857	HVTKTD600KGR	T.R , BIAS	KTD600KGR	1	EA
...4		CQB1D022	A-ROHS/LABEL,SERIAL		1	EA
...4	BN60	CWB3FE03320UZ	WIRE ASS'Y (3P, 320mm)		1	EA
...4	CN10	CJP02GA01ZY	WAFER/STRAIGHT/2.5mm/2P	YMH025-02R/YEONHO	1	EA
...4	CN61	CJP02GA01ZY	WAFER/STRAIGHT/2.5mm/2P	YMH025-02R/YEONHO	1	EA
...4	CN62	CJP02GA01ZY	WAFER/STRAIGHT/2.5mm/2P	YMH025-02R/YEONHO	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12458B	AVR170 MAIN PCB ASS'Y		1	EA
...4	CN63	CJP02GA01ZY	WAFER/STRAIGHT/2.5mm/2P	YMH025-02R/YEONHO	1	EA
...4	CN64	CJP02GA01ZY	WAFER/STRAIGHT/2.5mm/2P	YMH025-02R/YEONHO	1	EA
...4	CN66	CJP02GA01ZY	WAFER/STRAIGHT/2.5mm/2P	YMH025-02R/YEONHO	1	EA
...4	C915	CCET63VLP332NC	CAP , ELECT (3300uF/63V, 85'C)	LP SIRIES	1	EA
...4	C916	CCET63VLP332NC	CAP , ELECT (3300uF/63V, 85'C)	LP SIRIES	1	EA
...4	ET01	CWE5202080A	WIRE ASS'Y (1P, 80MM,BLK,#22)		1	EA
Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
...4	JK90	CJJ4M040Z	JACK , BOARD (SW)		1	EA
...4	JK91	CJJ5R006Z	TERMINAL , SPEAKER		1	EA
...4	JK92	CJJ5P020Z	TERMINAL , SPEAKER		1	EA
...4	L501	CLEY0R5KAK	COIL , SPEAKER(0.5uH)	SPRING COIL 8TS/KSE	1	EA
...4	L502	CLEY0R5KAK	COIL , SPEAKER(0.5uH)	SPRING COIL 8TS/KSE	1	EA
...4	L503	CLEY0R5KAK	COIL , SPEAKER(0.5uH)	SPRING COIL 8TS/KSE	1	EA
...4	L504	CLEY0R5KAK	COIL , SPEAKER(0.5uH)	SPRING COIL 8TS/KSE	1	EA
...4	L506	CLEY0R5KAK	COIL , SPEAKER(0.5uH)	SPRING COIL 8TS/KSE	1	EA
...4	Q858	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y	1	EA
...4	Q871	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y	1	EA
...4	Q872	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y	1	EA
...4	Q874	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y	1	EA
...4	Q876	HVTKTA1360Y	T.R , PRE DRIVE	KTA1360Y	1	EA
...4	Q881	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y	1	EA
...4	Q882	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y	1	EA
...4	Q883	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y	1	EA
...4	Q884	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y	1	EA
...4	Q886	HVTKTC3423Y	T.R , PRE DRIVE	KTC3423Y	1	EA
...4	R937	CRF5EKR10HS	RES , CEMENT (SMALL SIZE)		1	EA
...4	R938	CRF5EKR10HS	RES , CEMENT (SMALL SIZE)		1	EA
...4	WF61	CJP23GA115ZY	WAFER, FFC(23P-1.25mm, STRAIGHT)	12511HS-23/YEONHO	1	EA
Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12460B	AVR170 JACK PCB ASS'Y		1	EA
....6	C1	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C2	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C301	CCUS1H221JA	CAP, CHIP(1608, 50V/220pF)		1	EA
....6	C302	CCUS1H221JA	CAP, CHIP(1608, 50V/220pF)		1	EA
....6	C303	CCUS1H221JA	CAP, CHIP(1608, 50V/220pF)		1	EA
....6	C304	CCUS1H221JA	CAP, CHIP(1608, 50V/220pF)		1	EA
....6	C305	CCUS1H221JA	CAP, CHIP(1608, 50V/220pF)		1	EA
....6	C306	CCUS1H221JA	CAP, CHIP(1608, 50V/220pF)		1	EA
....6	C310	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C312	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C322	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C351	CCUS1H181JA	CAP, CHIP(1608, 50V/180pF)		1	EA
....6	C354	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C355	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C361	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....6	C362	CCUS1H103KC	CAP, CHIP(1608, 50V/0.01uF)		1	EA
....6	C381	CCUS1H220JA	CAP, CHIP(1608, 50V/22pF)		1	EA
....6	C382	CCUS1H220JA	CAP, CHIP(1608, 50V/22pF)		1	EA
....6	C383	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C384	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C385	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C386	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C387	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	C403	CCUS1H680JA	CAP, CHIP(1608, 50V/68pF)		1	EA
....6	C421	CCUS1H104KC	CAP, CHIP(1608, 50V/0.1uF)		1	EA
....6	D301	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D302	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D303	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D304	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D361	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D362	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	D363	CVD1SS355T	DIODE , CHIP , SWITCHING	1SS355/HOMI(HK) COMPANY LTD	1	EA
....6	IC381	CVIILX3232DT	I.C, RS232 (3.3V)	ILX3232D	1	EA
....6	IC421	HVINJM2244MTE1	I.C , VIDEO SWITCH	QRW-6500	1	EA
....6	L381	CLZ92014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....6	Q362	CVTRT1N141C	T.R,RT1N141C(10K-10K)	RT1N141C(NPN,SC-59,SWITCHING)	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
...3		COP12460B	AVR170 JACK PCB ASS'Y		1	EA
....6	Q363	CVTRT1P141C	T,R,RT1P141C(10K-10K)	RT1P141C(PNP,SC-59,SWITCHING)	1	EA
....6	Q373	CVTRT1P144C	T,R,RT1P144C(10K-47K)	RT1P144C(PNP,SC-59,SWITCHING)	1	EA
....6	Q381	CVTRT1N144C	T,R,RT1N144C(10K-47K)	RT1N144C(NPN,SC-59,SWITCHING)	1	EA
....6	R1	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R2	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R303	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R304	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R305	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R306	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R307	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R308	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R309	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R310	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R311	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R312	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R313	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R314	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R315	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R316	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R321	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R322	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R323	CRJ10DJ472T	RES, CHIP(1608/5%/4.7Kohm)		1	EA
....6	R324	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R325	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R326	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R327	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R328	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R329	CRJ10DJ104T	RES, CHIP(1608/5%/100Kohm)		1	EA
....6	R351	CRJ10DJ750T	RES, CHIP(1608/5%/75ohm)		1	EA
....6	R352	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R353	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R361	CRJ10DJ1R0T	RES, CHIP(1608/5%/1ohm)		1	EA
....6	R362	CRJ10DJ1R0T	RES, CHIP(1608/5%/1ohm)		1	EA
....6	R363	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R364	CRJ10DJ4R7T	RES, CHIP(1608/5%/4.7ohm)		1	EA
....6	R365	CRJ10DJ4R7T	RES, CHIP(1608/5%/4.7ohm)		1	EA
....6	R366	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R367	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R368	CRJ10DJ102T	RES, CHIP(1608/5%/1Kohm)		1	EA
....6	R375	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R376	CRJ10DJ221T	RES, CHIP(1608/5%/220ohm)		1	EA
....6	R377	CRJ10DJ473T	RES, CHIP(1608/5%/47Kohm)		1	EA
....6	R380	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R382	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R384	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R385	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R387	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R389	CRJ10DJ103T	RES, CHIP(1608/5%/10Kohm)		1	EA
....6	R401	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R402	CRJ10DJ101T	RES, CHIP(1608/5%/100ohm)		1	EA
....6	R403	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....6	R421	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)		1	EA
....6	R422	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)		1	EA
....6	R423	CRJ10DJ105T	RES, CHIP(1608/5%/1Mohm)		1	EA
....6	R424	CRJ10DJ0R0T	RES, CHIP(1608/5%/0ohm)		1	EA
....5	C321	CCEA1CH101TC	CAP, ELECT(16V/100uF)	GS SERIES	1	EA
....5	C401	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C402	CCEA1HH100TC	CAP, ELECT(50V/10uF)	GS SERIES	1	EA
....5	C423	CCEA1AH471TC	CAP, ELECT(10V/470uF)	GS SERIES	1	EA
....5	Q361	HVTKTA1266YT	T.R	TKTA1266YT	1	EA
....5	Q382	HVTKTA1266YT	T.R	TKTA1266YT	1	EA
...4		CQB1D022	A-ROHS/LABEL,SERIAL		1	EA
...4	BN53	CJP12GA301ZB	PIN HEADER, DIP(12P, 2.54mm, H :36.9mm, STRAIGHT)	PAS2252-0601A2FB1BA	1	EA
...4	BN54	CJP22GA301ZB	PIN HEADER, DIP(22P, 2.54mm, H :36.9mm, STRAIGHT)	PAS2252-1101A2FB1BA	1	EA
...4	IC371	BVIKP1010B	IC, PHOTO COUPLER (COSMO)		1	EA
...4	JK312	CJJ4R019W	TERMINAL , IN/OUT		1	EA
...4	JK351	CJSJSR2124-00-BBBN	MODULE , OPTICAL(RX 25MHz)		1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
...3		COP12460B	AVR170 JACK PCB ASS'Y		1	EA
...4	JK352	CJSJSR2124-00-BBBN	MODULE , OPTICAL(RX 25MHz)		1	EA
...4	JK353	CJJ4M044X	JACK , RCA (1P,RCA-115A-04)		1	EA
...4	JK371	HJJ1D002Z	JACK , STEREO(2P 3.5PIE)	SR7400	1	EA
...4	JK401	CJJ4S010Z	JACK , BOARD		1	EA
...4	JK95	CJJ9W001Z	JACK, 9P D-SUB FEMALE(RS-232C)	D227FD009S100BY/YUQUIU	1	EA
...4	JW11	CWE5202080A	WIRE ASS'Y (1P, 80MM,BLK,#22)		1	EA
...4	TUN1	CNVMW104MV1R78	MODULE , TUNER (AM/FM WITH RDS)	KST-MW104MV1-R78	1	EA
Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
...3		COP12461B	AVR1700 SMPS PCB ASS'Y		1	EA
....6	C903	CCUC1H474KC	CAP, CHIP(2012, 50V/0.47uF)		1	EA
....6	C904	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C906	CCUC1H222KC	CAP, CHIP(2012, 50V/2200pF)		1	EA
....6	C907	CCUC1H101JA	CAP, CHIP(2012, 50V/100pF)		1	EA
....6	C908	CCUP3A471JA	CAP, CHIP(3216, 1KV/470pF, X7R)	3216 SIZE, X7R	1	EA
....6	C909	CCUC1H821JA	CAP, CHIP(2012, 50V/820pF, NPO)		1	EA
....6	C910	CCUP3A222KC	CAP, CHIP(3216, 1KV/2200pF, X7R)		1	EA
....6	C914	CCUC1H472KC	CAP, CHIP(2012, 50V/4700pF)		1	EA
....6	C915	CCUC1H105KC	CAP, CHIP(2012, 50V/1uF)	2012 SIZE, 1UF/50V	1	EA
....6	C917	CCUC1H472KC	CAP, CHIP(2012, 50V/4700pF)		1	EA
....6	C922	CCUP3A222KC	CAP, CHIP(3216, 1KV/2200pF, X7R)		1	EA
....6	C923	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C924	CCUC1H222KC	CAP, CHIP(2012, 50V/2200pF)		1	EA
....6	C925	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C926	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C927	CCUC1H105KC	CAP, CHIP(2012, 50V/1uF)	2012 SIZE, 1UF/50V	1	EA
....6	C934	CCUC1H105KC	CAP, CHIP(2012, 50V/1uF)	2012 SIZE, 1UF/50V	1	EA
....6	C945	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C947	CCUC1H105KC	CAP, CHIP(2012, 50V/1uF)	2012 SIZE, 1UF/50V	1	EA
....6	C952	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C954	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C956	CCUP3A102KC	CAP, CHIP(3216, 1KV/1000pF, X7R)		1	EA
....6	C957	CCUP3A102KC	CAP, CHIP(3216, 1KV/1000pF, X7R)		1	EA
....6	C958	CCUC1H103KC	CAP, CHIP(2012, 50V/0.01uF)		1	EA
....6	C959	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C960	CCUC1H103KC	CAP, CHIP(2012, 50V/0.01uF)		1	EA
....6	C961	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C962	CCUC1H103KC	CAP, CHIP(2012, 50V/0.01uF)		1	EA
....6	C963	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C964	CCUC1H103KC	CAP, CHIP(2012, 50V/0.01uF)		1	EA
....6	C967	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C968	CCUC1H103KC	CAP, CHIP(2012, 50V/0.01uF)		1	EA
....6	C969	CCUC1H224KC	CAP, CHIP(2012, 50V/0.22uF)		1	EA
....6	C970	CCUC1H223KC	CAP, CHIP(2012, 50V/0.022uF, X7R)		1	EA
....6	C971	CCUC1H224KC	CAP, CHIP(2012, 50V/0.22uF)		1	EA
....6	C972	CCUC1H223KC	CAP, CHIP(2012, 50V/0.022uF, X7R)		1	EA
....6	C973	CCUC1H224KC	CAP, CHIP(2012, 50V/0.22uF)		1	EA
....6	C974	CCUC1H223KC	CAP, CHIP(2012, 50V/0.022uF, X7R)		1	EA
....6	C975	CCUC1H224KC	CAP, CHIP(2012, 50V/0.22uF)		1	EA
....6	C976	CCUC1H223KC	CAP, CHIP(2012, 50V/0.022uF, X7R)		1	EA
....6	C977	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C978	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	C979	CCUC1H104KC	CAP, CHIP(2012, 50V/0.1uF)		1	EA
....6	D901	CVDS1M	DIODE, SURFACE MOUNT RECTIFIER(1000V/1A)	S1M	1	EA
....6	D902	CVDS1M	DIODE, SURFACE MOUNT RECTIFIER(1000V/1A)	S1M	1	EA
....6	D903	CVDUS1M	DIODE , ULTRA FAST RECTIFIER	US1M	1	EA
....6	D904	CVDUS1M	DIODE , ULTRA FAST RECTIFIER	US1M	1	EA
....6	D906	CVDUS1M	DIODE , ULTRA FAST RECTIFIER	US1M	1	EA
....6	D907	CVD1N4448W	DIODE , FAST SWITCHING(0.5W, SOD-123)	1N4448W	1	EA
....6	D908	CVDMM1Z24H	DIODE , ZENER(24V/0.5W, SOD-123)	MM1Z24	1	EA
....6	D909	CVDMM1Z20H	DIODE , ZENER(20V/0.5W, SOD-123)	MM1Z20	1	EA
....6	D911	CVDUS1M	DIODE , ULTRA FAST RECTIFIER	US1M	1	EA
....6	D912	CVDMM1Z27H	DIODE , ZENER(27V/0.5W, SOD-123)	MM1Z27	1	EA
....6	D913	CVDS1M	DIODE, SURFACE MOUNT RECTIFIER(1000V/1A)	S1M	1	EA
....6	D914	CVDMM1Z18H	DIODE , ZENER(18V/0.5W, SOD-123)	MM1Z18	1	EA
....6	D917	CVDMM1Z16H	DIODE , ZENER(16V/0.5W, SOD-123)	MM1Z16	1	EA
....6	D918	CVDMM1Z16H	DIODE , ZENER(16V/0.5W, SOD-123)	MM1Z16	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12461B	AVR1700 SMPS PCB ASS'Y		1	EA
....6	D922	CVD1N4448W	DIODE , FAST SWITCHING(0.5W, SOD-123)	1N4448W	1	EA
....6	D924	CVD1N4448W	DIODE , FAST SWITCHING(0.5W, SOD-123)	1N4448W	1	EA
....6	D925	CVD1N4448W	DIODE , FAST SWITCHING(0.5W, SOD-123)	1N4448W	1	EA
....6	D926	CVD1N4448W	DIODE , FAST SWITCHING(0.5W, SOD-123)	1N4448W	1	EA
....6	D927	CVD1N4448W	DIODE , FAST SWITCHING(0.5W, SOD-123)	1N4448W	1	EA
....6	D929	CVDMM1Z10H	DIODE , ZENER(10V/0.5W, SOD-123)	MM1Z10	1	EA
....6	D932	CVDS1M	DIODE, SURFACE MOUNT RECTIFIER(1000V/1A)	S1M	1	EA
....6	D935	CVD1N4448W	DIODE , FAST SWITCHING(0.5W, SOD-123)	1N4448W	1	EA
....6	D936	CVD1N4448W	DIODE , FAST SWITCHING(0.5W, SOD-123)	1N4448W	1	EA
....6	D944	CVDUS1M	DIODE , ULTRA FAST RECTIFIER	US1M	1	EA
....6	D950	CVDMM1Z20H	DIODE , ZENER(20V/0.5W, SOD-123)	MM1Z20	1	EA
....6	IC94	CVIKA431SAMF2	I.C , SHUNT REGULATOR(SOT-23F)	KA431SAMF2	1	EA
....6	IC95	CVIKA431SAMF2	I.C , SHUNT REGULATOR(SOT-23F)	KA431SAMF2	1	EA
....6	IC96	CVIKA431SAMF2	I.C , SHUNT REGULATOR(SOT-23F)	KA431SAMF2	1	EA
....6	L922	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....6	L923	CLZ9Z014Z	FERRITE , CHIP BEAD(4516/60R)	HCB4516KF-600T60	1	EA
....6	Q905	CVT2SC6046T1121W	T.R (NPN, SOT-23, ISAHAYA)	2SC6046	1	EA
....6	Q906	CVTRT1N141C	T.R,RT1N141C(10K-10K)	RT1N141C(NPN,SC-59,SWITCHING)	1	EA
....6	Q909	CVTRT1N141C	T.R,RT1N141C(10K-10K)	RT1N141C(NPN,SC-59,SWITCHING)	1	EA
....6	Q915	CVTRT1N141C	T.R,RT1N141C(10K-10K)	RT1N141C(NPN,SC-59,SWITCHING)	1	EA
....6	Q916	CVTRT1N141C	T.R,RT1N141C(10K-10K)	RT1N141C(NPN,SC-59,SWITCHING)	1	EA
....6	R901	CRJ18AJ104T	RES, CHIP(2012/5%/100Kohm)		1	EA
....6	R902	CRJ18AJ104T	RES, CHIP(2012/5%/100Kohm)		1	EA
....6	R904	CRJ14CJ0R0T	RES, CHIP(3216/5%/0ohm)		1	EA
....6	R906	CRJ18AJ390T	RES, CHIP(2012/5%/39ohm)	2012 SIZE, 5%	1	EA
....6	R910	CRJ18AJ330T	RES, CHIP(2012/5%/33ohm)		1	EA
....6	R911	CRJ18AJ0R0T	RES, CHIP(2012/5%/0ohm)		1	EA
....6	R912	CRJ18AJ102T	RES, CHIP(2012/5%/1Kohm)		1	EA
....6	R915	CRJ18AJ363T	RES, CHIP(2012/5%/36Kohm)		1	EA
....6	R916	CRJ18AJ153T	RES, CHIP(2012/5%/15Kohm)		1	EA
....6	R917	CRJ18AJ122T	RES, CHIP(2012/5%/1.2Kohm)		1	EA
....6	R918	CRJ18AJ432T	RES, CHIP(2012/5%/4.3Kohm)		1	EA
....6	R919	CRJ18AJ103T	RES, CHIP(2012/5%/10Kohm)		1	EA
....6	R921	CRJ14CF5602T	RES, CHIP(3216/1%/56Kohm)	3216 SIZE, 1%	1	EA
....6	R922	CRJ18AJ100T	RES, CHIP(2012/5%/10ohm)		1	EA
....6	R923	CRJ18AJ102T	RES, CHIP(2012/5%/1Kohm)		1	EA
....6	R924	CRJ14CJ125T	RES, CHIP(3216/5%/1.2Mohm)	3216 SIZE	1	EA
....6	R925	CRJ14CJ125T	RES, CHIP(3216/5%/1.2Mohm)	3216 SIZE	1	EA
....6	R926	CRJ14CJ125T	RES, CHIP(3216/5%/1.2Mohm)	3216 SIZE	1	EA
....6	R927	CRJ14CJ125T	RES, CHIP(3216/5%/1.2Mohm)	3216 SIZE	1	EA
....6	R928	CRJ18AJ100T	RES, CHIP(2012/5%/10ohm)		1	EA
....6	R929	CRJ14CJ125T	RES, CHIP(3216/5%/1.2Mohm)	3216 SIZE	1	EA
....6	R930	CRJ18AF4702T	RES, CHIP(2012/1%/47Kohm)		1	EA
....6	R931	CRJ18AJ153T	RES, CHIP(2012/5%/15Kohm)		1	EA
....6	R932	CRJ14CJ4R7T	RES, CHIP(3216/5%/4.7ohm)		1	EA
....6	R933	CRJ18AJ181T	RES, CHIP(2012/5%/180ohm)		1	EA
....6	R934	CRJ18AJ561T	RES, CHIP(2012/5%/560ohm)		1	EA
....6	R935	CRJ18AJ220T	RES, CHIP(2012/5%/22ohm)		1	EA
....6	R936	CRJ18AJ102T	RES, CHIP(2012/5%/1Kohm)		1	EA
....6	R937	CRJ18AJ102T	RES, CHIP(2012/5%/1Kohm)		1	EA
....6	R938	CRJ18AJ561T	RES, CHIP(2012/5%/560ohm)		1	EA
....6	R939	CRJ18AJ470T	RES, CHIP(2012/5%/47ohm)		1	EA
....6	R940	CRJ18AJ153T	RES, CHIP(2012/5%/15Kohm)		1	EA
....6	R941	CRJ18AJ622T	RES, CHIP(2012/5%/6.2Kohm)		1	EA
....6	R942	CRJ18AJ222T	RES, CHIP(2012/5%/2.2Kohm)		1	EA
....6	R943	CRJ18AJ622T	RES, CHIP(2012/5%/6.2Kohm)		1	EA
....6	R944	CRJ18AJ472T	RES, CHIP(2012/5%/4.7Kohm)		1	EA
....6	R945	CRJ18AJ561T	RES, CHIP(2012/5%/560ohm)		1	EA
....6	R946	CRJ18AF1002T	RES, CHIP(2012/1%/10Kohm)		1	EA
....6	R947	CRJ18AF1002T	RES, CHIP(2012/1%/10Kohm)		1	EA
....6	R948	CRJ14CJ0R0T	RES, CHIP(3216/5%/0ohm)		1	EA
....6	R950	CRJ18AJ224T	RES, CHIP(2012/5%/220Kohm)		1	EA
....6	R952	CRJ01HJ101T	RES, CHIP(6432/5%/100ohm)	1W , 6432 SIZE	1	EA
....6	R953	CRJ18AF1302T	RES, CHIP(2012/1%/13Kohm)	2012 SIZE, 1%	1	EA
....6	R954	CRJ18AJ472T	RES, CHIP(2012/5%/4.7Kohm)		1	EA
....6	R955	CRJ14CF5602T	RES, CHIP(3216/1%/56Kohm)	3216 SIZE, 1%	1	EA
....6	R956	CRJ18AJ513T	RES, CHIP(2012/5%/51Kohm)	2012 SIZE, 5%	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
...3		COP12461B	AVR1700 SMPS PCB ASS'Y		1	EA
....6	R957	CRJ18AJ181T	RES, CHIP(2012/5%/180ohm)		1	EA
....6	R958	CRJ18AF5601T	RES, CHIP(2012/1%/5.6Kohm)		1	EA
....6	R959	CRJ18AF5601T	RES, CHIP(2012/1%/5.6Kohm)		1	EA
....6	R960	CRJ01HJ752T	RES, CHIP(6432/5%/7.5Kohm)	1W , 6432 SIZE	1	EA
....6	R961	CRJ18AJ103T	RES, CHIP(2012/5%/10Kohm)		1	EA
....6	R962	CRJ18AF1962T	RES, CHIP(2012/1%/19.6Kohm)	2012 SIZE, 1%	1	EA
....6	R963	CRJ14CJ0R0T	RES, CHIP(3216/5%/0ohm)		1	EA
....6	R965	CRJ18AJ0R0T	RES, CHIP(2012/5%/0ohm)		1	EA
....6	R966	CRJ18AJ100T	RES, CHIP(2012/5%/10ohm)		1	EA
....6	R967	CRJ18AJ100T	RES, CHIP(2012/5%/10ohm)		1	EA
....6	R968	CRJ18AJ0R0T	RES, CHIP(2012/5%/0ohm)		1	EA
....6	R969	CRJ18AJ0R0T	RES, CHIP(2012/5%/0ohm)		1	EA
....6	R970	CRJ18AJ100T	RES, CHIP(2012/5%/10ohm)		1	EA
....6	R971	CRJ18AJ100T	RES, CHIP(2012/5%/10ohm)		1	EA
....6	R972	CRJ18AJ100T	RES, CHIP(2012/5%/10ohm)		1	EA
....6	R973	CRJ01HJ101T	RES, CHIP(6432/5%/100ohm)	1W , 6432 SIZE	1	EA
....6	R974	CRJ14CJ124T	RES, CHIP(3216/5%/120Kohm)		1	EA
....6	R975	CRJ14CJ124T	RES, CHIP(3216/5%/120Kohm)		1	EA
....6	R976	CRJ14CJ124T	RES, CHIP(3216/5%/120Kohm)		1	EA
....6	R977	CRJ18AJ124T	RES, CHIP(2012/5%/120Kohm)		1	EA
....6	R978	CRJ01HJ101T	RES, CHIP(6432/5%/100ohm)	1W , 6432 SIZE	1	EA
....6	R979	CRJ14CJ474T	RES, CHIP(3216/5%/470Kohm)		1	EA
....6	R980	CRJ14CJ474T	RES, CHIP(3216/5%/470Kohm)		1	EA
....6	R981	CRJ14CJ474T	RES, CHIP(3216/5%/470Kohm)		1	EA
....6	R982	CRJ14CJ474T	RES, CHIP(3216/5%/470Kohm)		1	EA
....6	R984	CRJ18AJ470T	RES, CHIP(2012/5%/47ohm)		1	EA
....6	R985	CRJ18AJ0R0T	RES, CHIP(2012/5%/0ohm)		1	EA
....6	R986	CRJ18AJ561T	RES, CHIP(2012/5%/560ohm)		1	EA
....6	R991	CRJ18AJ102T	RES, CHIP(2012/5%/1Kohm)		1	EA
....6	R992	CRJ14CJ0R0T	RES, CHIP(3216/5%/0ohm)		1	EA
....6	R993	CRJ01HJ752T	RES, CHIP(6432/5%/7.5Kohm)	1W , 6432 SIZE	1	EA
....6	R996	CRJ18AJ470T	RES, CHIP(2012/5%/47ohm)		1	EA
....6	R997	CRJ14CF5602T	RES, CHIP(3216/1%/56Kohm)	3216 SIZE, 1%	1	EA
....6	R999	CRJ14CF5602T	RES, CHIP(3216/1%/56Kohm)	3216 SIZE, 1%	1	EA
....5	C905	CCKT3A102KBL	CAP, CERAMIC(1kV/1000pF/K)	EKR3A102K05FK5	1	EA
....5	C911	CCKT3A102KBL	CAP, CERAMIC(1kV/1000pF/K)	EKR3A102K05FK5	1	EA
....5	C918	CCEA1HH100TCS	CAP, ELECT(50V/10uF),105'C		1	EA
....5	C920	CCEA1HH470TCS	CAP, ELECT(50V/47uF),105'C	KM SERIES	1	EA
....5	C921	CCEA1HH220TCS	CAP, ELECT(50V/22uF),105'C	KM SERIES	1	EA
....5	C929	CCEA0JH471TCS	CAP, ELECT(6.3V/470uF),105'C	KM SERIES	1	EA
....5	C932	CCEA1HH470TCS	CAP, ELECT(50V/47uF),105'C	KM SERIES	1	EA
....5	C943	CCEA0JH102TCS	CAP, ELECT(6.3V/1000uF),105'C	KM SERIES	1	EA
....5	C944	CCEA0JH102TCS	CAP, ELECT(6.3V/1000uF),105'C	KM SERIES	1	EA
....5	C949	CCEA1JH470TCS	CAP , ELECT(63V/47uF),105'C		1	EA
....5	C953	CCEA1EH101TCS	CAP, ELECT(25V/100uF),105'C	KM SERIES	1	EA
....5	C955	CCEA1HH220TCS	CAP, ELECT(50V/22uF),105'C	KM SERIES	1	EA
....5	D905	HVDUF4004T	DIODE , SCHOTTKY	UF4004	1	EA
....5	D910	HVDUF4007T	DIODE , SCHOTTKY	UF4007	1	EA
....5	D916	CVDZJ20BT	DIODE , ZENER ,1/2W, 20V	ZJ20B/HOMI(H.K) COMPANY LTD	1	EA
....5	D919	HVDUF4004T	DIODE , SCHOTTKY	UF4004	1	EA
....5	D920	HVDUF4004T	DIODE , SCHOTTKY	UF4004	1	EA
....5	D921	HVD11EQ06T	DIODE , SCHOTTKY (60V/1A)	11EQ06	1	EA
....5	D928	CVDZJ20BT	DIODE , ZENER ,1/2W, 20V	ZJ20B/HOMI(H.K) COMPANY LTD	1	EA
....5	D931	CVD1SS133MT	DIODE , SWITCHING	1SS133/HOMI(HK) COMPANY LTD	1	EA
....5	D933	CVDSF26	DIODE , SUPER FAST RECTIFIER	SF26	1	EA
....5	D937	CVDSF26	DIODE , SUPER FAST RECTIFIER	SF26	1	EA
....5	D943	HVDUF4004T	DIODE , SCHOTTKY	UF4004	1	EA
....5	ET91	CJT1A026	PLATE , EARTH(TRONIC ELECTRONICS)		1	EA
....5	ET92	CJT1A026	PLATE , EARTH(TRONIC ELECTRONICS)		1	EA
....5	ET93	CJT1A026	PLATE , EARTH(TRONIC ELECTRONICS)		1	EA
....5	ET94	CJT1A026	PLATE , EARTH(TRONIC ELECTRONICS)		1	EA
....5	ET95	CJT1A026	PLATE , EARTH(TRONIC ELECTRONICS)		1	EA
....5	FH91	KJCFCS5	HOLDER , FUSE		1	EA
....5	FH92	KJCFCS5	HOLDER , FUSE		1	EA
....5	IC99	CVIL78L24AB	IC, REGULATOR (24V, TO-92L)		1	EA
....5	Q902	HVTKSA708YT	T.R	KSA708Y	1	EA
....5	Q903	HVTKSA708YT	T.R	KSA708Y	1	EA
....5	Q914	CVTKSA1281YTA	T.R , KSA1281Y (PNP, TO-92L, AUDIO, FAIRCHILD)	KSA1281Y	1	EA

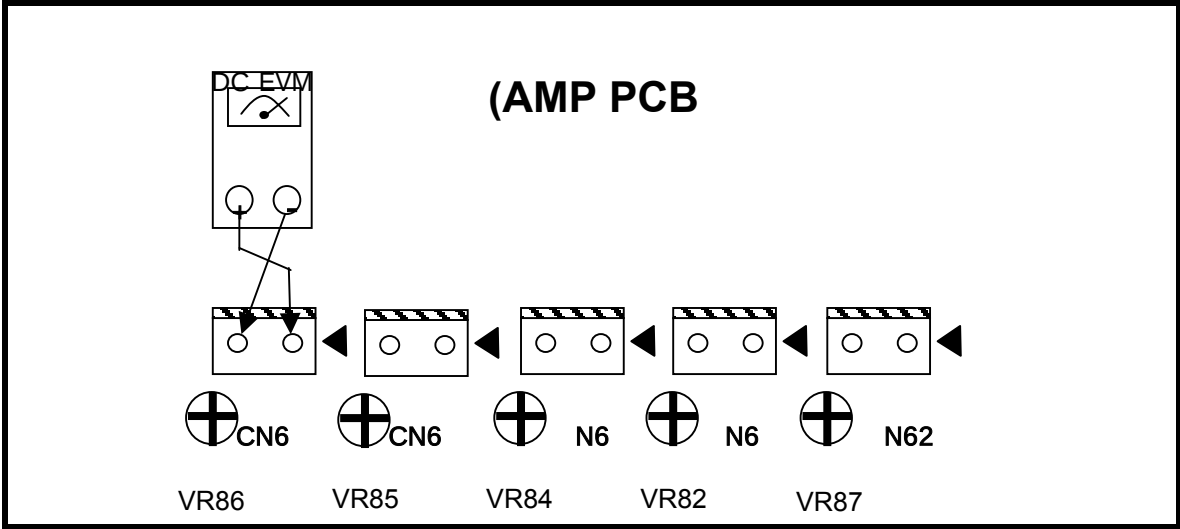
Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
...3		COP12461B	AVR1700 SMPS PCB ASS'Y		1	EA
....5	RX93	CRO50TJ155T	RES , SURGE ,(1.5M OHM, 5%, 1/2W, PRC TYPE)	PRC92T1J1M50	1	EA
...4		CQB1D022	A-ROHS/LABEL,SERIAL		1	EA
...4	BN65	CWB1C01525047	WIRE ASSY (LOCK, 15P, 250mm, 2.0mm)		1	EA
...4	CN20	CJP03GA90ZY	WAFER,YW396-03B(3.96mm)		1	EA
...4	CN66	CJP07GI236ZW	LOCKING TYPE , STRAIGHT WAFER , 2MM		1	EA
...4	CN90	CJP02KA060ZY	WAFER, 2P, 3.96mm		1	EA
...4	CX91	CCQF2E104KZCS	CAP , X2(275VAC, 0.1uF, 10mm, SEORYONG)	X2 CAP , 10MM	1	EA
...4	CX92	CCQF2E334KZES	CAP , X2(275VAC, 0.33uF, 15mm, SEORYONG)	MPXLC334K27515	1	EA
...4	CY91	CCKDHS102ME	CAP , CERAMIC (400V Y-CAP)	SDE2G102M10FF7	1	EA
...4	CY92	CCKDHS102ME	CAP , CERAMIC (400V Y-CAP)	SDE2G102M10FF7	1	EA
...4	CY93	CCKDHS102ME	CAP , CERAMIC (400V Y-CAP)	SDE2G102M10FF7	1	EA
...4	CY94	CCKDHS471ME	CAP , CERAMIC (400V Y-CAP)	AC250V471	1	EA
...4	CY95	CCKDHS102ME	CAP , CERAMIC (400V Y-CAP)	SDE2G102M10FF7	1	EA
...4	C901	CCET250VTD4471NWS	CAP , ELECT (470uF/250V, 105'C, 25.4X35)	TDA SERIES	1	EA
...4	C902	CCET450VKM220NCS	CAP , ELECT(450V/22uF),105'C,13X20	KM220M450L020JV	1	EA
...4	C928	CCET63VNXA222EWS	CAP , ELECT(63V/2200uF, 105'C, 18X40, LOW ESR)	NXA 63VB2200	1	EA
...4	C930	CCET250VTD4471NWS	CAP , ELECT (470uF/250V, 105'C, 25.4X35)	TDA SERIES	1	EA
...4	C933	CCEA1EH471ECS	CAP , ELECT(25V/470uF),105'C	KM SERIES	1	EA
...4	C936	CCET63VNXA222EWS	CAP , ELECT(63V/2200uF, 105'C, 18X40, LOW ESR)	NXA 63VB2200	1	EA
...4	C937	CCEA1JH471ECS	CAP , ELECT(63V/470uF),105'C	KM SERIES	1	EA
...4	C939	CCEA1JH471ECS	CAP , ELECT(63V/470uF),105'C	KM SERIES	1	EA
...4	C941	CCEA0JGF562ECS	CAP , ELECT(6.3V/5600uF/105'C), 13X30	GF SERIES	1	EA
...4	C948	CCEA0JGF562ECS	CAP , ELECT(6.3V/5600uF/105'C), 13X30	GF SERIES	1	EA
...4	DB91	CVDRS1005M	DIODE , BRIDGE (600V/10A,RS-10M)	RS1005M	1	EA
...4	D934	CVD31DQ06FC6	DIODE , SB (60V, 3A, DO-201)	31DQ06	1	EA
...4	D938	HVD31DQ06H	DIODE	31DQ06-FC5	1	EA
...4	D939	HVD31DQ06H	DIODE	31DQ06-FC5	1	EA
...4	D940	HVD31DQ06H	DIODE	31DQ06-FC5	1	EA
...4	D941	CVD31DQ06FC6	DIODE , SB (60V, 3A, DO-201)	31DQ06	1	EA
...4	HS91	CVTSPW17N80C3ZA	FET HEAT SINK ASS'Y (AVR170, CMY2A327ZA)		1	EA
....5		CMD1A720	BRACKET , THERMAL SENSOR		1	EA
....5		CMX1A164	INSULATOR , SILICON		1	EA
....5		CMY2A327ZA-V1	HEAT SINK		1	EA
....5		CRTST22110070W	PROTECTOR , THERMAL (110'C, 70mm)	ST-22 SERIES(W-TYPE)	1	EA
....5		CTB3+10JR	SCREW		1	EA
....5		CVTSPW17N80C3	F.E.T , SPW17N80C3 (800V/17A, PG-TO247-3)	SPW17N80C3	1	EA
...4	HS92	CVDFCU20A40YA	DIODE HEAT SINK ASS'Y (CMY9A222)		1	EA
....5		CMY9A222-V1	HEAT SINK		1	EA
....5		CTB3+10JR	SCREW		1	EA
....5		CVDFCU20A40	DIODE , FAST RECOVERY (400V/20A,TO-220)	FCU20A40	1	EA
....5		K8AYG6260	COMPOUND , SILICONE		0,2	G
...4	HS93	CVDFCU20A40WA	DIODE HEAT SINK ASS'Y (CMY3A222)	CMY3A222+CRTST22100070W	1	EA
....5		CMD1A720	BRACKET , THERMAL SENSOR		1	EA
....5		CMY3A222-V1	HEAT SINK		1	EA
....5		CRTST22110070W	PROTECTOR , THERMAL (110'C, 70mm)	ST-22 SERIES(W-TYPE)	1	EA
....5		CTB3+10JR	SCREW		2	EA
....5		CVDFCU20A40	DIODE , FAST RECOVERY (400V/20A,TO-220)	FCU20A40	1	EA
....5		K8AYG6260	COMPOUND , SILICONE		0,2	G
...4	IC91	CVIOB2358LAP	I.C , PWM		1	EA
...4	IC92	CVIICE2B365	I.C , CooLSET-F2(PG-DIP-8-6)	ICE2B365	1	EA
...4	IC93	CVIICE2QS01	I.C , PWM CONTROLLER(PG-DIP-8)	ICE2QS01	1	EA
...4	IC97	HVINJM7812FA	I.C , REGULATOR		1	EA
...4	IC98	HVINJM7912FA	I.C , REGULATOR		1	EA
...4	LF91	CLZ9Z135Z	FILTER , LINE (SQE2930, 8mH)	SQE2930	1	EA
...4	LF92	CLZ9Z135Z	FILTER , LINE (SQE2930, 8mH)	SQE2930	1	EA
...4	LF93	CLZ9Z121Z	LINE, FILTER (150uH, RING-616)		1	EA
...4	L924	CLZ9Z090Z	COIL , CHOKE(7UH)	SPC-606	1	EA
...4	L925	CLZ9Z090Z	COIL , CHOKE(7UH)	SPC-606	1	EA
...4	L928	CLZ9Z090Z	COIL , CHOKE(7UH)	SPC-606	1	EA
...4	PC91	CVIEL817B	I.C , PHOTO COUPLER	EL817-B	1	EA
...4	PC92	CVIEL817B	I.C , PHOTO COUPLER	EL817-B	1	EA
...4	PC93	CVIEL817B	I.C , PHOTO COUPLER	EL817-B	1	EA
...4	PC94	CVIEL817B	I.C , PHOTO COUPLER	EL817-B	1	EA
...4	PC95	CVIEL817B	I.C , PHOTO COUPLER	EL817-B	1	EA
...4	PC96	CVIEL817B	I.C , PHOTO COUPLER	EL817-B	1	EA
...4	PC97	CVIEL817B	I.C , PHOTO COUPLER	EL817-B	1	EA
...4	PC98	CVIEL817B	I.C , PHOTO COUPLER	EL817-B	1	EA
...4	R907	CRG1ANJ683H	RES , METAL OXIDE FILM	68K OHM 1W J	1	EA

Level	Ref#	Component	Description	Drawing No	REQ-Qty	UM
..3		COP12461B	AVR1700 SMPS PCB ASS'Y		1	EA
...4	R908	CRW1PJ0R4V	RES , WIRE WOUND (1W/0.4OHM)	JRW SERIES	1	EA
...4	R913	CRW1PJ0R1V	RES , WIRE WOUND (1W/0.1OHM)	JRW SERIES	1	EA
...4	R914	CRW1PJ0R1V	RES , WIRE WOUND (1W/0.1OHM)	JRW SERIES	1	EA
...4	R920	CRG2ANJ683H	RES , METAL OXIDE FILM	68K OHM 2W J	1	EA
...4	SW91	CJP02GA89ZY	WAFER, 2P, 7.92mm	YW396-02AB/YEONHO	1	EA
...4	SW92	CJP02GA89ZY	WAFER, 2P, 7.92mm	YW396-02AB/YEONHO	1	EA
...4	TF91	CLT9Z076ZE	TRANS , STBY (AVR170/270/370)	EE1625	1	EA
...4	TF92	CLT9Z077ZE	TRANS , SUB (AVR170/270/370)	EER2834	1	EA
...4	TF93	CLT9Z078ZE	TRANS , MAIN (AVR170)	EER424220	1	EA
...4	TH91	CRT5D20MSFC	NTC , THERMISTOR (10MM PITCH)	5D-20	1	EA
...4	TS91	CJP02GA01ZY	WAFER/STRAIGHT/2.5mm/2P	YMH025-02R/YEONHO	1	EA
...4	TS92	CJP02GA01ZY	WAFER/STRAIGHT/2.5mm/2P	YMH025-02R/YEONHO	1	EA
...4	VT91	CRV5VC561D14A	VARISTOR(560V, 14mm)	SVC SERIES	1	EA
...4	VT92	CRV5VC561D14A	VARISTOR(560V, 14mm)	SVC SERIES	1	EA
..3		CRE1A108	SPACER , PCB(KCA-34)		1	EA
..3		CTB3+10JFZR	SCREW		10	EA
..3		CTB3+6FFZR	SCREW		10	EA
..3		CTB3+6JR	SCREW		2	EA
..3		CTB3+8JFZR	SCREW		11	EA
..3		CTS3+8JFZR	SCREW		4	EA
..3		CTW3+12JR	SCREW		4	EA
..3		CTW3+8JR	SCREW		2	EA
..3		CUA1A337	CHASSIS , BOTTOM		1	EA
..3		CWB1B003150LL	WIRE ASS'Y (3P, 150mm)		1	EA
..3		CWZAVR1700CN90ZA	INLET WIRE ASS'Y		1	EA
...4		CJ8A006ZW	RECEPTACLE , AC(15A/250V,R-301,B21)	R-301(B21)	1	EA
...4		CLZ9W003Z	FERRITE , RING	29X7.7X19	1	EA
...4		CWZAVR1700CN90	WIRE ASS'Y		1	EA
..3	F901	KBA2C8000TLHEY	FUSE(215Series, 250V/8A)		1	EA
..3	SW91	CSH2B026ZA	SW , ROCKER ASS'Y	MR-22-N8BB-F2V	1	EA
...4		CSH2B026Z	SW , ROCKER	MR-22-N8BB-F2V	1	EA
...4		CWB4F202080UK	WIRE ASS'Y (3.96MM, 80MM, 2P, RED)		2	EA
..3	WF61	CWC4C4A23B150B10A	CARD , CABLE Shield(23P,1.25mm,150mm,B,10mm)		1	EA
..3	WF70	CWC4C4A23B250B08A	CARD , CABLE Shield (23P,1.25mm,250mm,B,8mm)		1	EA
1		CHE154	CLAMPER , ARM		0,12	M
1		CPG1A967W	BOX , OUT CARTON AVR1700		1	EA
1		CPL18A5M	STAPLE		8	EA
1		CPP1A081Z	BAG,POLY SET		1	EA
1		CPS1A920	PAD , LEFT		1	EA
1		CPS1A921	PAD , RIGHT		1	EA
1		CQXAVR1700	INSTRUCTION MANUAL ASS'Y		1	EA
0,2		CARTAVR1700-HK	REMOTE CONTROLLER(AVR1700)	AVR1700	1	EA
0,2		CJA2A119Z	CORD , POWER (PLUG+SOCKET) UL	KE-01P+KE048	1	EA
0,2		CJXAVR365MICRO	MICRO PHONE ASS'Y	AVR365 MIC	1	EA
0,2		CPB1A190Z	BAG , POLY(MANUAL260X365)		1	EA
0,2		QCB1A971	LABEL , BAR CODE(MANUAL)		1	EA
0,2		CQE1A172X	CARD , WARRANTY	USA VER	1	EA
0,2		CQE1A522Z	SHEET , IMPORTANT SAFETY		1	EA
0,2		CQE1A560Z	SHEET , QUICK START GUIDE		1	EA

AMPLIFIER SECTION BIAS ADJUSTMENT

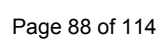
Measurement condition
.No input signal or volume position is minimum.
.Do not adjust at FM/AM.

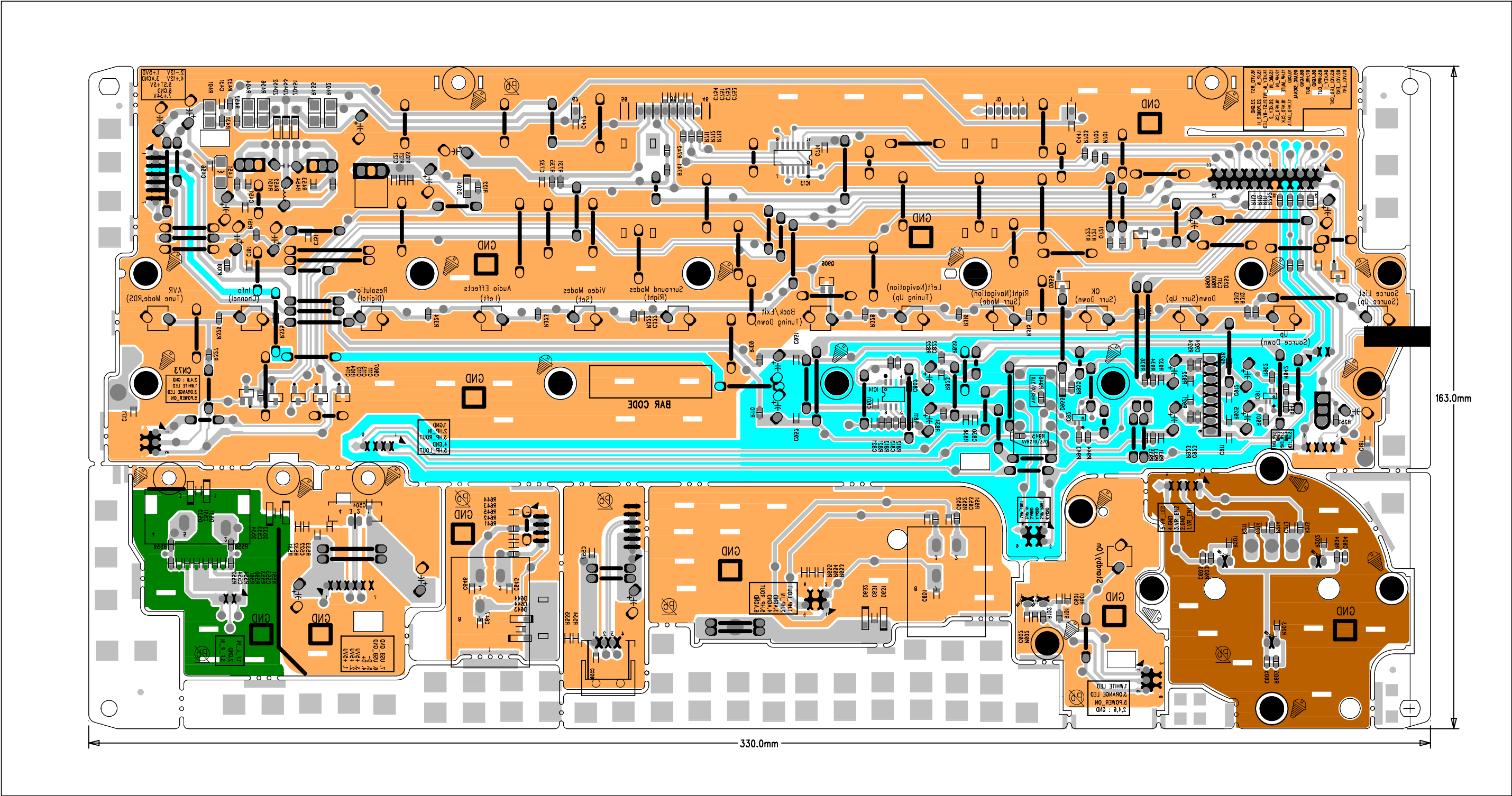
Standard value
.Ideal current = 48mA (± 5%)
.Ideal DC Voltage = 22.5mV (± 5%)

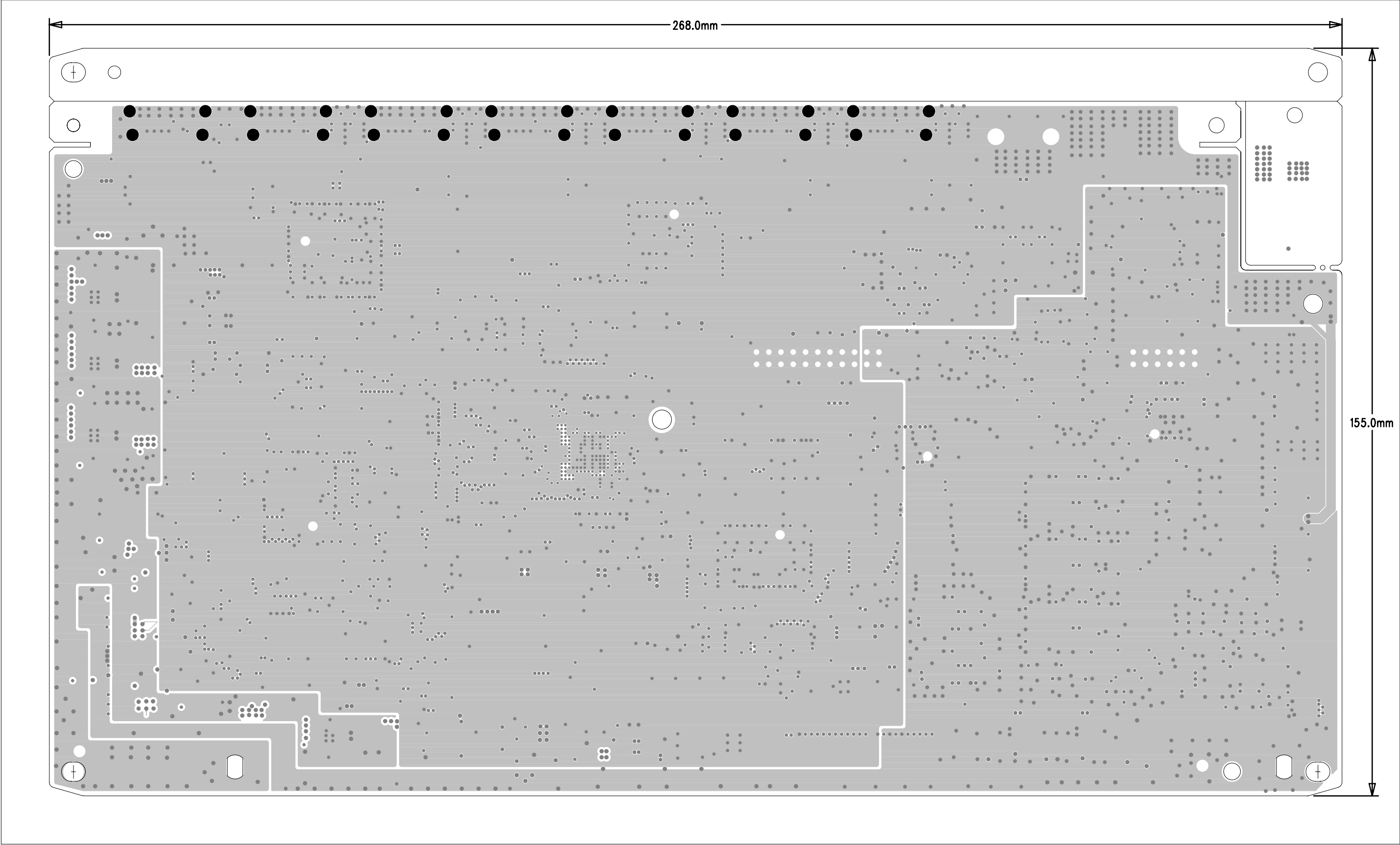


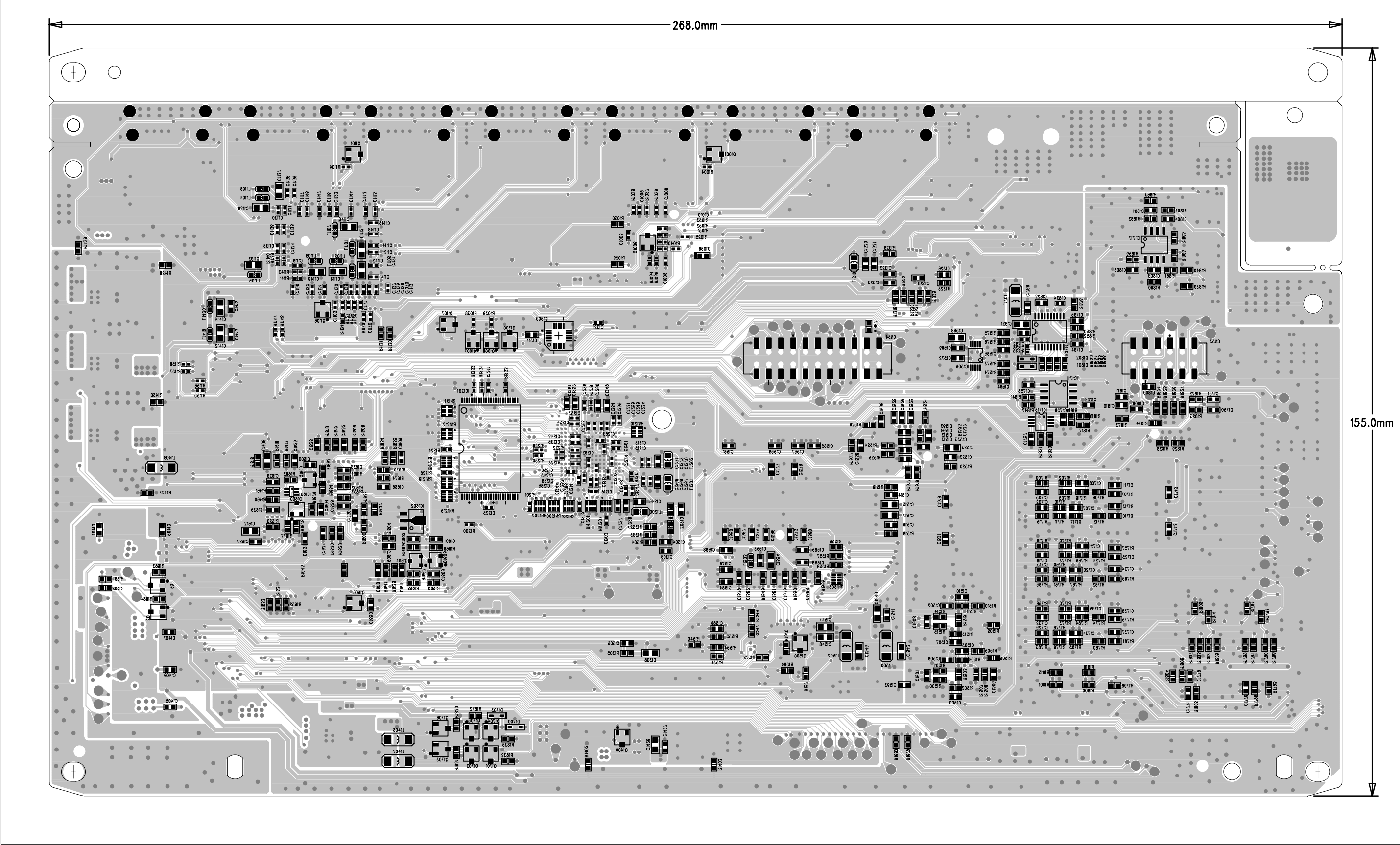
DC VOLTMETER ; Connect to
CN66(FR),CN61(CNT),CN64(SR),CN63(FL),CN62(SL)

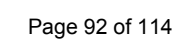
NO.	Channel	Adjust for	Adjustment
1	Front Left	22.50mV (± 5%)	CN63
2	Front Right	22.50mV (± 5%)	CN66
3	Center	22.50mV (± 5%)	CN61
4	Surround Left	22.50mV (± 5%)	CN62
5	Surround Right	22.50mV (± 5%)	CN64

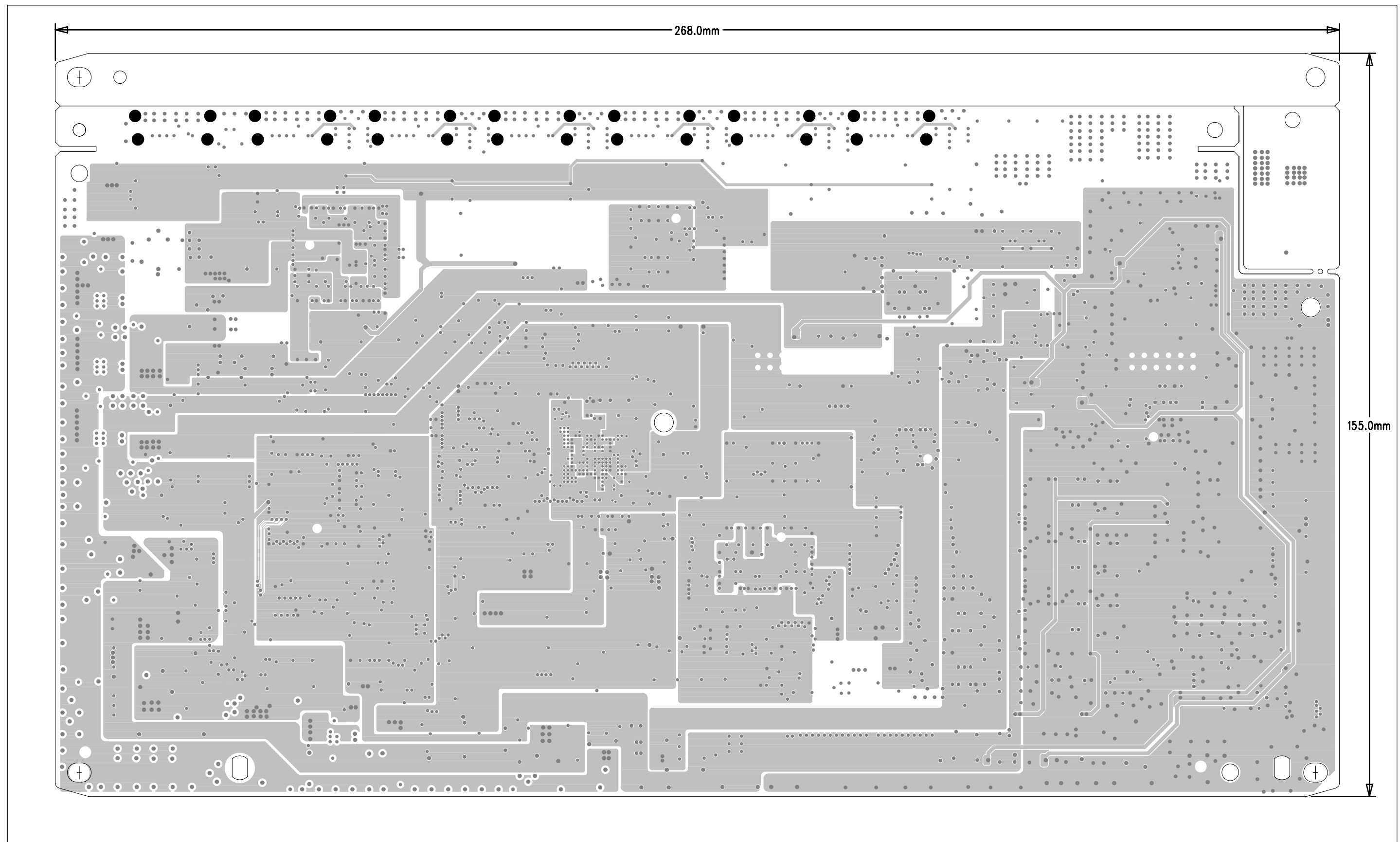


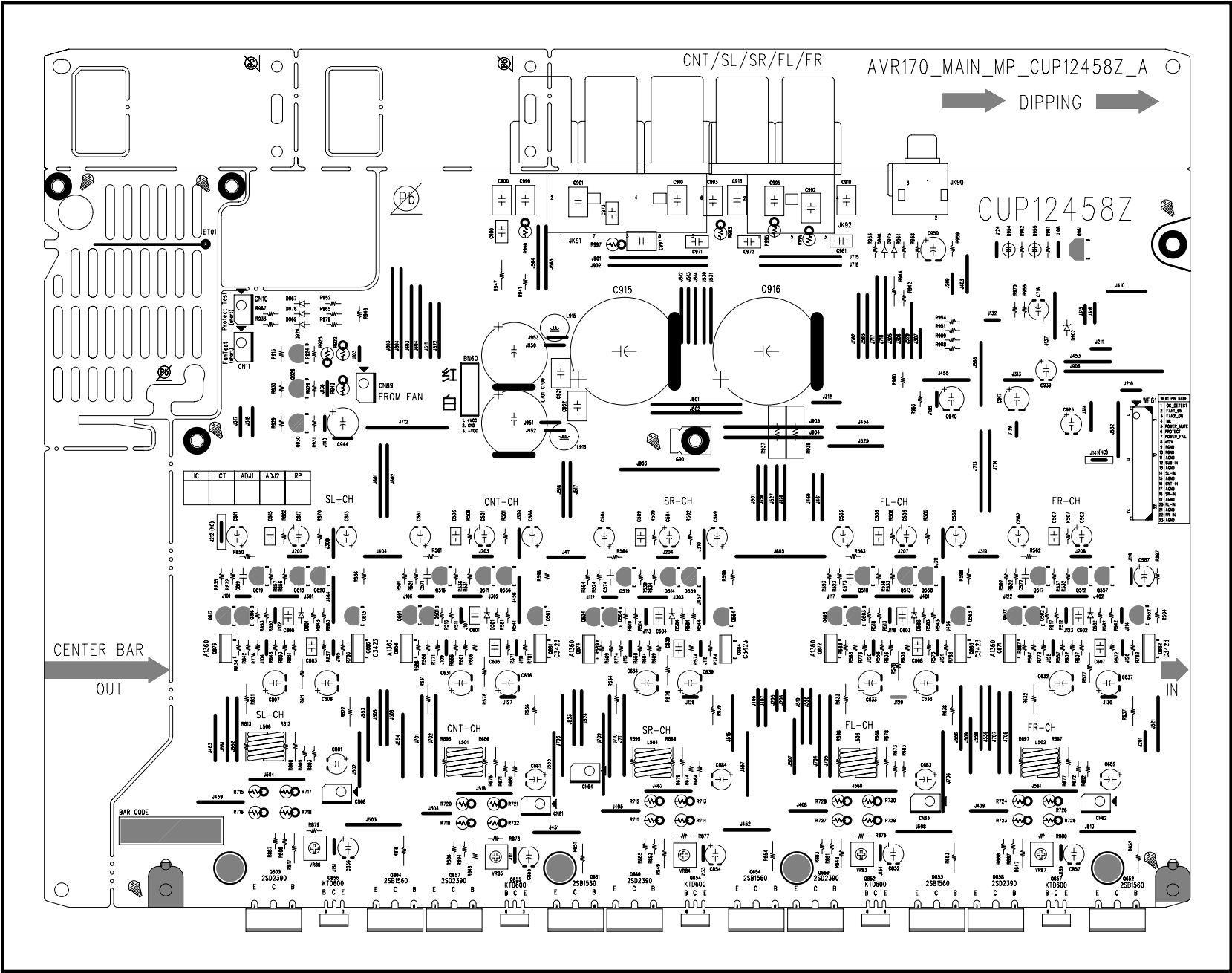


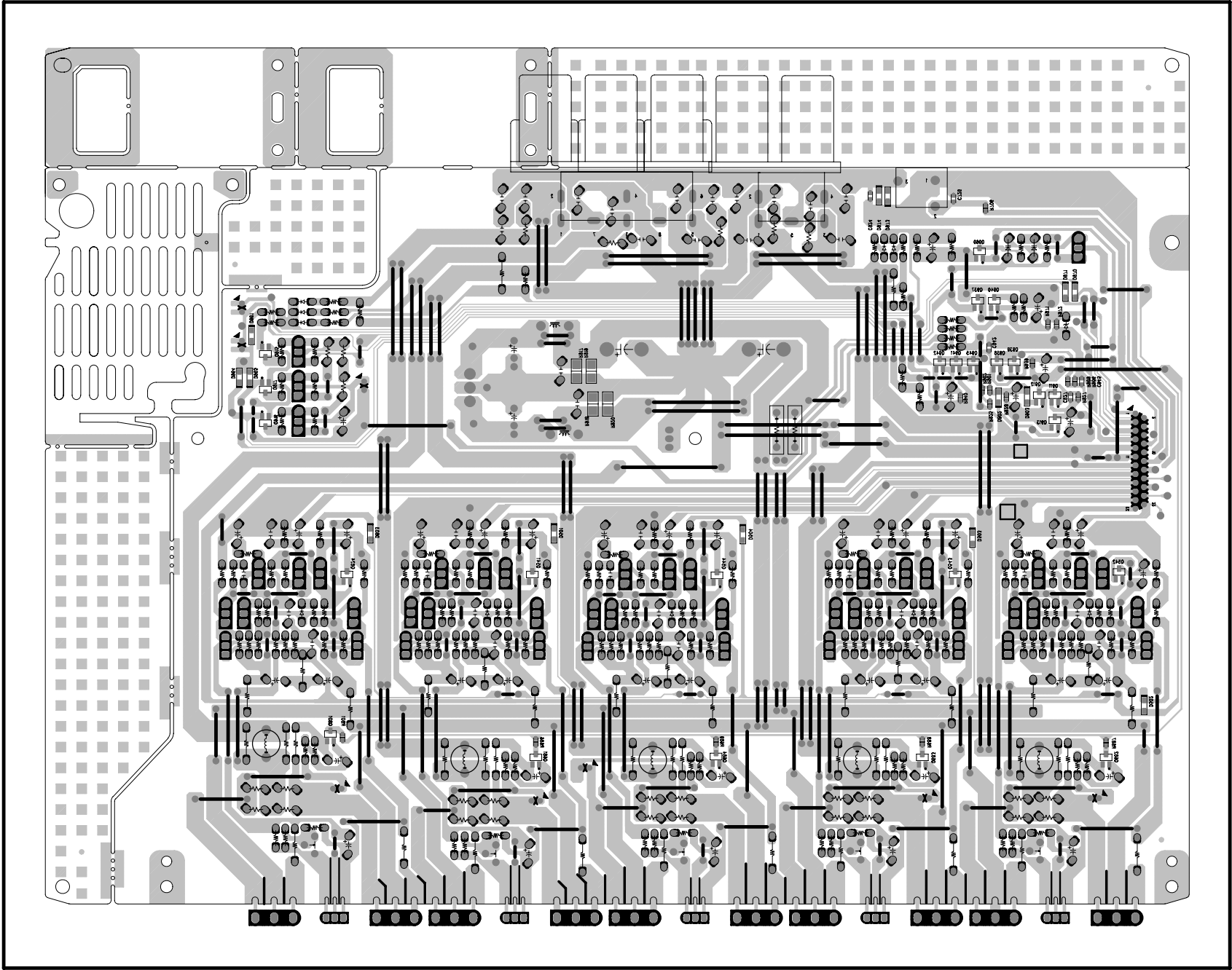


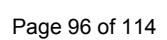


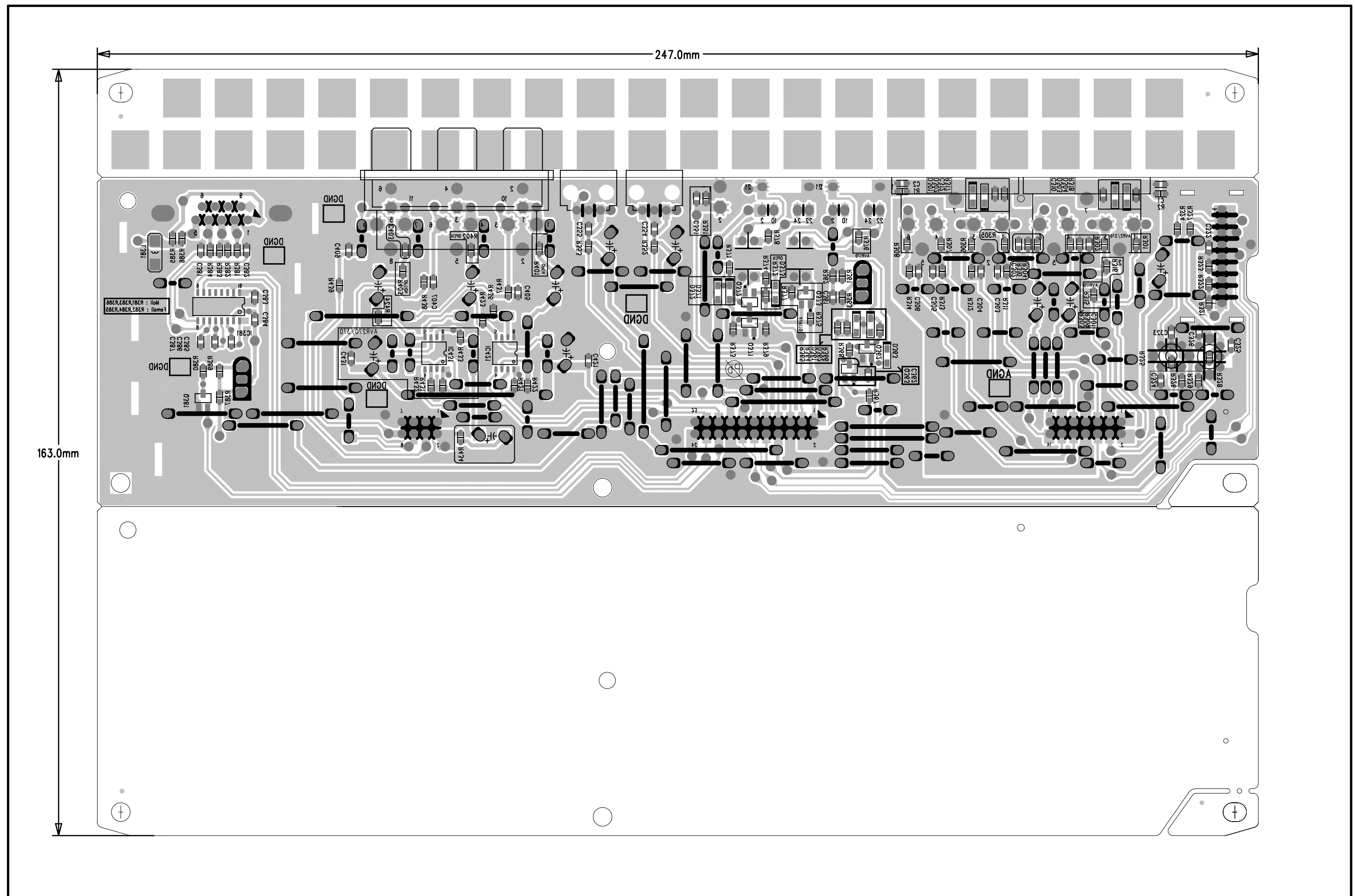


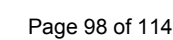






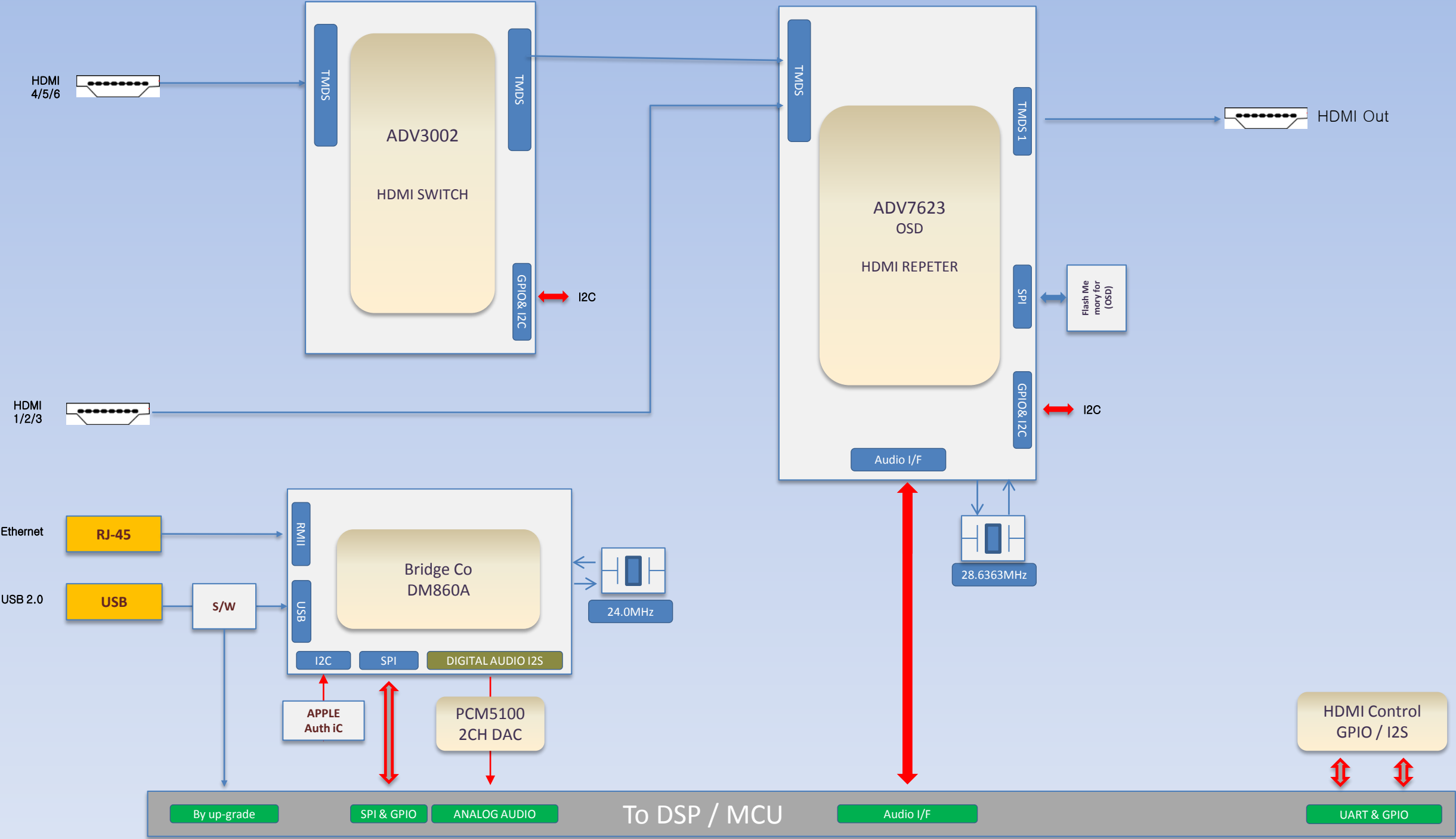


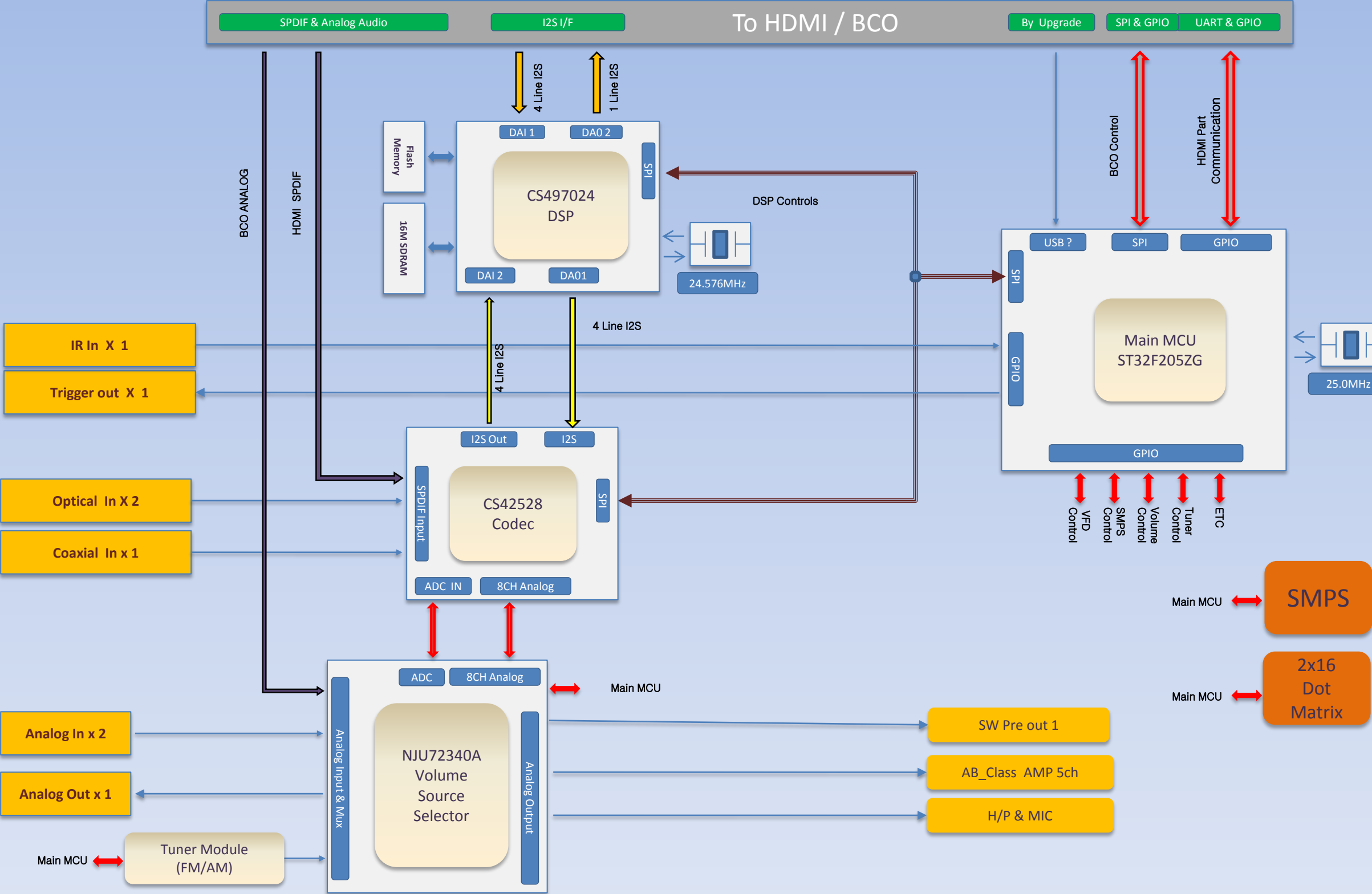






AVR170Block Diagram





D

D

C

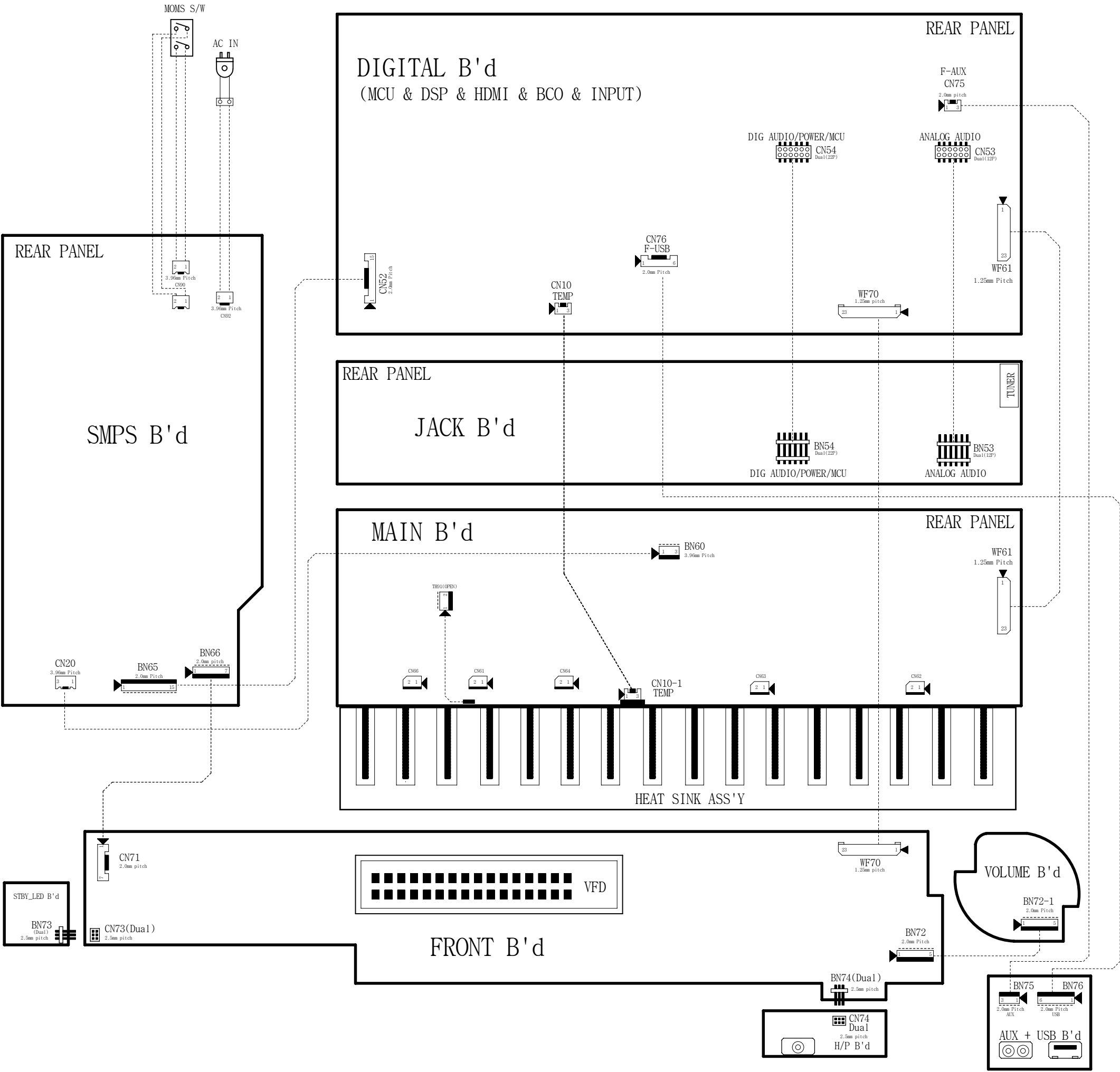
C

B

B

A

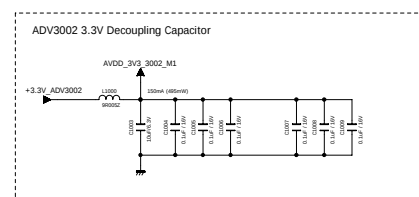
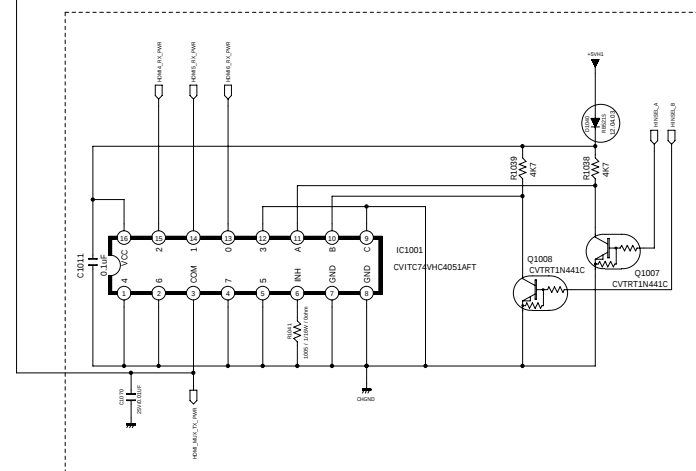
A



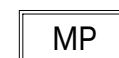
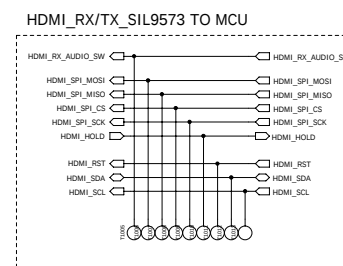
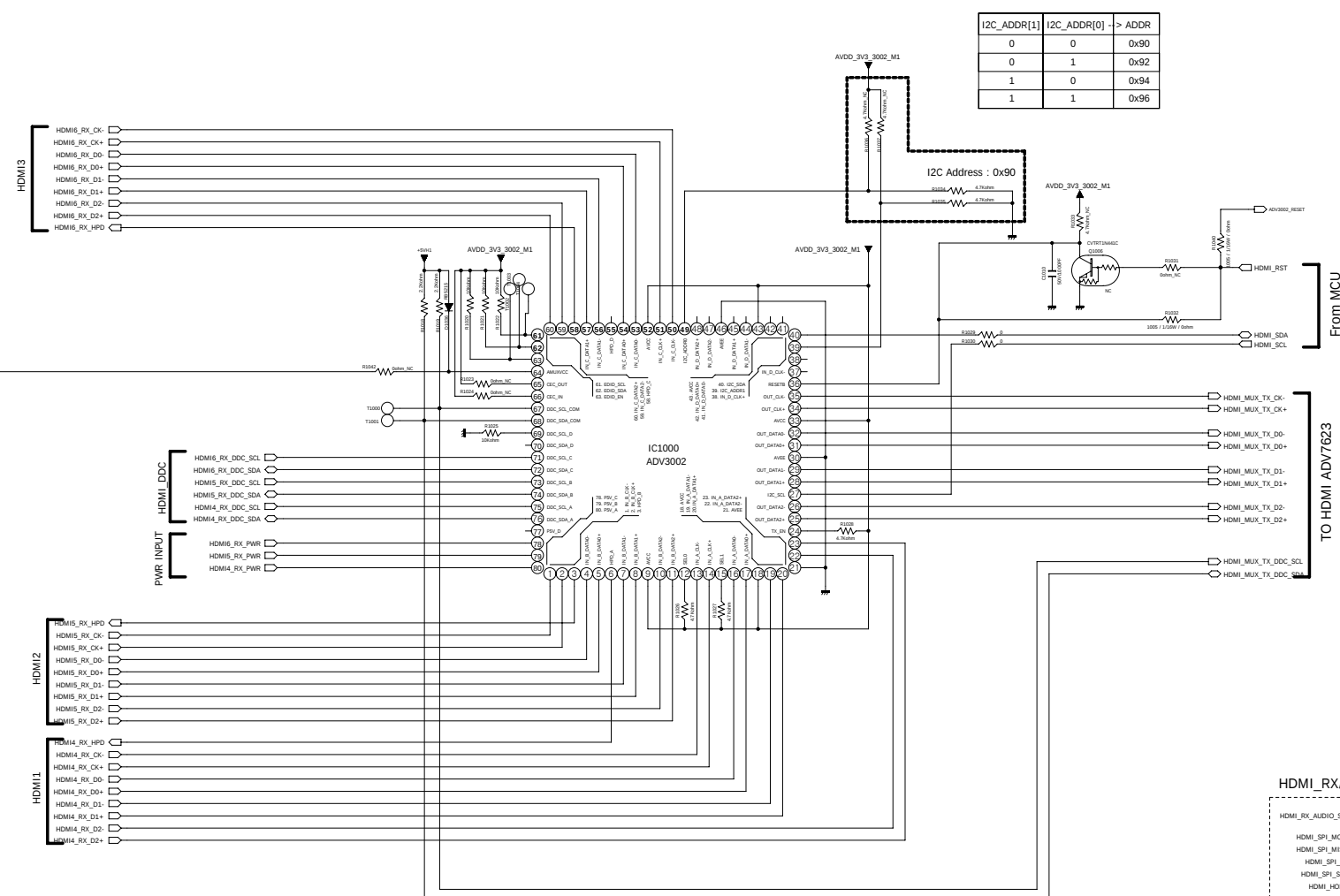
WIRING DIAGRAM

MP

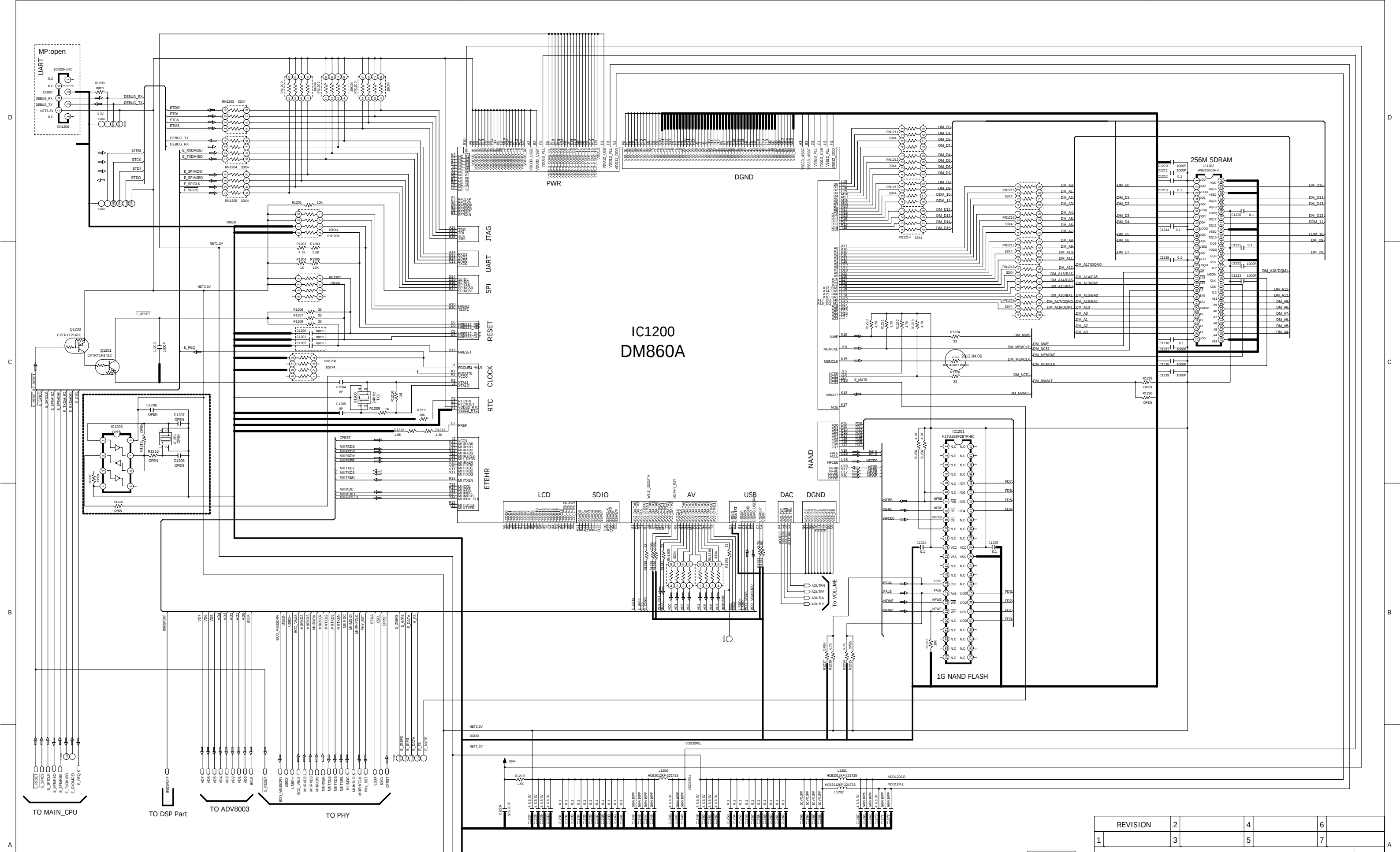
REVISION		2	4	6
1		3	5	7
SCHEMATIC DIAGRAM				SHEET
MODEL	AVR170			1 1
DESIGN	CHECK	APPROVE	DRAWING NO	
K.B.C	L.J.H	Y.W.Y	12455WCDZ	
12.03.06	12.03.06	12.03.06	(WIRING) Page 102 of 114	



CUP12456Z

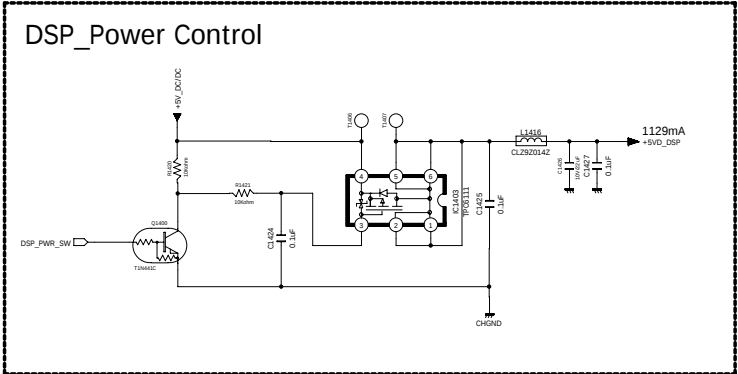
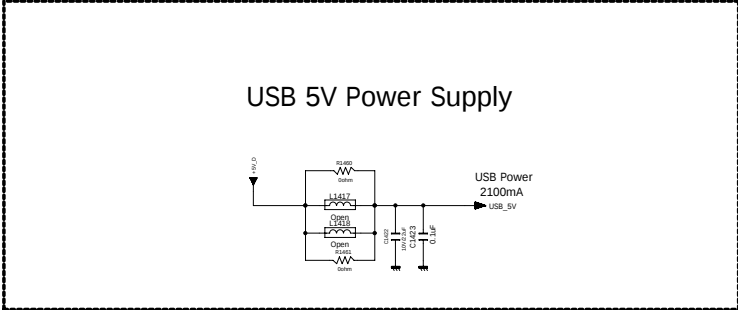
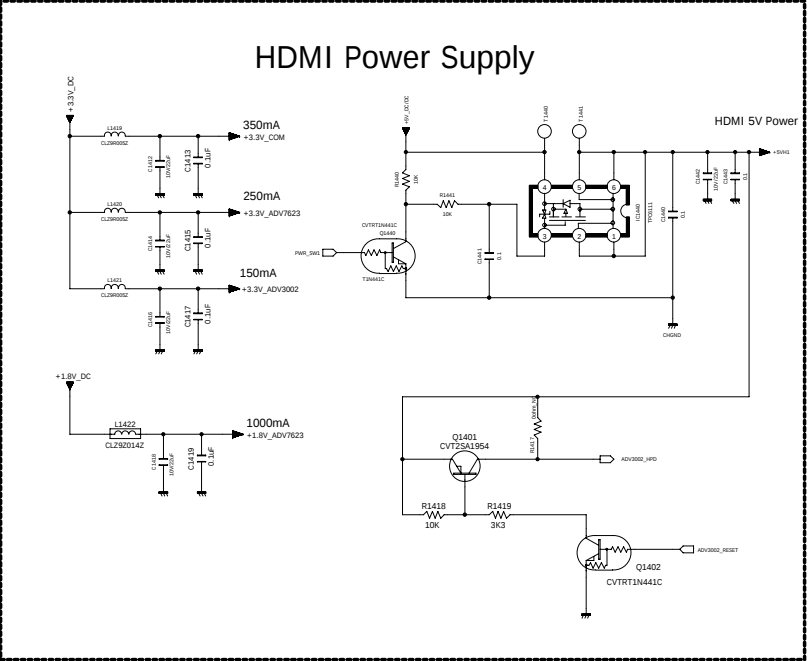
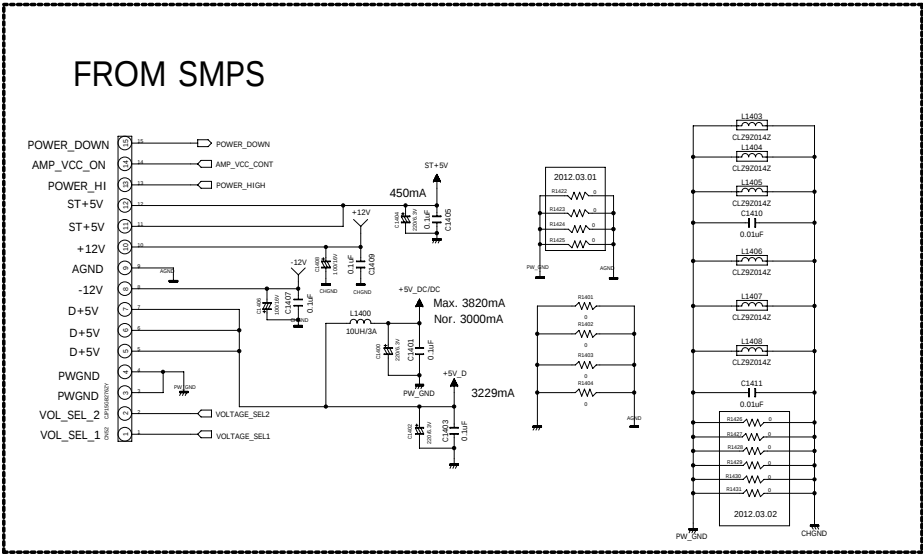


REVISION		2	4	6
1		3	5	7
SCHEMATIC DIAGRAM				SHEET
MODEL	AVR1700/170/230			2 12
DESIGN	CHECK	APPROVE	DRAWING NO	
C.D.W	L.J.H	Y.W.Y	12456SCDZ	
12.3.08	12.3.08	12.3.08	(HDMI_INPUT_AVR1700) of 1	

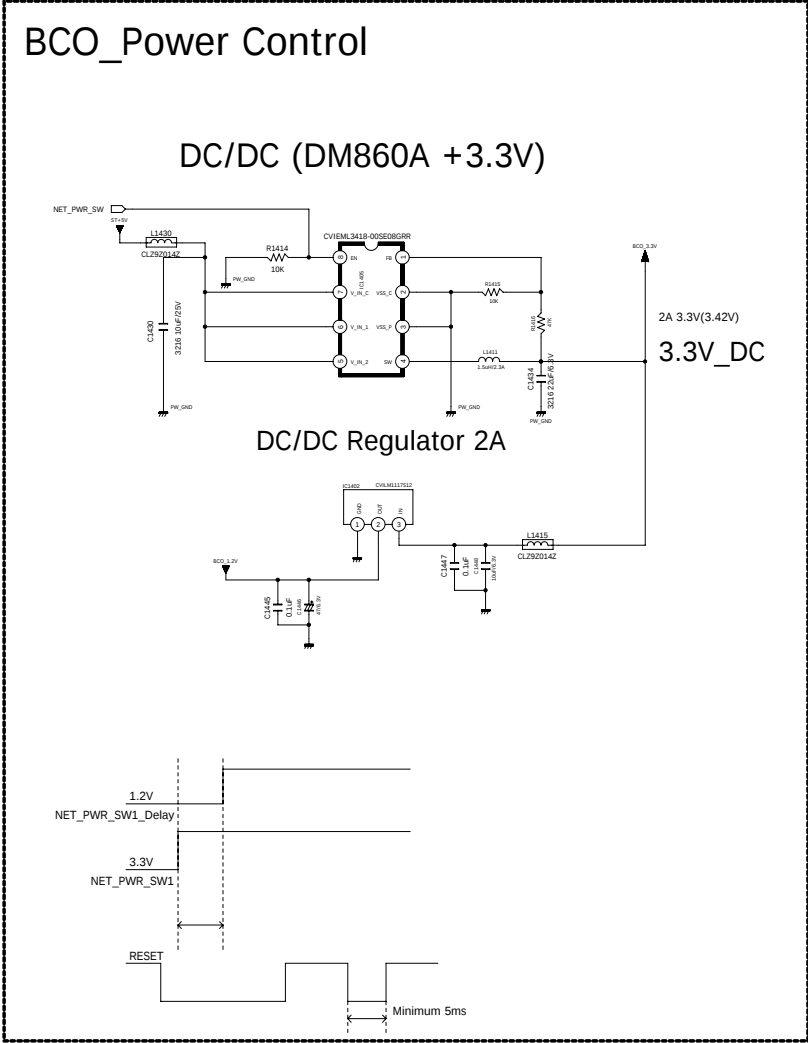
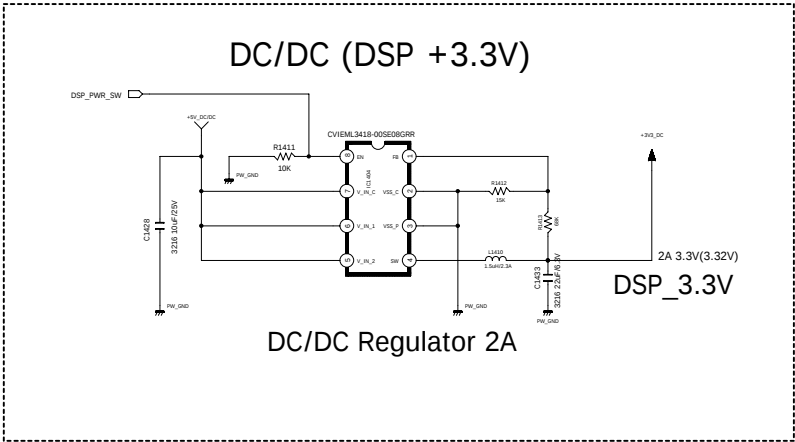
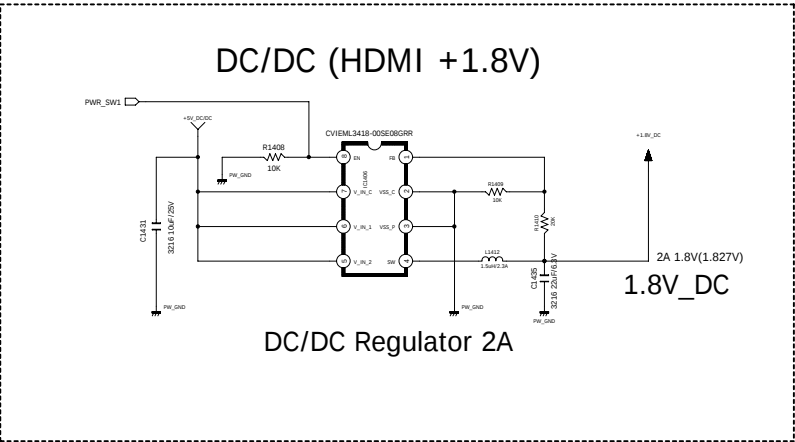
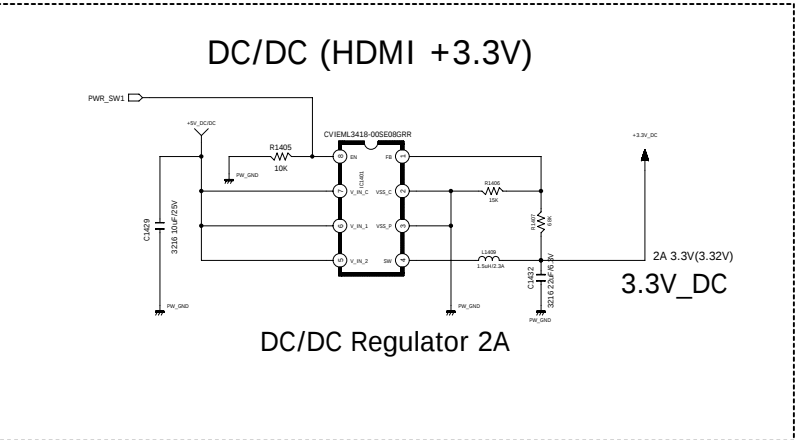




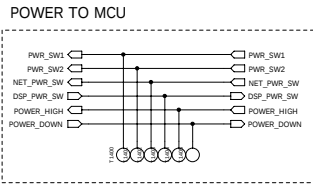
D



C



B



A

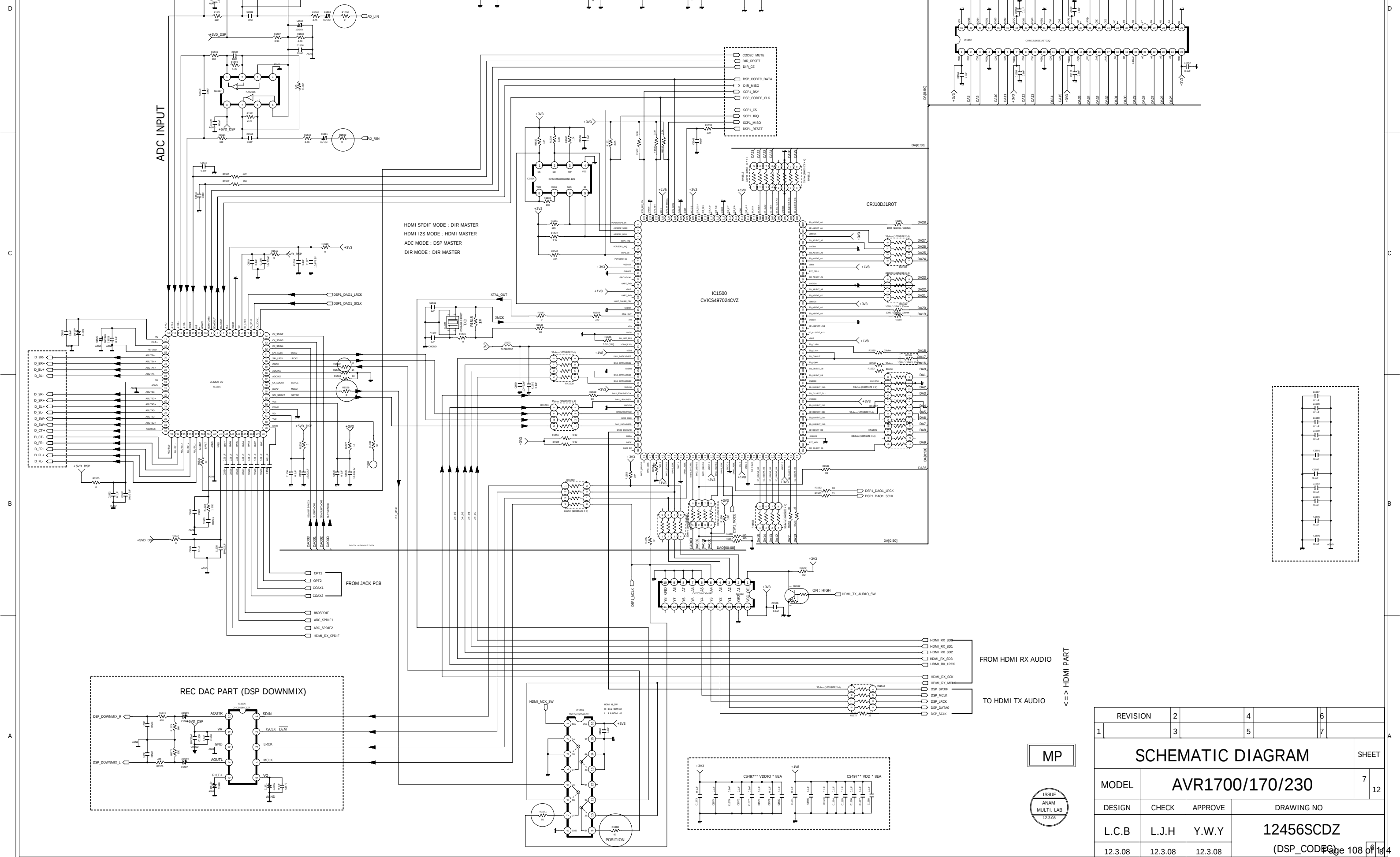
MP

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12.3.08

CUP12456Z

REVISION		2	4	6
1		3	5	7
SCHEMATIC DIAGRAM				
MODEL	AVR1700/170/230			SHEET
				6 12
DESIGN	CHECK	APPROVE	DRAWING NO	
C.D.W	L.J.H	Y.W.Y	12456SCDZ	
12.3.08	12.3.08	12.3.08	(DC_DC_POWER)	

CUP12456Z



D

D

C

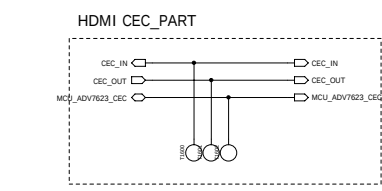
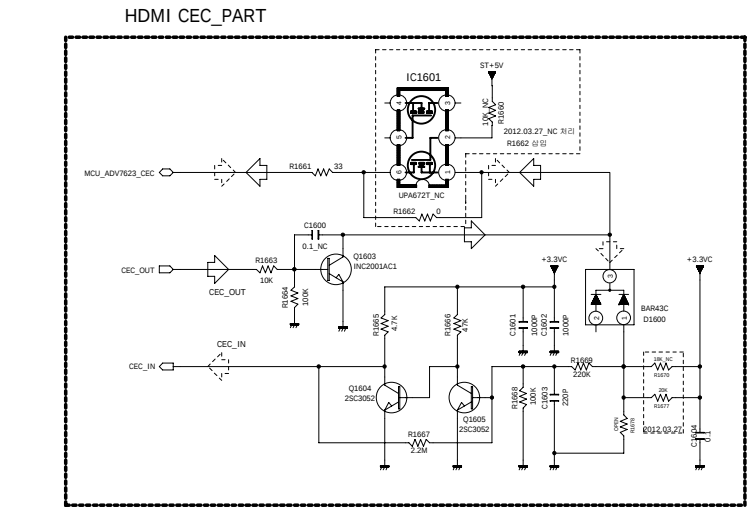
C

B

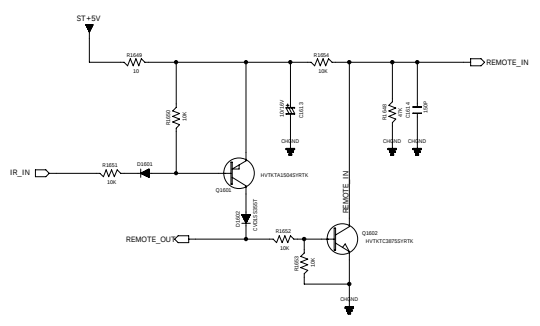
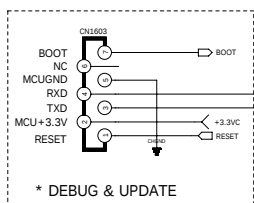
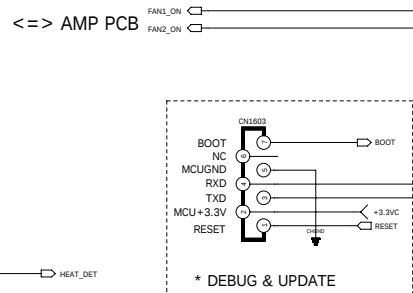
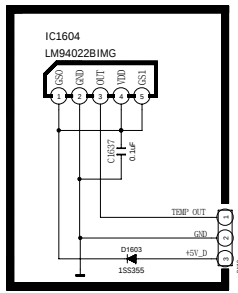
B

A

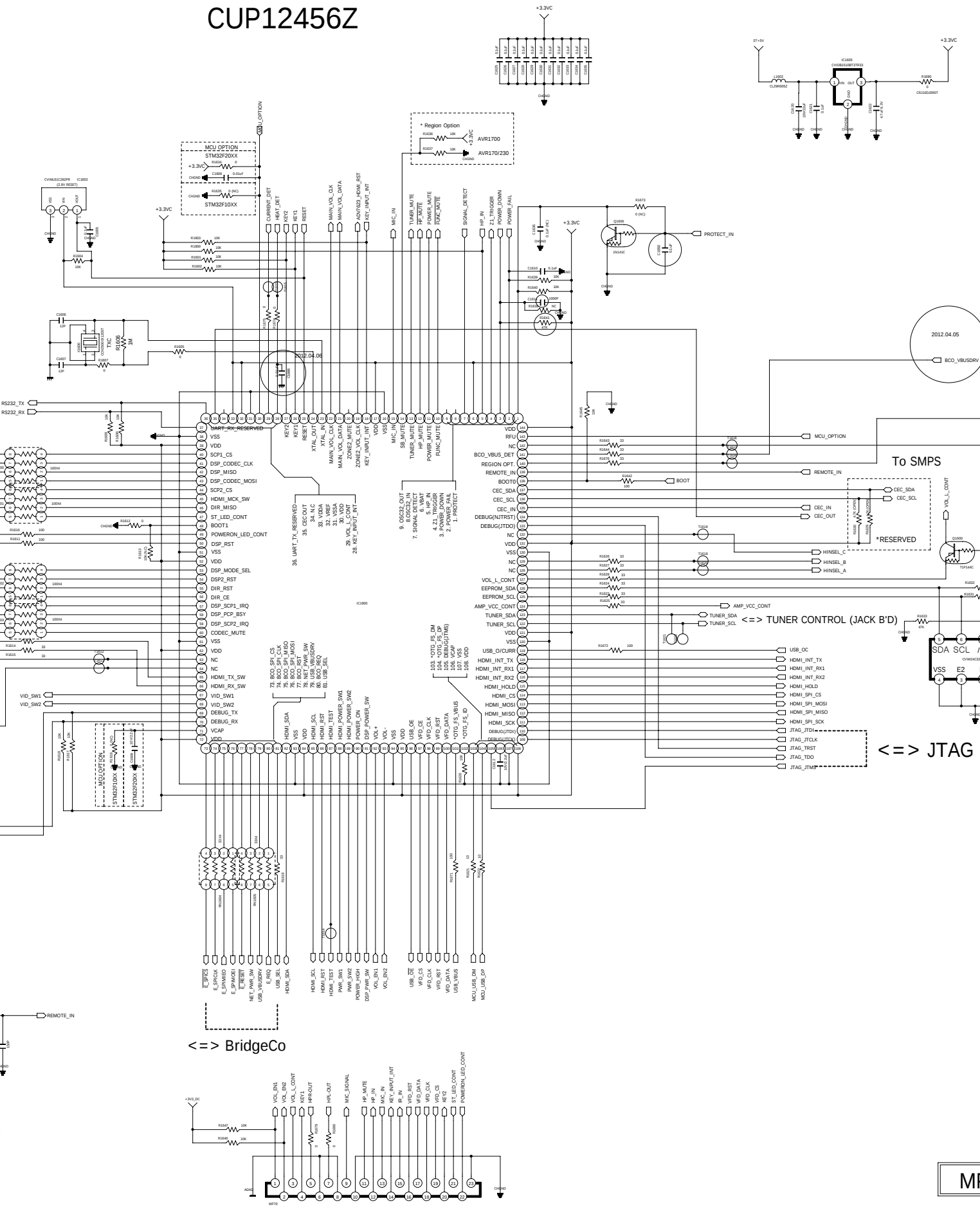
A



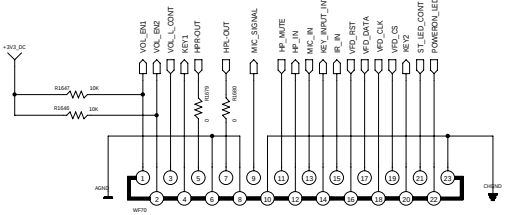
TEMP. SENSING



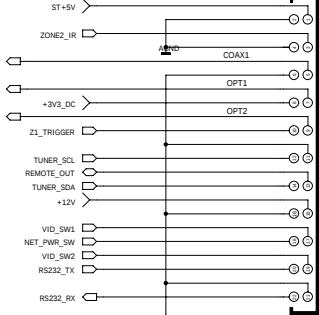
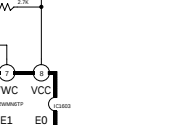
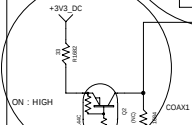
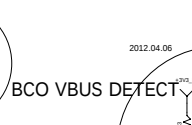
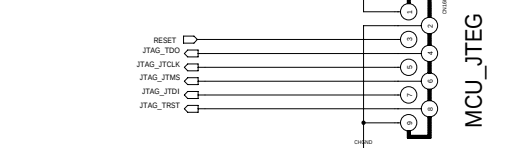
CUP12456Z



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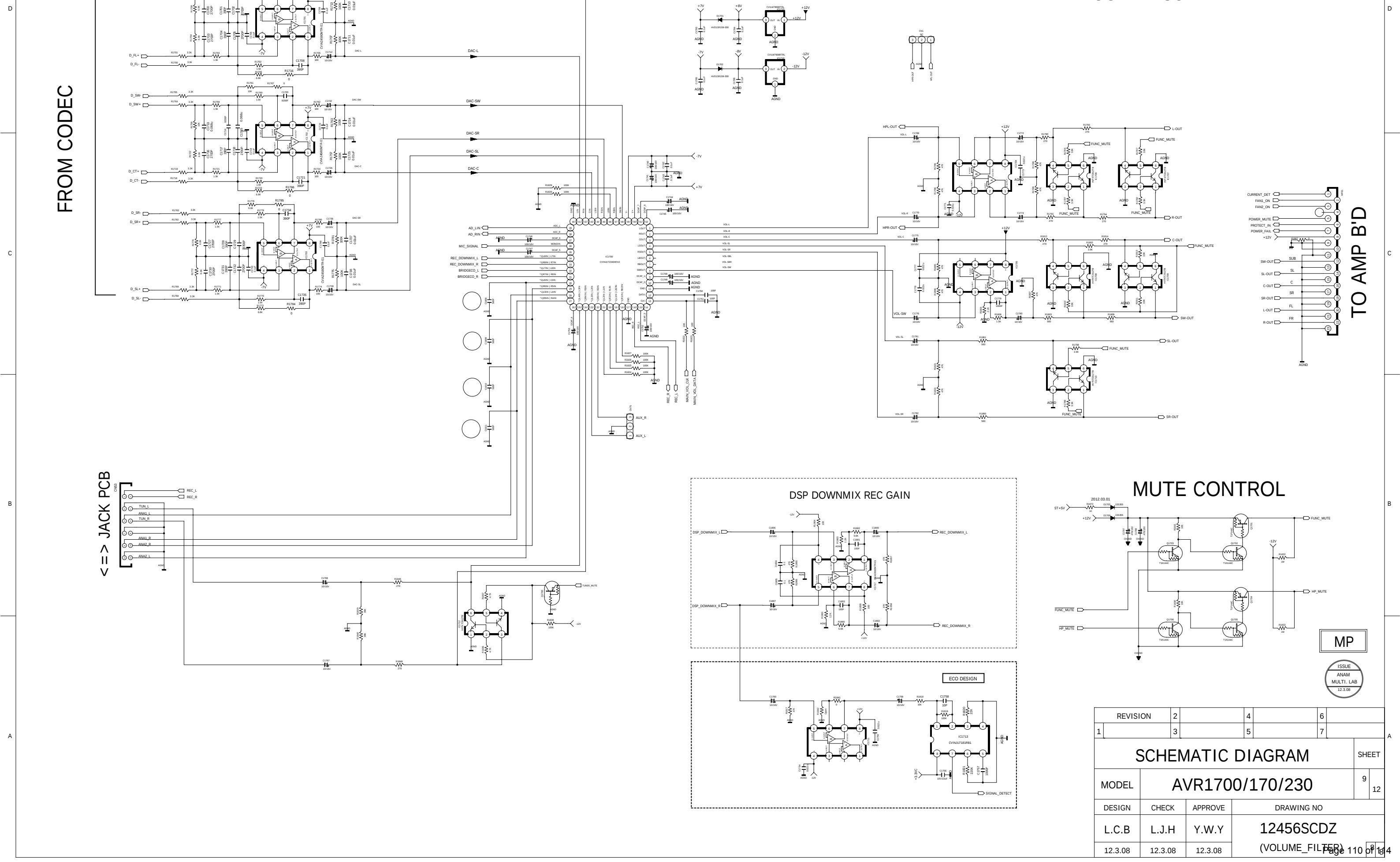
<=> FRONT PCB



MP

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REVISION		2	4	6
1	3	5	7	
SCHEMATIC DIAGRAM				
MODEL	AVR170			SHEET
DESIGN	CHECK	APPROVE	DRAWING NO	
L.C.B	L.J.H	Y.W.Y	12456SCDZ	
12.3.08	12.3.08	12.3.08	(ST_MCU)Page 109 of 184	





REVISION		2	4	6
1	3	5	7	
SCHEMATIC DIAGRAM				SHEET
MODEL	AVR170/270/370			1 12
DESIGN	CHECK	APPROVED	DRAWING NO	
J.W.J	L.J.H	Y.W.Y	12455SCMZ	
12.04.10	12.04.10	12.04.10	(FRONT) Page 111 of 114	

D

C

B

A

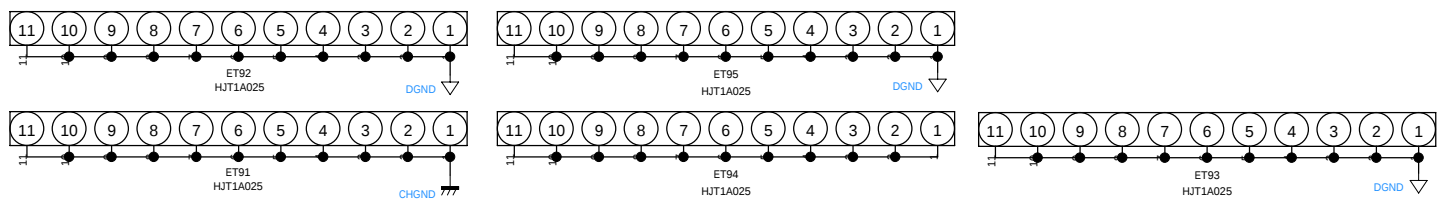
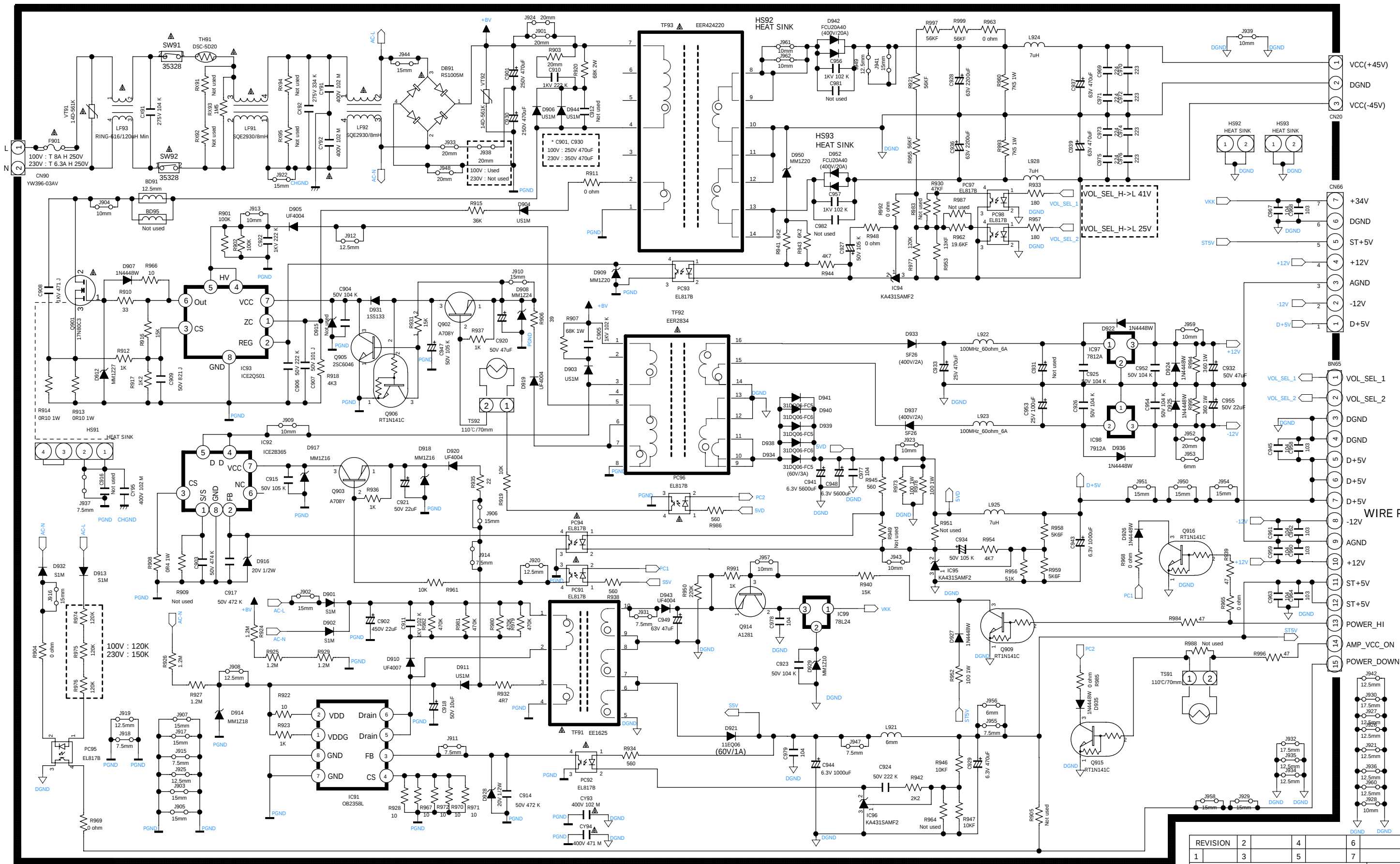
D

C

B

A

AVR170 SMPS SCHEMATIC DIAGRAM



****IMPORTANT SAFETY NOTICE.**
COMPONENTS IDENTIFIED BY MARK HAVE SPECIAL CHARACTERISTICS. IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS. USE ONLY MANUFACTURE'S SPECIFIED PARTS.
**THE UNIT OF RESISTANCE IS OHM. K=1000 OHM, M=1000 KOHM
**THE UNIT OF CAPACITANCE IS MICROFARAD (uF)pF=10⁻⁶uF
**THIS SCHEMATIC DIAGRAM MAY MODIFIED AT ANY TIME WITH THE IMPROVEMENT OF PERFORMANCE

MP

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MULTI. LAB
2012.05.25

REVISION				SHEET	
1	2	4	6		
	3	5	7		
SCHEMATIC DIAGRAM				SHEET	
MODEL	AVR170			1	1
DESIGN	CHECK	APPROVE	DRAWING NO		
C.S.K	L.J.H	Y.W.Y	12461SCMZ		
12.05.25	12.05.25	12.05.25	(SMPS)		

D

C

B

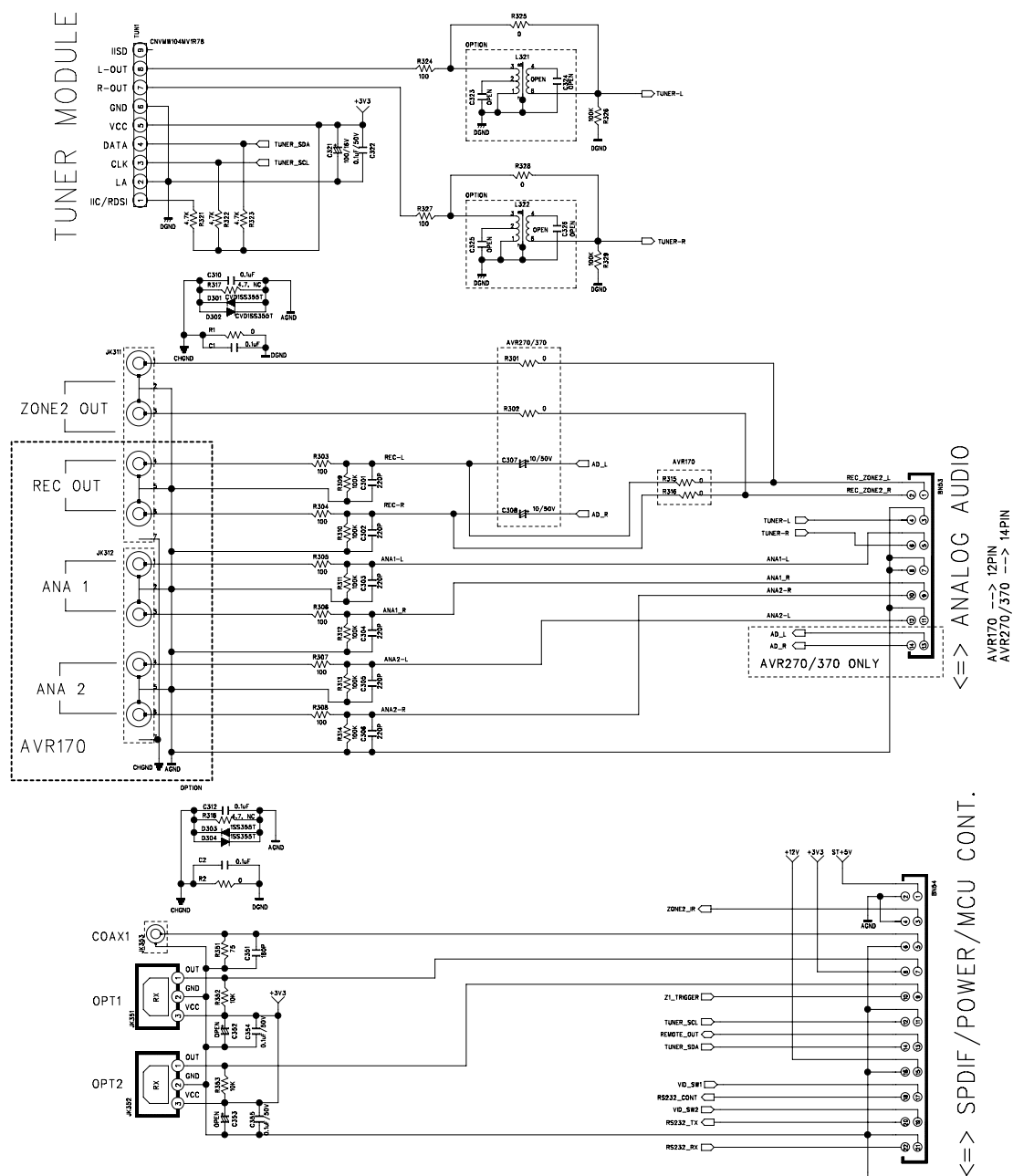
A

D

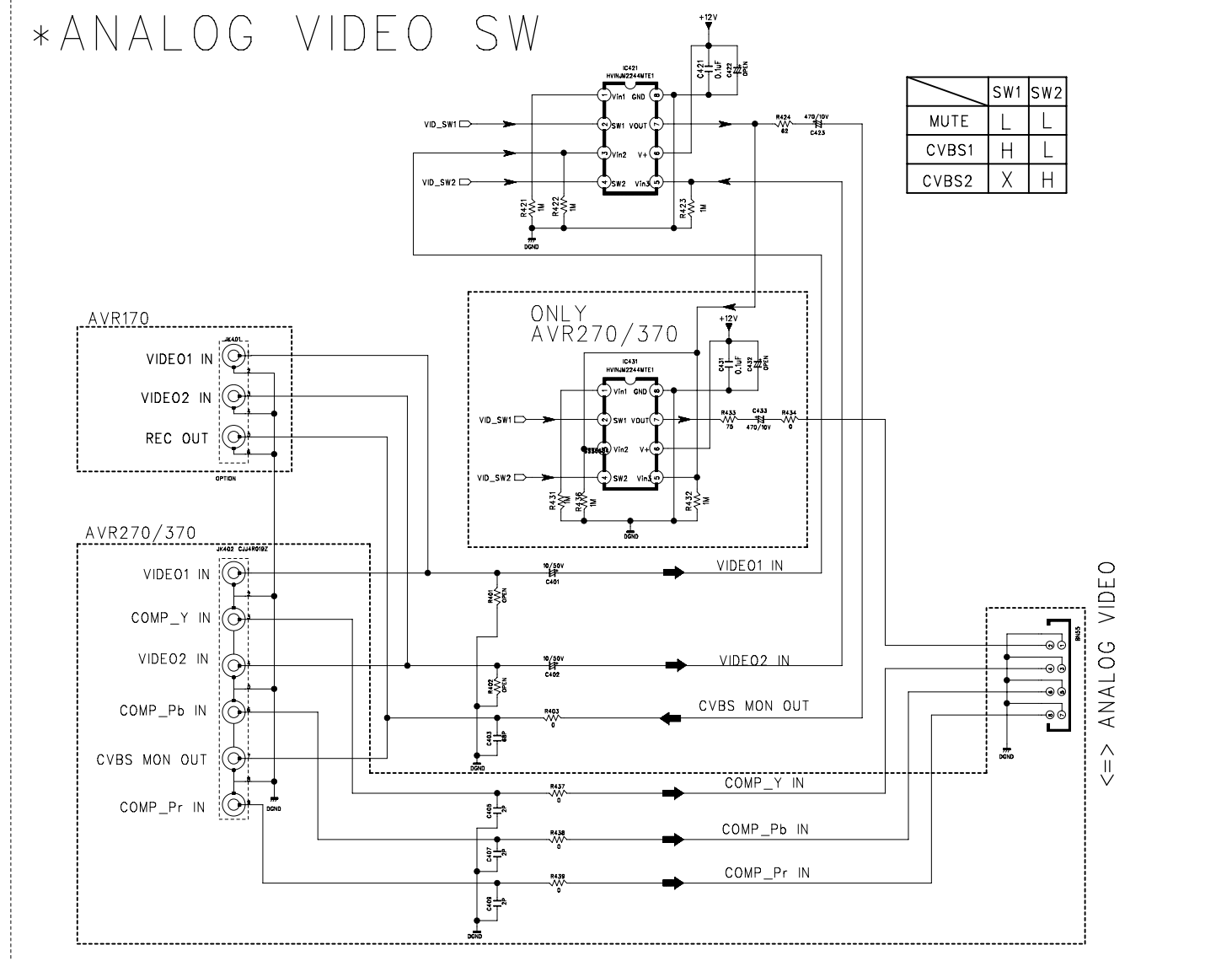
C

B

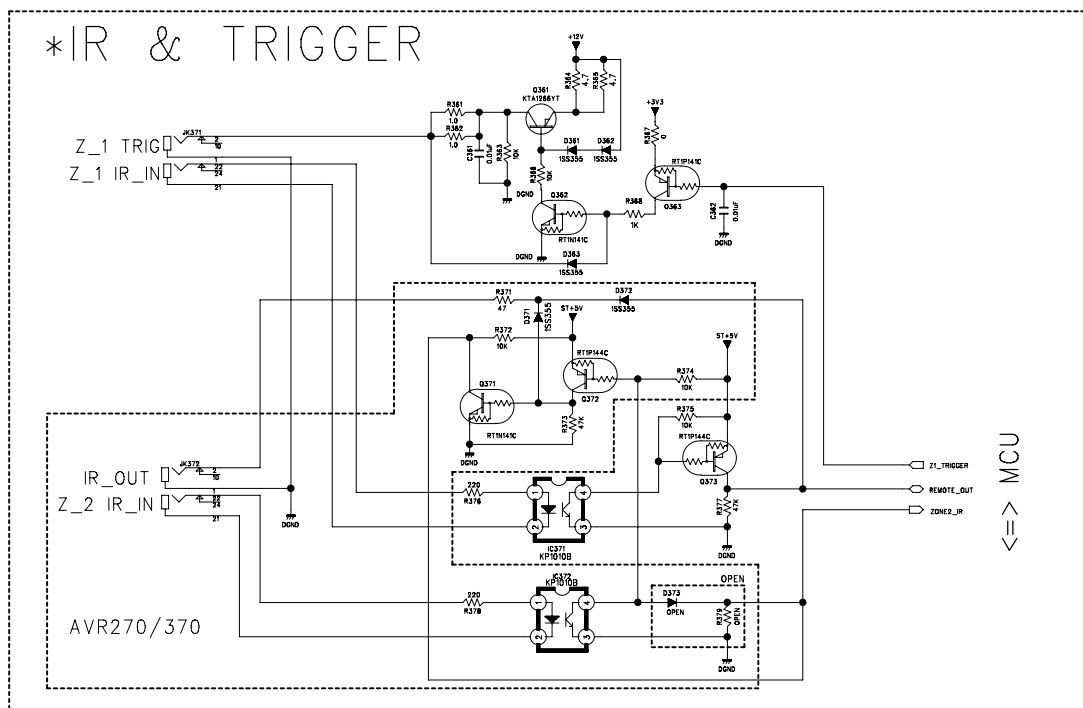
A



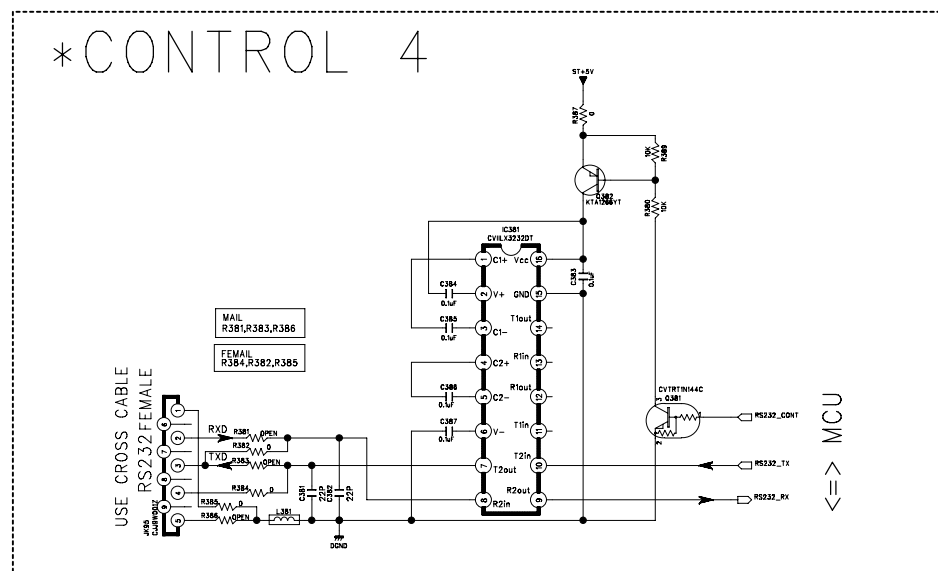
*ANALOG VIDEO SW



*IR & TRIGGER



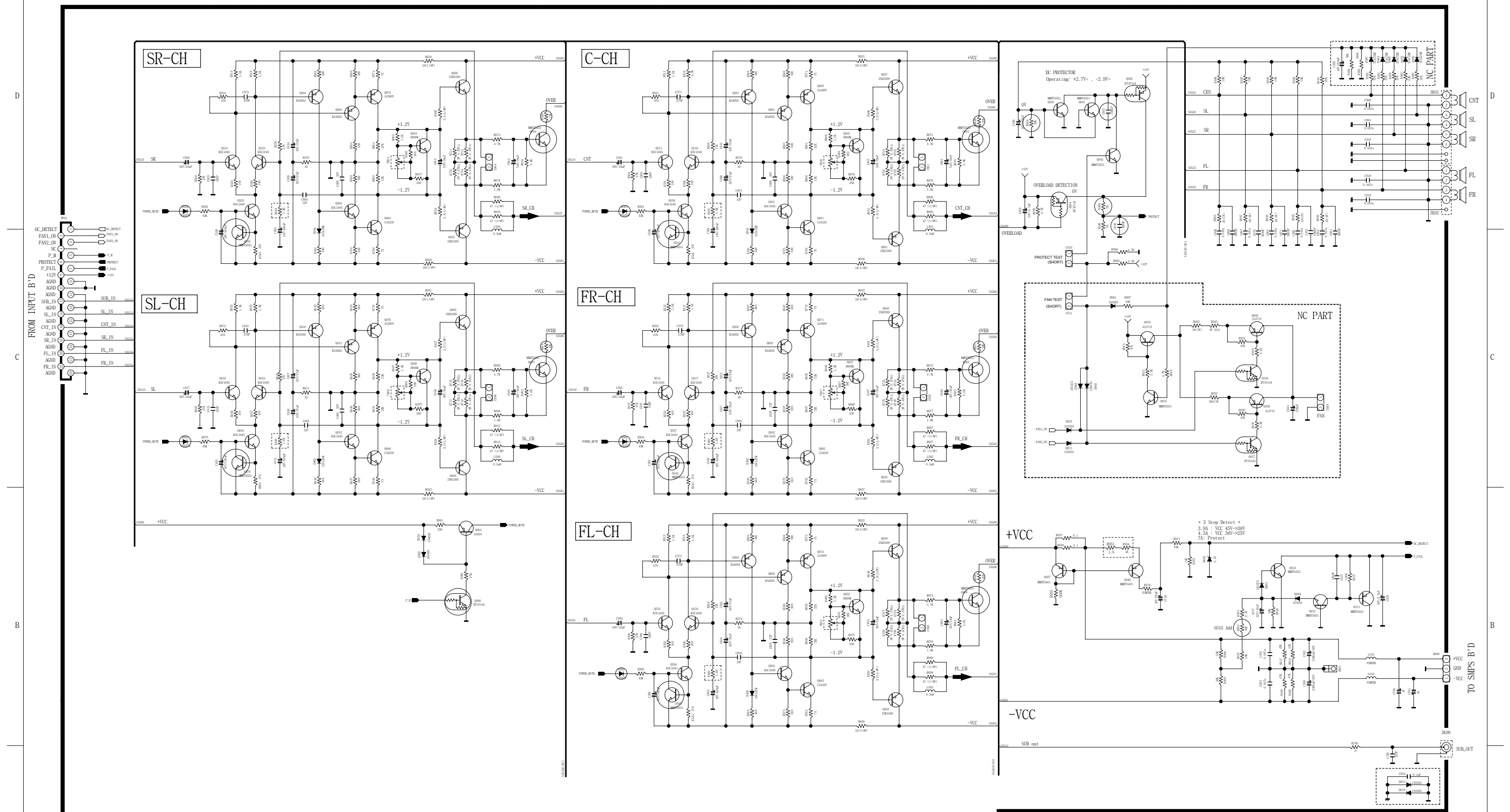
*CONTROL 4



MP

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MULTI. LAB
2012.05.25

REVISION		2	4	6
1		3	5	7
SCHEMATIC DIAGRAM				SHEET
MODEL	AVR170/270/370			11
DESIGN	CHECK	APPROVE	DRAWING NO	
C.B.LEE	J.H.LEE	H.S.SEOL	12460SCMZ	
			(JACK B'D) Page 113 of 14	



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*THE UNIT OF RESISTANCE IS OHM.
K=1000 OHM, M=1000 KOHM
*THE UNIT OF CAPACITANCE IS MICROFARAD (uF).
1pF = 10⁻¹² uF
*THIS SCHEMATIC DIAGRAM MAY BE MODIFIED AT ANYTIME WITH THE IMPROVEMENT OF PERFORMANCE.

MP

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MULTI. LAB
12.05.22

REVISION		2	4	6
1	3	5	7	
SCHEMATIC DIAGRAM				
AVR170				
MODEL				
DESIGN	CHECK	APPROVE	DRAWING NO	
J.W.J	L.J.H	Y.W.Y	12458SCMZ	
12.05.22	12.05.22	12.05.22	(AMP) Page 114 of 114	