

**Pioneer** *sound.vision.soul*

**AUDIO/VIDEO MULTI-CHANNEL  
AMPLIFIER**

# VSA-AX10Ai

**Advanced MCACC**   
**PC Display Application Software**

## About this manual

These are the Operating Instructions for the PC Display Application Software, which displays on your PC the listening room reverberation frequency characteristics measured by the Advanced MCACC function of your VSA-AX10Ai.

It explains everything you need to know to use the application, from installation to troubleshooting. You will need to operate the amplifier to use this application, so please refer also to the Operating Instructions supplied with the amplifier.

## Operating Instructions

## About the Advanced MCACC Application

---

The Advanced MCACC application software allows you to view graphs of the reverb characteristics of your listening environment on a PC. It works in the same way as “Reverb View” in the amplifier’s “Acoustic Cal EQ Professional” function (see page 58 in the amplifier’s Operating Instructions), but the graphs are more attractive and easier to understand by using a PC.

### Requirements for using the application on your PC

- Operating system must be Microsoft Windows® XP, Windows® 2000, Windows® Millennium Edition, Windows® 98 Second Edition, or Windows® NT 4.0 (Service pack 6).
- CPU must be at least Pentium 3 / 300MHz or AMD K6 / 300MHz (or equivalent) with at least 128MB of memory, and your monitor must be able to display a minimum resolution of 800x600.
- An RS-232C port connector is necessary for graphical output. Refer to the PC’s operating instructions and/or the PC manufacturer for more information on making the proper port settings.

Microsoft Windows® XP, Windows® 2000, Windows® Millennium Edition, Windows® 98 Second Edition, and Windows® NT are registered trademarks of Microsoft Corporation, Inc.

### Main features of the application

1. Displays 3D graphs of the reverb frequency characteristics of your room.  
Acoustic calibration by MCACC made on the amplifier itself is not reflected in these graphs.
2. Allows you to view graphs in a number of different formats.
3. Allows you to save the measured reverb characteristics data on your PC.
4. Allows you to make memos about the conditions in your room when you made the measurements.
5. Allows you to print graphs.

### Things you can accomplish with this application

1. Advanced EQ Setup, which you can do with the Manual Pro function of the amplifier (see page 58 in the amplifier’s Operating Instructions), allows you to choose the optimum time period for auto EQ setup. You can use the graphs displayed by the application as a guide in choosing the best time period for your room.  
For details, see [How to Interpret the Graphs \(page 13\)](#).
2. Skewed reverb frequency characteristics in your listening room can prevent you from enjoying an accurate sound field. The graphs displayed by this application are a powerful tool because they allow you to check these reverb frequency characteristics at a glance. You can also check the effectiveness of steps that you take to improve the acoustics of your listening room, for example installing sound absorbent material.  
For details, see [How to Interpret the Graphs \(page 13\)](#).

## Installing the Application

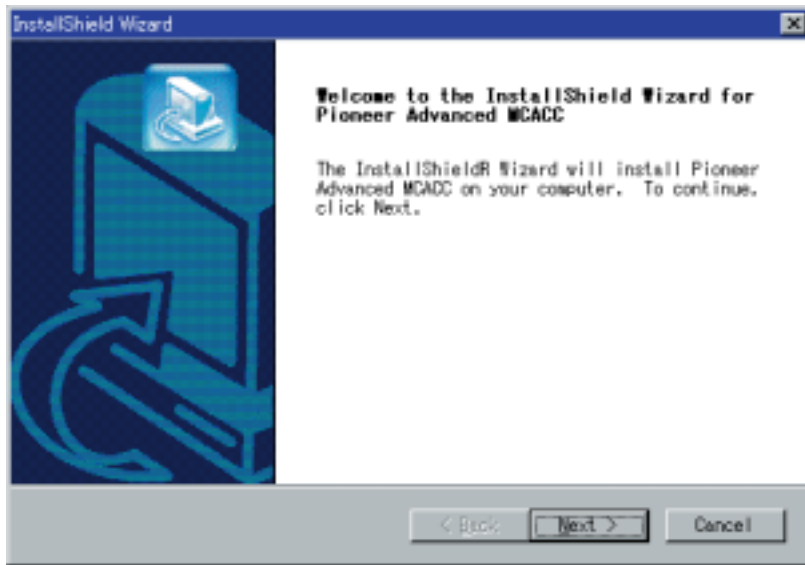
---

Install this application on your PC by using the downloaded installer. You will find the installer in the folder that you specified when you downloaded the application.

**1 Double click the “PioneerAdvancedMCACC\_e\_ver\_\*\_\*.exe” file** 

The number after “ver” in the filename is the version number of the installer.

**2 Click “Next.”**



**3 Click “Yes” (if you agree to the terms of the License Agreement).**

The destination selection screen of the installer appears.

**Continue** 

## Troubleshooting

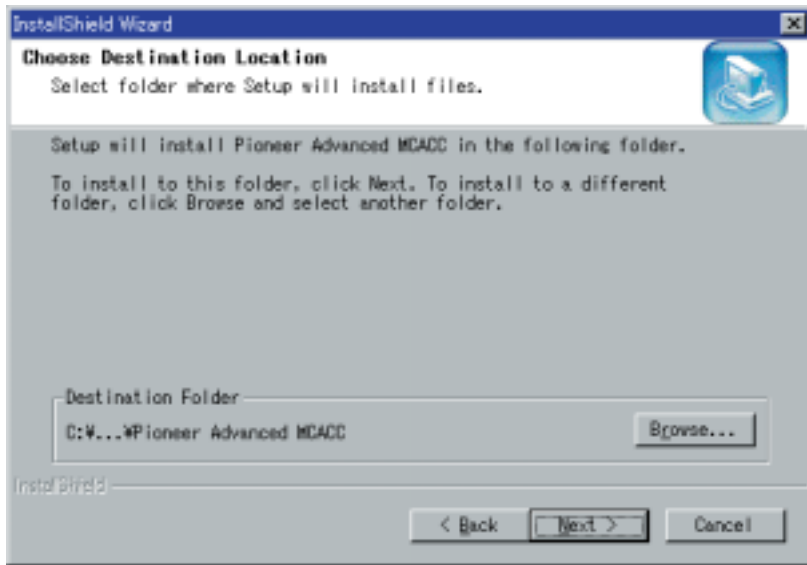
---


[If an error occurs when you double click !\[\]\(870f5d5e9c0d57485634be3ecf52f3ca\_img.jpg\) and you are unable to proceed with the installation.](#)

## Installing the Application (Continued)

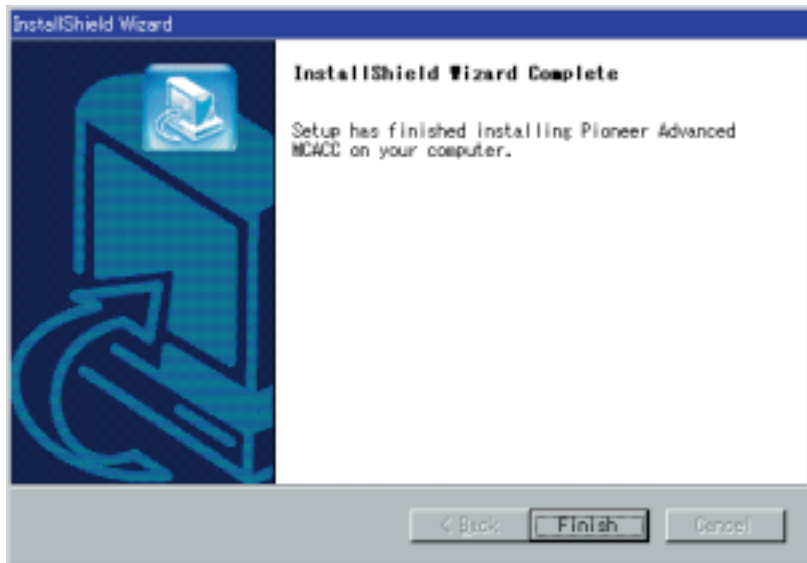
---

### 4 Click "Next."



The application is installed in the indicated folder, and a  shortcut icon is created on the desktop. To select a different folder to install the application, click "Browse."

### 5 Click "Finish."



The installation is complete. You exit automatically from the installer.

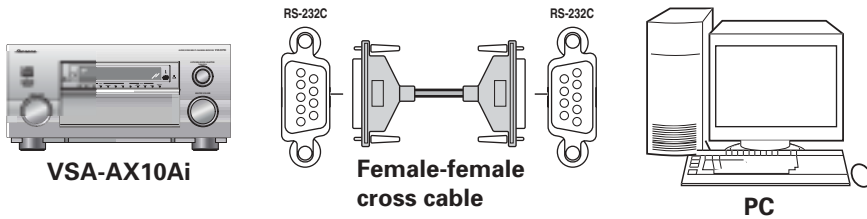
# Operations on the Amplifier and Cable Connections

To display reverberation characteristics measured with the amplifier on your PC, you need to connect the amplifier to the PC.

## 1 Connect the amplifier to your PC with a RS-232C cable.

### Caution

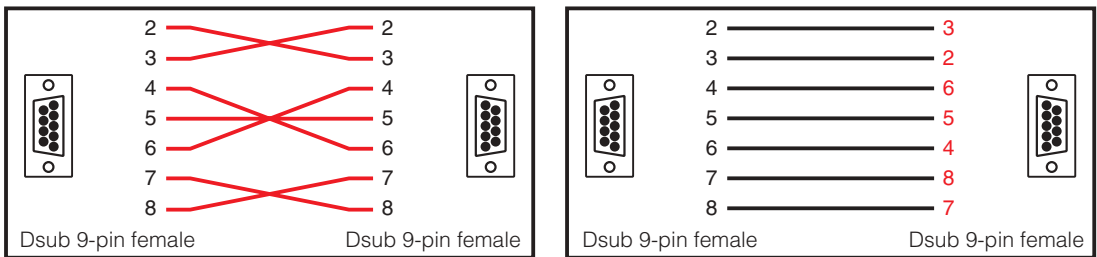
Before making or changing connections, switch off the power and disconnect the power cord from the power outlet. Plugging in components should be the last connection you make with your system.



### Note

- The type of cable to use is a female-female cross cable. Different manufacturers use different names to refer to this type of cable. Sometimes it is called an “interlink” cable, and sometimes it is called a “reverse” cable.

### Pin-out diagram of RS-232C cable to connect amplifier and PC



**Continue**

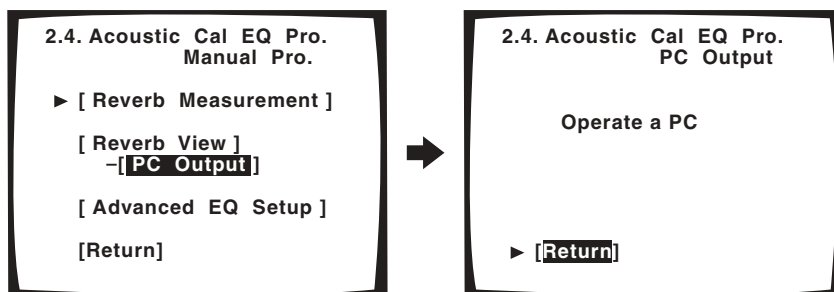
**2 On the amplifier, select “Acoustic Cal EQ Professional” then “Manual Pro.” and measure the reverberation characteristics of your room.**

(For details, see pages 58 and 82 of the amplifier’s Operating Instructions.)

Reverberation characteristics can also be measured with “Auto Pro.”, but it takes longer than with “Manual Pro.” because all steps up to EQ Setup are done automatically.

**3 In the on-screen display, select “PC Output”.**

The message “Operate a PC” appears and the amplifier enters transmission standby mode. It is ready to send data to your PC.



This completes the preparations for sending the measurement data to your PC. (To send the data, proceed to the next section *Application Operations*.)

**Notes**

- The amplifier temporarily keeps the measured reverberation frequency data in its internal memory while waiting to send the data to the PC. The data is erased from memory when you switch the amplifier off.
- “PC Output” does not appear in the on-screen display when the amplifier does not have any reverberation frequency data to send to the PC.

# Application Operations

---

This section explains operations that you do in the application, from receiving measurement data to displaying graphs and saving the data.

## Receiving measurement data

### 1 Double click the application shortcut icon on the PC desktop.

You can also start the application by selecting “Program” → “Pioneer Corporation” → “Advanced MCACC” from the “Start” menu.

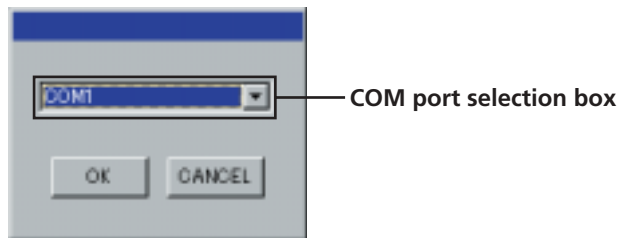
The application starts.

### 2 Select “Receive” under “File” on the menu bar.

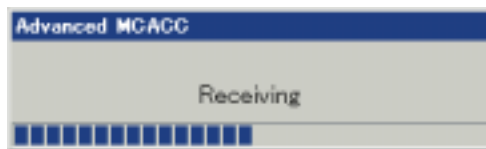


### 3 Select the number of the COM port to which the RS-232 cable is connected and click “OK.”

If you do not know which COM port number to select, try selecting each port in turn, beginning with “COM1.”



Data transmission starts. (It should finish in about 10 seconds.)



When reception finishes, graphs of the received data appear.

#### Note

Refer the operating instructions of your PC for more information about COM port settings.

**Continue** 

## Troubleshooting

---

[If an error occurs when you select “Receive” and no data is sent.](#)

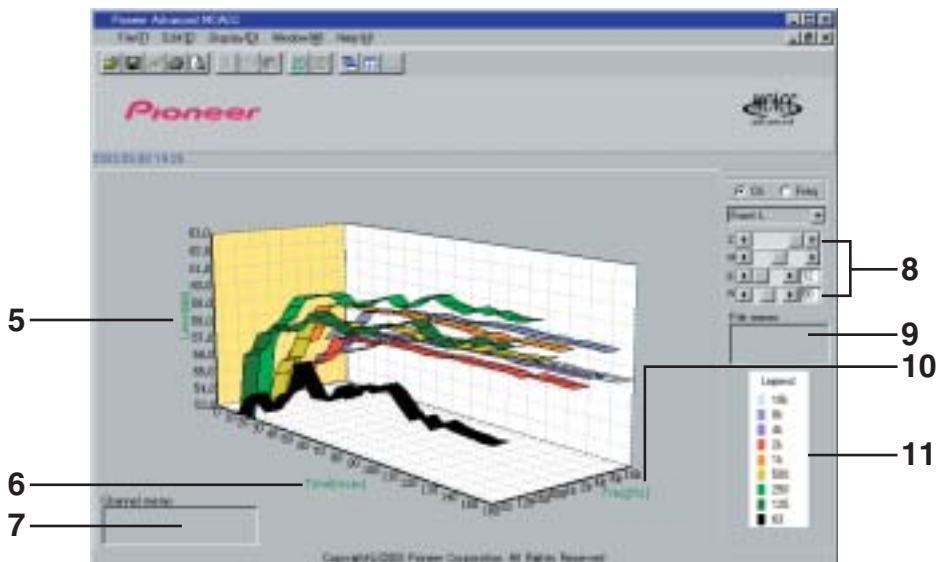
## Graph displays (names and functions of parts)

When data is received, the first display to appear shows graphs for all channels (ALL display). This section explains the parts shown in ALL display and individual display.

### ALL display













### Individual display (Example: Front L channel)



Continue

### 1 Menu bar and menu icons

You can choose the following commands from the application menus.

File	
 <b>Open</b>	Opens a file that has been saved on the PC ( <a href="#">see page 12</a> ).
 <b>Save</b>	Save measurement data in a file ( <a href="#">see page 11</a> ).
<b>Save As</b>	
 <b>Receive</b>	Receives measurement data ( <a href="#">see page 7</a> ).
 <b>Print</b>	Prints the current individual graph.
 <b>Preview</b>	Displays a preview screen to show how the printed page will appear.
<b>Exit</b>	Exits the application.
Display	
 <b>Graph</b> 	Switch between 2D (two-dimensional graphs) and 3D (three-dimensional graphs).
Window	
 <b>Cascade</b>	Cascades files.*
 <b>Tile</b>	Tiles files.*
 <b>Arrange</b>	Arranges minimized icons.*
* Available when two or more files are open.	
Help	
<b>Version Info</b>	Displays the version of the application.

### 2 Date and time

Display the date and time when the measurement data was transferred to the PC.

### 3 Channel and frequency switch buttons

**Ch:** Selects channel display mode (frequencies are displayed along graph depth axes).

**Freq:** Selects frequency display mode (channels are displayed along graph depth axes).

### 4 All/individual display switch menu

Allows you to select All display or individual display (Front L, etc.,).

### 5 Level [dB]

The level axis.

### 6 Time [msec]

The time axis.

## **Application Operations (Continued)**

---

### **7 Channel memo (available only when individual channels are shown)**

Allows you to record a short memo about each channel.

### **8 Graph adjustment bar**

**Z:** Increases or reduces the display unit of the Level [dB] scale.

**M:** Moves the Level [dB] scale.

**E:** Moves the viewpoint of 3D graphs vertically. (Cannot be changed for 2D graphs.)

**R:** Moves the viewpoint of 3D graphs horizontally. (Cannot be changed for 2D graphs.)

### **9 File memo**

Allows you to record memos about conditions when the measurements were made.

### **10 Freq [Hz]/Channel**

In channel display mode, it becomes the frequency axis. In frequency display mode, it becomes the channel axis.

### **11 Legend**

Shows which colors in the graphs correspond to which channels or frequencies.

**Continue** 

### Saving graphs in data files

You can save measurement data received from the amplifier on your PC. Data received at one time is saved in one file.

#### 1 To save measure data, choose “Save” from the “File” menu.

If you have data that has already been saved and want to save it under a new name, choose “Save As.”



#### 2 Check the save location, assign a file name, then click “Save.”

The data is saved in a CSV format file (the file extension is “.csv”).

When you are finished saving data, you should return to the amplifier and select “Return” on the on-screen display. This takes the amplifier out of transmission standby mode. (See page 82 in the amplifier’s Operating Instructions.)

#### Note

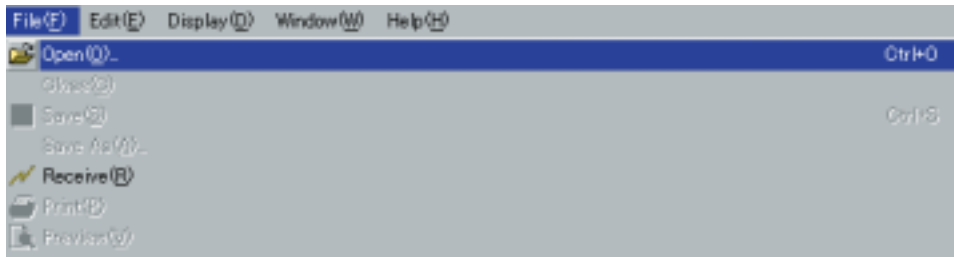
The CSV format file is often used to transfer data to applications such as databases and spreadsheets. You can use these applications to view the numeric values in your measurement data. However, if you use another application to edit the data and then save the file, the Advanced MCACC application may be unable to open the file.

**Continue**

### Opening data files

You can open and display two or more data files to compare the data in the files.

#### 1 Select "Open" from the "File" menu in the menu bar.

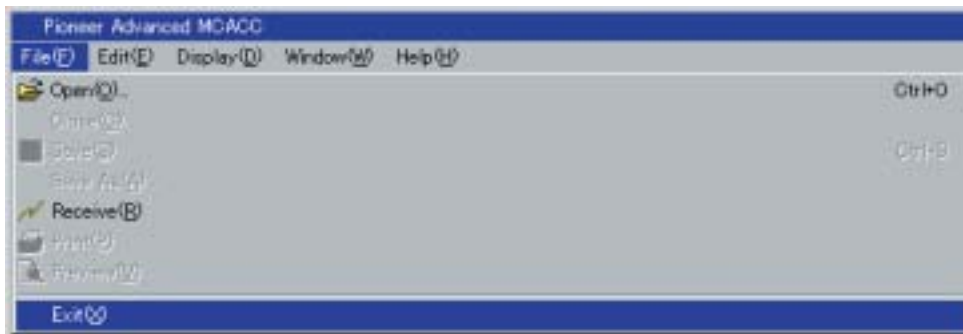


#### 2 Select a file to display and click "Open."

Graphs appear for the data saved in the file.

### Exiting the application

#### 1 Select "Exit" from the "File" menu.



The application closes.

## How to Interpret the Graphs

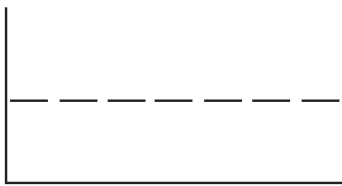
---

As explained in *Things you can accomplish with this application* on page 2, you can use the graphs displayed in this application to choose the optimum time period for auto EQ setup with the amplifier's Advanced EQ Setup function, and to check the effectiveness of steps you take to improve the acoustics of your listening room.

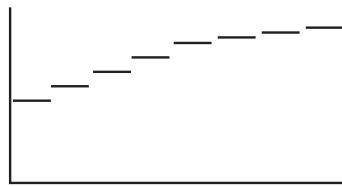
### How to interpret reverb graphs

The graphs show changes in microphone input level along a time axis, beginning from a state of quiet at time 0, when test tones begin to be output, and continuing while a constant level of sound is output from the speakers.

- If there is absolutely no reverberation in your room, the graph will look like figure A below.
- If there is reverberation, the graph will show a gradual accumulation of acoustic power, as shown in figure B.



A



B

#### Notes

- Due to an effect known as “group delay,” lower frequencies may take longer to be generated than higher frequencies (this is most obvious when comparing the frequencies around 0ms).
- If a graph extends beyond the display range, or almost fills it, you can change the display by using the Z (Zoom) control on the graph adjustment bar, adjusting the display range of the Level [dB] scale so that the whole graph is visible.
- In the graphs, differences in channel level and speaker distance are taken into account automatically (compensation is provided for comparison purposes), but the frequency measurements are always shown without the equalization performed by the amplifier.
- Even in cases where there is a great difference in the output levels of different frequencies (the frequency characteristics of the room are poor), you can carry out ALL CH ADJUST with the amplifier's Acoustic Cal EQ function to bring the frequency characteristics for each channel closer to a flat response. (For details, see page 55 in the amplifier's Operating Instructions.)
- It is usually not possible to calculate the equalization values employed by the amplifier's Acoustic Cal EQ function simply by viewing the graphs displayed on your PC. (This is because the automatic adjustments made by Acoustic Cal EQ function take account of factors such as equalization band interference and analytical filter characteristics, to achieve the optimum characteristic profile.)

**Continue** 

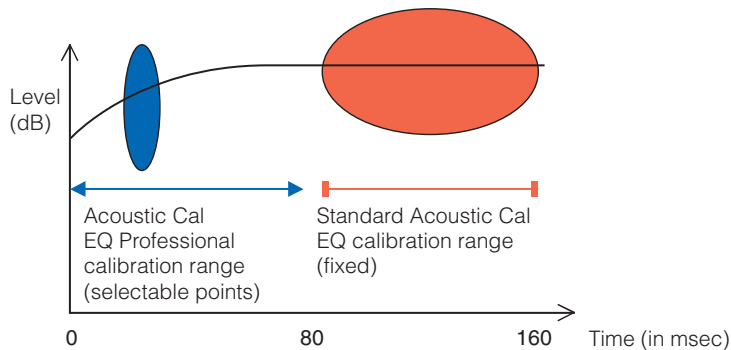
## Deciding the time period for Advanced EQ Setup calibration

In standard Acoustic Cal EQ calibration, the input data from the microphone is analyzed at fixed time periods from 80 to 160 msec (the red area in Figure 1). Advanced EQ Setup allows you to choose a point (20 msec width) in the range from 0 to 80 msec (the blue area in Figure 1).

### Note

The time period setting is that made on the amplifier using “Manual Pro.” of the “Acoustic Cal EQ Professional” function. This setting is not required when you use “Auto Pro.” and the standard Acoustic Cal EQ. (For details, see page 57 in the Operating Instructions.)

Figure 1 Comparison of microphone data acquisition time periods

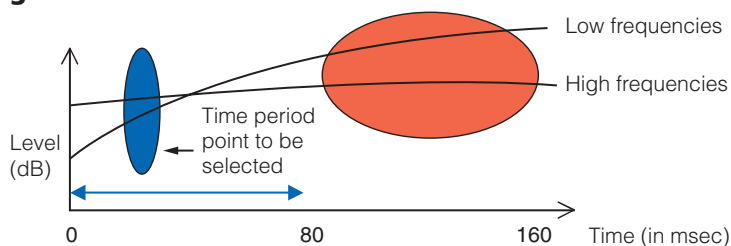


To decide the time period for Advanced EQ Setup calibration, view the graphs of the measured reverb characteristics, and refer to the following three patterns.

### Pattern 1: Different reverb characteristics for high and low frequencies

In rooms with reverb characteristics like those shown in Figure 2, lower frequencies often seem overly reverberant compared to higher frequencies (i.e. the room sounds ‘boomy’). If you calibrate the amplifier using ALL CH ADJUST of the standard Acoustic Cal EQ, data will be acquired in the 80 to 160 msec range (the red area of Figure 2). The analysis concludes that low frequencies are too loud and high frequencies are too soft, so it adjusts the equalization curve to strengthen high frequencies. In fact, however, the high frequencies may already be loud enough if measured within 40 msec, which is the time it takes for sounds coming directly from the speakers to reach your ears. Therefore, the standard Acoustic Cal EQ may result in a room where high frequencies sound shrill. **In cases like this, setting the time period for Advanced EQ Setup to 20 to 40 msec (the blue area in Figure 2) to adjust for sounds coming directly from the speakers can flatten the frequency response for direct sounds (including initial reflections) and give a better-balanced sound field.**

Figure 2

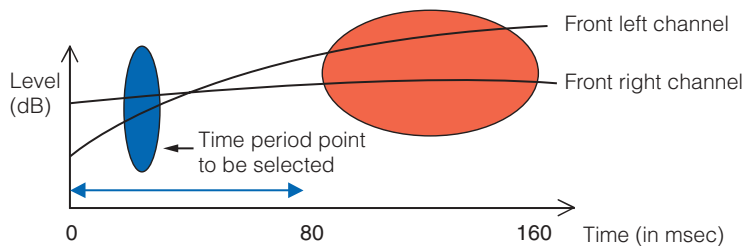


Continue

### Pattern 2: Different reverb characteristics for different channels

When different channels can have different reverb characteristics, as shown in Figure 3, it is not so effective to calibrate using the standard Acoustic Cal EQ. In general, a sound field with good acoustic positioning and movement is made up by sounds coming directly from the speakers (including initial reflections). This is the reason why you should use a calibration method that enables you to adjust direct sounds. In pattern-2 cases, the standard Acoustic Cal EQ is not able to adjust frequency characteristics for sounds coming directly from the speakers. It acquires data in the 80 to 160 msec range (the red area in Figure 3.), so its adjustment ability is limited to sounds 80 msec or longer. **In cases like this, you should use Advanced EQ Setup and set the time period to 20 to 40 msec (the blue area in Figure 3). This allows the characteristics of direct sounds to be balanced for each channel, giving an ideal sound field with good acoustic positioning and movement.**

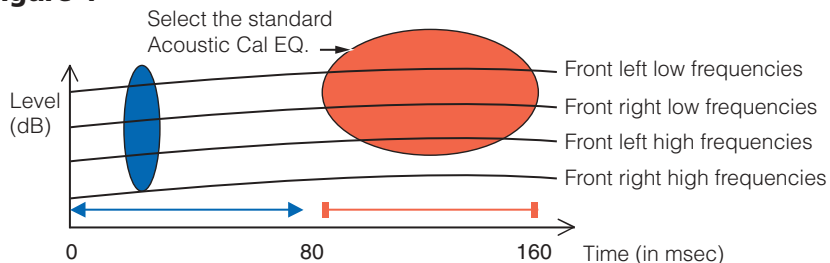
Figure 3



### Pattern 3: Similar reverb characteristics for high and low frequencies and all channels

As shown in Figure 4, when the reverb characteristics for all channels are similar across all frequencies, your sound experience will probably not be adversely affected by reverberation. **Instead of Advanced EQ Setup, we recommend that you use the "Auto" setting of the standard Acoustic Cal EQ. This produces a total calibration for both direct sounds and reverberations, resulting in an ideal sound field.** (See page 55 in the amplifier's Operating Instructions.)

Figure 4



#### Notes

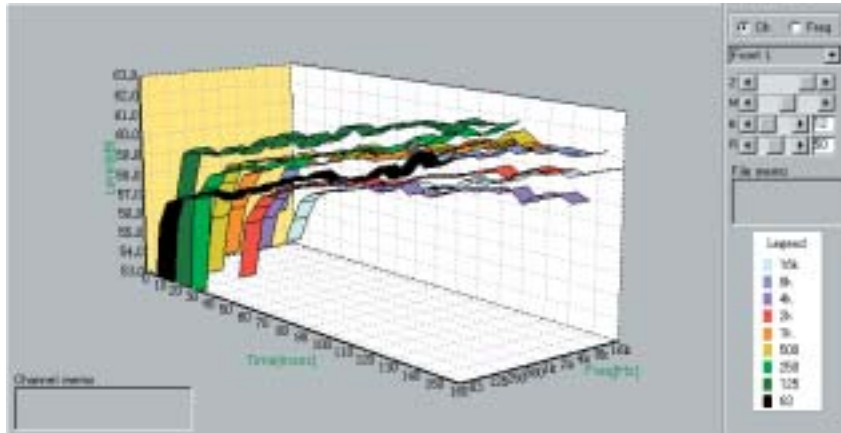
- If you are not sure which time period to specify in Advanced EQ Setup, start by trying 20 to 40 msec. If the graphs show an unusual reverb curve for a specific frequency, the cause may be some accidental variation. Instead of selecting 20 to 40 msec, try another time period.
- Another good method is to try various time periods in Advanced EQ Setup and select the one which sounds the best.
- Time period settings cannot be made on the PC. They can only be made on the on-screen display of the amplifier, using the amplifier's Advanced EQ Setup function.

Continue

### Checking steps to improve your room's reverb characteristics

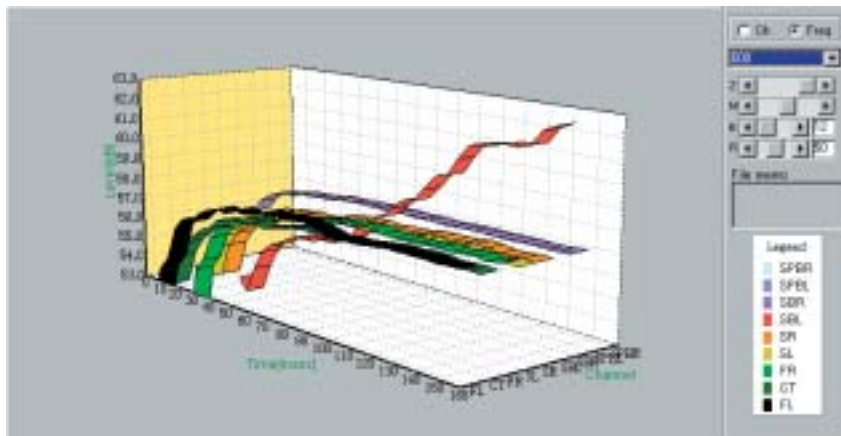
The reverb characteristics of your listening room graphs are evident from the graphs. For your reference, the following four examples explain how different types of rooms appear in the graphs.

#### Case 1: Graph rises to right across all frequencies



This is probably a room with a good deal of reverberation. If possible, we recommend that you try installing some sound absorbent material to create a deadier acoustic space according to your preference.

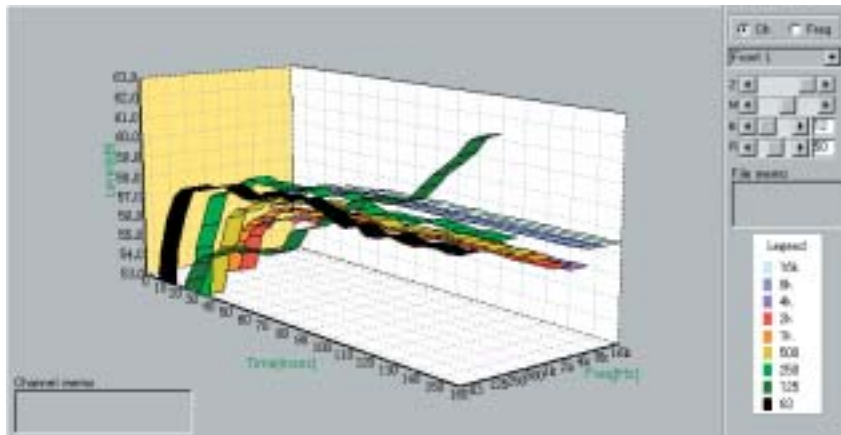
#### Case 2: Specific channel shows unusual reverb characteristics



There is probably some object near the speaker which affects sound reproduction. If possible, we recommend that you try to reduce the influence of that object.

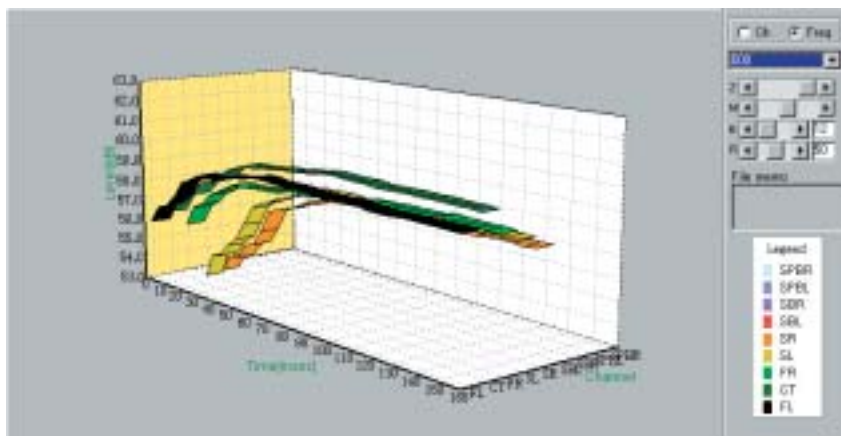
**Continue**

### Case 3: Specific frequency shows unusual reverb characteristics



There is probably something in the room that affects the reproduction of that frequency. There may be a standing wave. If possible, try to find an arrangement that reduces the effect.

### Case 4: A specific channel is slow to start



This can happen when a speaker is unstable. If possible, we recommend that you try to stabilize the speaker stand, to bring the characteristics of that channel into line with the other channels.

#### Note

In all of these cases, you can use “Auto Pro.” of “Acoustic Cal EQ Professional” to automatically achieve the optimal calibration for the characteristics of your listening area. (See page 58 of the amplifier’s Operating Instructions.)

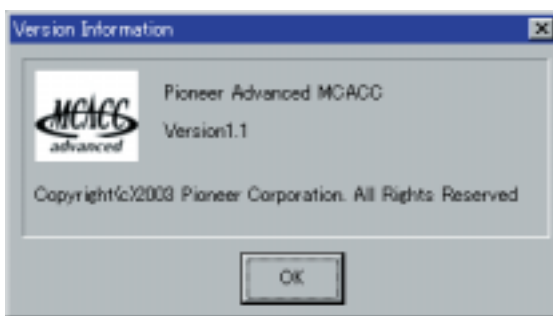
# Updating and Deleting the Application

## Updating the application

A new installer is made available on the download site whenever the Advanced MCACC application is updated. You can download the new installer and use it to overwrite (update) the application on your PC.

### Note

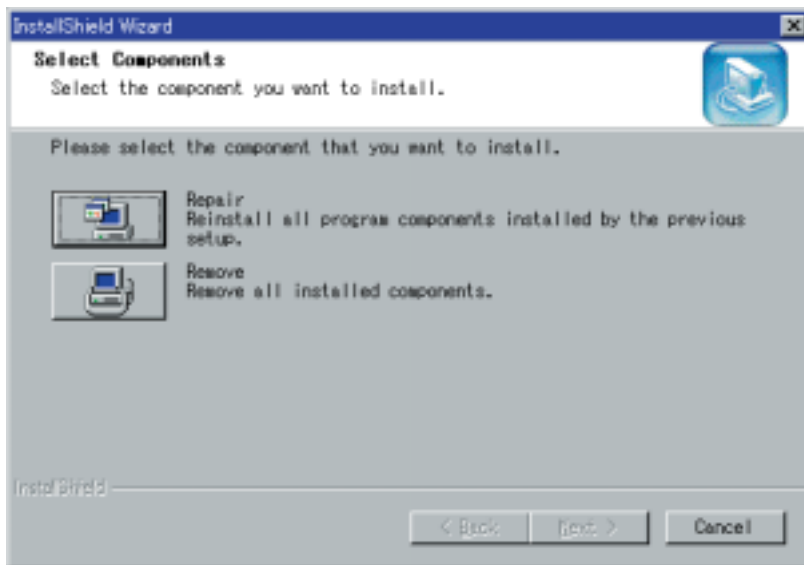
To check the version of your application, choose “Help” → “Version Info” from the menu bar. A window showing the version (Version 1.1, etc.,) appears.



### 1 Double click the new downloaded installer .

The Install Shield Wizard appears.

### 2 Click “Repair.”

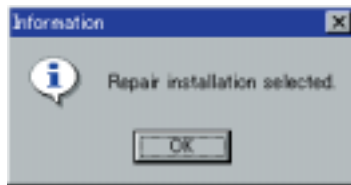


**Continue**

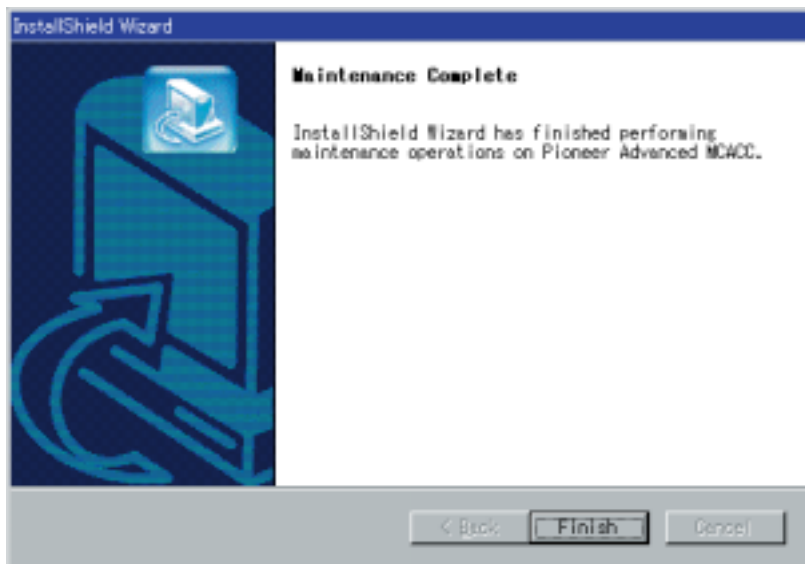
## Updating and Deleting the Application (Continued)

---

3 Click "OK."



4 Click "Finish."



This completes the updating of the application.

**Continue** 

## Troubleshooting

---

[If an error occurs when you click "Repair" and you are unable to proceed with the installation.](#)

### Deleting the application

You can use either of the following methods to uninstall (delete) the application from your PC.

#### Method 1: Delete from the Control Panel of the PC

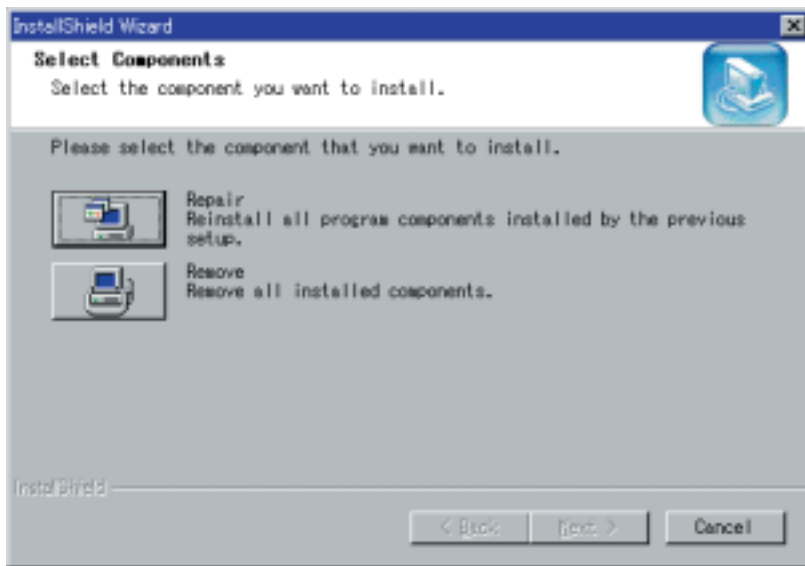
From the Start menu, click "Setting" → "Control Panel" → "Add/Remove Programs."

#### Method 2: Use the downloaded installer to delete the application

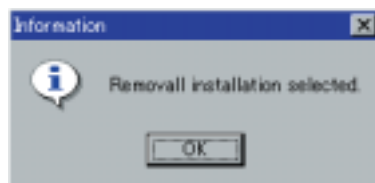
**1** Double click the "PioneerAdvancedMCACC\_e\_ver\_\*.exe" file .

The Install Shield Wizard appears.

**2** Click "Remove."



**3** Click "OK."

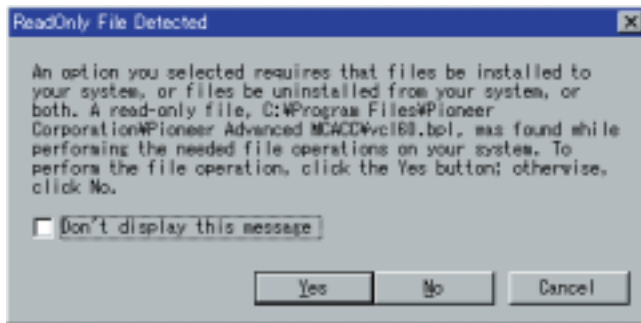


**Continue** 

## Updating and Deleting the Application (Continued)

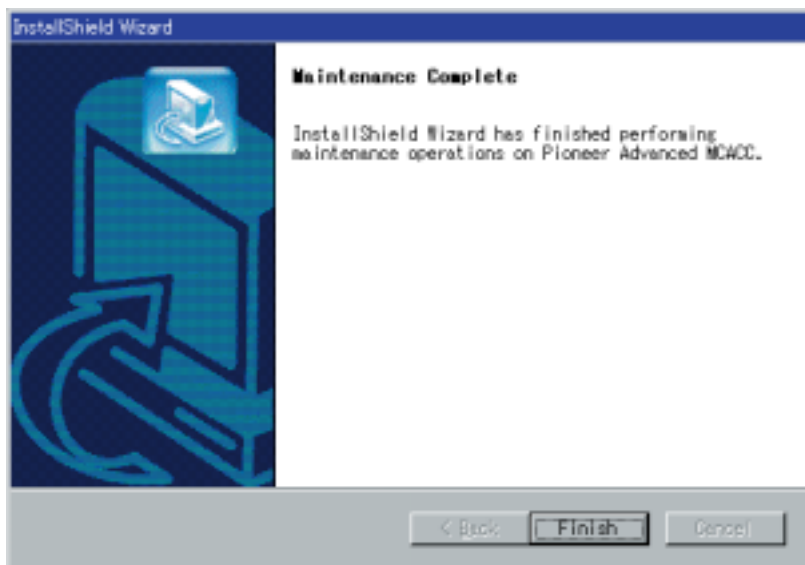
---

### 4 Click "Yes."



After you click "Yes," the same screen may appear again. If it does, click "Yes" again.

### 5 Click "Finish."



This completes the deletion of the application.

## Troubleshooting

---

As you use the Advanced MCACC application, errors can occur for a variety of reasons, such as incompatibilities with other applications and the current configuration of your PC. If an error occurs, refer to the troubleshooting points below.

If the trouble cannot be rectified even after checking the points listed below, ask the Pioneer Service Center specified on your warranty card.

### The application is unstable, or does not work normally

#### Cause:

**If your PC does not meet the requirements for using this application, the application can be unstable, very slow, or freeze up.**

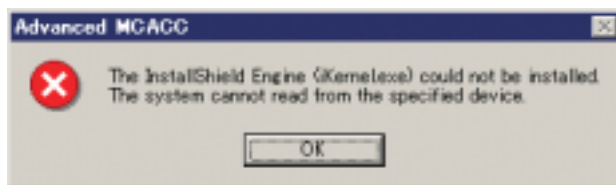
Check to be sure that your PC meets the requirements for using this application. ([See page 2.](#)) You cannot use this application unless your PC meets all of the requirements.

### Advanced MCACC cannot be installed

#### Cause 1:

**An error message may appear if there are not enough system resources available.**

If an error message like the one shown below appears, re-start the PC, then start the installer (PioneerAdvancedMCACC\_e\_ver\_\*.exe) with no other applications active.



#### Cause 2:

**Installation of Advanced MCACC may fail because of incompatibilities with other applications.**

Try the following, in the order indicated.

- 1) If there are any other applications active, exit the other applications and try starting the installer (PioneerAdvancedMCACC\_e\_ver\_\*.exe) again.
- 2) If that does not work, try restarting your PC, and starting the installer (PioneerAdvancedMCACC\_e\_ver\_\*.exe) with no other applications active.

**Continue**

### Cannot send measurement data to PC

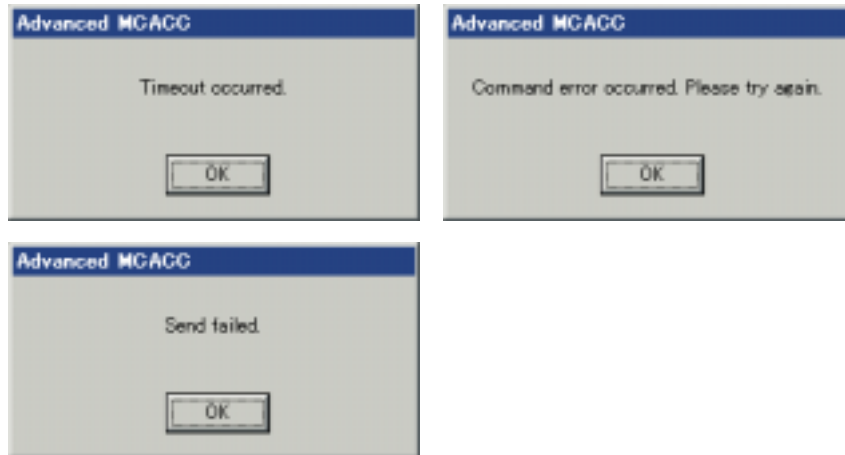
#### Cause 1:

##### Random transmission errors sometimes occur.

Even if an error occurred on your first attempt, try sending the data again. Sometimes the transmission succeeds when you try again.

#### Cause 2:

##### Messages like the following may appear if a transmission error occurs.



Try the following, in the order indicated.

- 1) Reselect the number of the COM port.
- 2) In the setup screen of the amplifier, check that "Operate a PC" is displayed. (This message indicates that the amplifier is ready to send data to the PC.)
- 3) Exit any other active applications.
- 4) Restart the Advanced MCACC application.
- 5) Restart your PC.
- 6) Check that the RS-232C cable is properly connected. (Be sure to switch off all components and disconnect their power cord from the power outlets before changing any cable connections.)  
Note that the measurement data in the amplifier's memory to be sent to the PC will be lost when the power is switched off. You will need to do another measurement.

**Continue** 

### Advanced MCACC cannot be updated

#### Cause 1:

**An error message may appear if there are not enough system resources available.**

If an error message appears (like the one explained above in Cause 1) of [Advanced MCACC cannot be installed \(page 22\)](#), restart your PC and start the installer (PioneerAdvancedMCACC\_e\_ver\_\*\_\*.exe) with no other applications active.

#### Cause 2:

**Updating of Advanced MCACC may fail because of incompatibilities with other applications.**

Try the following, in the order indicated.

- 1) If there are any other applications active, exit the other applications and try starting the installer (PioneerAdvancedMCACC\_e\_ver\_\*\_\*.exe) again.
- 2) If that does not work, try restarting your PC, and starting the installer (PioneerAdvancedMCACC\_e\_ver\_\*\_\*.exe) with no other applications active.

#### Cause 3:

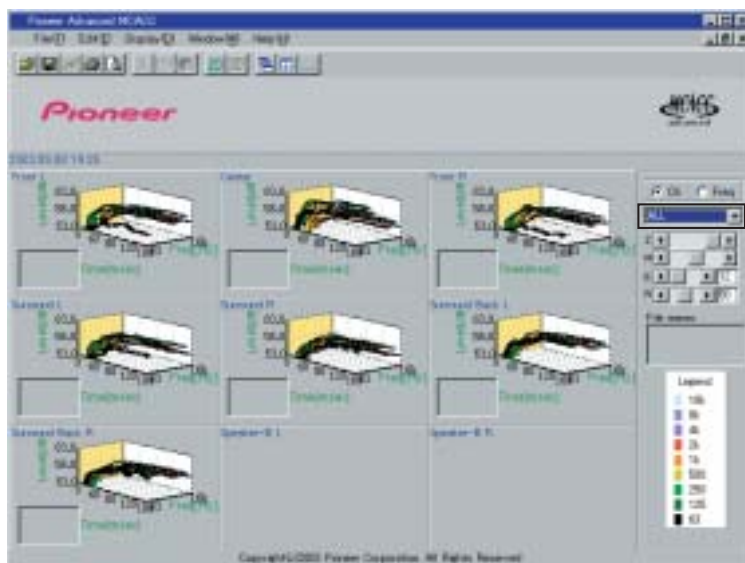
**Under some PC configurations, updating may not succeed even if you click "Repair."**

Select "Remove" to delete the application, and then try to install Advanced MCACC of the new version anew.

### Graphs cannot be printed

#### Cause:

**The ALL display mode graphs cannot be printed.**



ALL display

Print after selecting an individual channel or frequency graph.

Published by Pioneer Corporation.  
Copyright © 2004 Pioneer Corporation.  
All rights reserved.

---

**PIONEER CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan  
**PIONEER ELECTRONICS (USA) INC.** P.O. BOX 1540, Long Beach, California 90810-1540, U.S.A. TEL: (800) 421-1404  
**PIONEER ELECTRONICS OF CANADA, INC.** 300 Allstate Parkway, Markham, Ontario L3R OP2, Canada TEL: (905) 479-4411  
**PIONEER EUROPE NV** Haven 1087, Keetberglaan 1, B-9120 Melsele, Belgium TEL: 03/570.05.11  
**PIONEER ELECTRONICS ASIACENTRE PTE. LTD.** 253 Alexandra Road, #04-01, Singapore 159936 TEL: 656-472-1111  
**PIONEER ELECTRONICS AUSTRALIA PTY. LTD.** 178-184 Boundary Road, Braeside, Victoria 3195, Australia, TEL: (03) 9586-6300  
**PIONEER ELECTRONICS DE MEXICO S.A. DE C.V.**  
Blvd.Manuel Avila Camacho 138 10 piso Col.Lomas de Chapultepec, Mexico,D.F. 11000 TEL: 55-9178-4270

K002E