Spectrum™
MediaPort 7000
Component Replacement Guide
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Documentation conventions

In Harmonic documents, special symbols and fonts to call your attention to important information.

⚠️ DANGER: The Danger symbol indicates information that, if ignored, can cause physical harm to you.

⚠️ CAUTION: The Caution symbol indicates information that, if ignored, can adversely affect the performance of your Harmonic product, or that can make a procedure needlessly difficult.

👉 NOTE: The Note symbol indicates especially important information you need, or it may provide additional information that applies in only some carefully delineated circumstances.

➡️ IMPORTANT: The Important symbol indicates information that should stand out when you are reading product details and procedural information.

ℹ️ TIP: The Tip symbol indicates parenthetical information that is not necessary for performing a given procedure, but which, if followed, makes the procedure easier, smoother, or more efficient.

In addition to these symbols, this guide may use the following text conventions:

<table>
<thead>
<tr>
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<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typed Command</td>
<td>Indicates the text that you type in at the keyboard prompt.</td>
</tr>
<tr>
<td>&lt;Ctrl&gt;, &lt;Ctrl&gt;+&lt;Shift&gt;</td>
<td>A key or key sequence to press.</td>
</tr>
<tr>
<td><a href="http://www.harmonicinc.com">http://www.harmonicinc.com</a></td>
<td>The italics in blue text to indicate Cross-references, and hyperlinked cross-references in online documents.</td>
</tr>
<tr>
<td>Bold</td>
<td>Indicates a button to click, or a menu item to select.</td>
</tr>
<tr>
<td>Screen Output</td>
<td>The text that is displayed on a computer screen.</td>
</tr>
<tr>
<td>Emphasis</td>
<td>The italics text used for emphasis and document references.</td>
</tr>
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In order to expedite diagnosis and remediation, please gather helpful information about your Spectrum system as well as your SystemManager platform when contacting Technical Support.

- **Information about the SystemManager client PC**
- **Information about your Spectrum System**

## Information about the SystemManager client PC

Please gather information about the SystemManager client PC as well as the SystemManager database file before contacting Technical Support.

Technical Support may request the following information:

- **SystemManager version**
  You can find the version here: Help > Server Software.
- **Windows operating system installed on the SystemManager client PC**
  The run command `winver` shows the Windows operating system running on the client PC.
- **Amount of memory installed on the SystemManager platform**
  Open the System Properties dialog on the client PC to find the amount of memory installed.
- **The SystemManager database file from the SystemManager platform or client PC**
  This file is located on the SystemManager platform at `D:\Omneon\Manager\omdb\manager.oda`. Or, if you are using a client PC with a single C: partition, it will be in the same directory on the C: drive.

## Information about your Spectrum System

In the event of a component or device failure, please gather the following information about your Spectrum System before contacting Technical Support.

Technical Support may request the following information:

- **What is the model and serial number of the hardware involved?**
  For Spectrum and MediaDeck devices: from the Home tab in SystemManager, click the Upgrade Firmware icon in the left-hand column to display the Upgrade Firmware page. Both
MediaDirectors and MediaDecks are listed in the MediaDirectors section. Find the Model Numbers and Serial Numbers listed in their respective columns.

Scroll down to the MediaPorts section to view the Model Numbers and Serial Numbers for MediaPorts and MediaDeck Modules.

- **What is the name of the Player that is being used?**

  From SystemManager, click the Player Configuration link in the left-hand column, and then click the name of the MediaDirector or MediaDeck. The Player List page for that device appears. The names and status of all players are listed.

- **What file format and bit rate is the Player configured for? (for example, MPEG, DV, or IMX?)**

  From SystemManager, click the Player Configuration link in the left-hand column, and then click the name of the MediaDirector or MediaDeck. The Player List page for that device appears. From the player list, click the Properties link to view all the details for a player.

- **If the problem is related to Ingest or Playout of a clip, what is the Clip ID involved?**

  The clip name or clip ID should be indicated by whatever software application you are using to play or record video. For ClipTool, clip names are displayed in the clip management area of the ClipTool main window.

- **What brand of Automation, if any, is being used for control?**

- **Is the Automation using VDCP or API for communication control?**
Replacement bezels are available from Harmonic.

⚠️ DANGER: Observe all conventional ESD precautions when handling Spectrum devices and components.

- Removing the bezel
- Installing the bezel

Removing the bezel

The bezel may be removed during operation.

1. Remove the center screws on each side of the chassis that secure the bezel to the chassis.
2. Unplug the bezel power/data connector.


NOTE: Keep the rack ear in place.

3. Pull the bezel straight away from the chassis.
Installing the bezel

Align the bezel in front of the chassis so that the Harmonic logo appears on the top left corner.

1. Unpack the new bezel.
2. Attach the bezel power/data connector.
3. Align the bezel in front of the chassis so that the logo appears in the top-left corner, and the metal corners of the bezel are level with the rack ears of the chassis.
4. Keeping the corners aligned, press the bezel straight onto the chassis.
5. Attach the two center screws on each side of the chassis to secure the bezel to the chassis.
This section provides instructions for replacing a power supply for the MediaPort 7000 chassis.

- *Replacing the power supply*

**Replacing the power supply**

The MediaPort 7000 chassis is equipped with two hot-swappable power supplies, each with an independent AC connector. If one power supply fails, the load is transferred to the remaining supply without interruption to service.

Unpack the replacement component and inspect for damage. If the part is damaged, do not proceed with this procedure. Call Technical Support for assistance.

To take full advantage of the redundant supplies, Harmonic recommends that you use separate, isolated power sources for each AC input.

⚠️ **CAUTION:** Observe all conventional ESD precautions when handling MediaPort components.

1. Disconnect the AC power cable.
2. Press the release lever to the right and pull the handle to remove the power supply.

3. Using the handle, slide the power supply into the empty chassis slot. The release lever will click to indicate that the unit is locked in place.
4. Connect the AC power cable.
Chapter 4
ChannelPort module replacement

Follow the procedures in this section in order.

⚠️ **DANGER:** Observe all conventional ESD precautions when handling Spectrum devices and components.

👉 **NOTE:** The procedures in this section apply to SystemManager version 6.3. If you are running a different version of SystemManager, some steps may vary. Refer to the SystemManager Release Notes for instructions on upgrading SystemManager.

1. **Detaching a device from players**
2. **Winking the MediaPort 7000**
3. **Winking a ChannelPort module**
4. **Removing a module from the chassis**
5. **Deleting an I/O module from SystemManager**
6. **Installing the replacement module**
7. **Attaching a device to existing players**
8. **Activating players**
9. **Verifying functionality**

**Detaching a device from players**
You must stop all players that use the module you wish to replace and then detach the device from the players.

1. From SystemManager, click the **Player Configuration** button in the left-hand column to view the **Player Configuration** window.
2. From the **Player Configuration** window, click the icon for the Spectrum server that contains the module you wish to replace. The **Player List** window appears, showing a list of players that reside on the selected device.
3. Click the check boxes next to the Players that use the module you wish to replace. Then click the **Deactivate Selected** button.
4. Verify which players use the module to be replaced by clicking the **Edit** link for each player, and then clicking **Attached Devices**. The **Device** column displays all attached devices.
5. Uncheck the **Attach** check box for the module to be replaced, and then click **Done**.
6. Repeat the previous step for all tracks of the Player associated with that respective module.
Once the new module is installed, you must attach the new device to the players, and then reactivate the players.

Winking the MediaPort 7000

If you are using more than one MediaPort, use the **Wink** function to identify the MediaPort that contains the module to be replaced. If you have already identified the correct MediaPort, you may ignore this procedure.

The wink function activates two lights on the MediaPort: the light bar on the front panel and the status LED on the back of the processor module.

1. From SystemManager, click the **Configuration** tab to display the **Configuration** page and **System Diagram**.
2. Click the icon for the component you wish to wink. The **Properties** page appears.
3. From the **General Information** section of the page, view the **Wink State**.
   - If currently **Off**, click **Wink On**.
   - If currently **On**, click **Wink Off**.

Winking a ChannelPort module

Verify which module to remove by using the wink function in SystemManager. The wink function triggers the status LED on the back of the module.

1. From SystemManager, click the **Configuration** tab to display the **Configuration** page and **System Diagram**.
2. Click the icon for the component you wish to wink. The **Properties** page appears.
3. From the **General Information** section of the page, view the **Wink State**.
   - If currently **Off**, click **Wink On**.
   - If currently **On**, click **Wink Off**.

Removing a module from the chassis

After verifying the correct module, remove the module from the chassis.

1. Disconnect any cables from the module.
2. Using a screwdriver, loosen the two screws on the rear panel of the module as shown. The screws are captive and will not come out completely.
3. Using both hands to grip the screws, gently pull out the module from the chassis, as shown in the following figure.

Deleting an I/O module from SystemManager

Once you have removed the module from the chassis, delete the corresponding I/O module from SystemManager.

1. Click the Diagnostics tab to display the Diagnostics page.
2. From the Device Maintenance section in the left-hand column, click the Remove Device icon to display the Remove Device page.
3. Scroll to the I/O Modules section of the page and locate the module you wish to remove.
4. From the Select column, click the check box for the I/O module you wish to remove, and then click Remove. A confirmation message appears.
5. Click OK.
   After a brief pause, a message appears indicating that the device has been removed (it has also been removed from the System Diagram).
6. Click OK to return to the Remove Device page.

Installing the replacement module

Confirm that the new module appears on the System Diagram page after installing it.

1. Unpack the module.
2. Grasp the module handle and push firmly into the slot. Ensure the module is fully inserted by pressing on the connectors with the palm of your hand.
3. Tighten the two lock screws on the rear panel of the module to secure it to the chassis.
4. From the Configuration tab of SystemManager, view the System Diagram page and verify that the new module appears.

Attaching a device to existing players

Use the Attach Devices feature in SystemManager to attach the replacement device to existing players.

1. From the Configuration tab, click the Player Configuration icon in the left-hand column.
2. Click the icon for your Spectrum server. The Player List for the Spectrum server appears.
3. Click the Edit link for any player that will use the new component.
4. For each track, click the Attach Devices button (within each track section) to display the Attach Devices page.

5. In the Attach column, click the check box for the device that you wish to connect, and then click Done.

The Edit Player page appears. The ID of the new module will appear (in the following format: MIP-7XXX-NNNNN, CPT-8XXX-NNNNN, or MIP-9XXX-NNNNN) next to the attached tracks.

**TIP:** For help with modifying settings on either the Edit Player page or the Attach Devices page, refer to “Creating a player” in the Harmonic SystemManager User Guide.

6. Click Done to return to the Player List page.
7. Repeat Step 1 through Step 6 for each player that uses the new module.

Activating players

Activate players from the Player List page in SystemManager.

1. From SystemManager, click the Configuration tab.
2. Click the Player Configuration button in the left-hand column to view the Player Configuration window.
3. From the **Player Configuration** window, click the icon for the Spectrum server on which the players reside.
   The **Player List** window appears, showing a list of players that reside on the selected device.

4. For the player you wish to activate, select **Activate-as-disabled** or **Enable**.
   Your changes are effective immediately. For more information about activating and enabling players, refer to "Changing the player state: Activating and Deactivating, Enabling and Disabling" in the *Harmonic SystemManager User Guide*.

**Verifying functionality**

Harmonic recommends that you verify functionality of the replacement equipment in your Spectrum System before using it on air.
Chapter 5

MediaPort 7000 chassis replacement

This section provides instructions for replacing a MediaPort 7000 chassis. Follow the procedures in this section in the order provided.

**CAUTION:** Observe all conventional ESD precautions when handling MediaPort components.

**NOTE:** The procedures in this section apply to SystemManager version 6.3. If you are running a different version, some steps may vary. Refer to the SystemManager Release Notes for instructions on upgrading.

1. **Stopping players that use the MediaPort to be replaced**
2. **Removing the MediaPort from SystemManager**
3. **Replacing the chassis**
4. **Changing the MediaPort name in SystemManager**
5. **Upgrading MediaPort firmware**
6. **Activating players**
7. **Verifying functionality**

**Stopping players that use the MediaPort to be replaced**

Before removing the chassis, you must stop all players that use the MediaPort you are replacing.

**NOTE:** In SystemManager, all MediaPort 7000 series appear as two separate MIP-7XXX or CPT-8XXX devices.

1. From SystemManager, click the **Player Configuration** button in the left-hand column to view the **Player Configuration** window.
2. From the **Player Configuration** window, click the icon for the Spectrum server that you wish to replace.
   The **Player List** window appears showing a list of players that reside on the selected device.
3. Click the check boxes next to the Players that use the MediaPort you wish to replace. Then click the **Deactivate Selected** button.
Once the new MediaPort is installed, you must reactivate the players.

Removing the MediaPort from SystemManager

Remove the original device from SystemManager before unracking it.

1. Click the Diagnostics tab to display the Diagnostics page.
2. In the left-hand column, click the Remove Device icon to display the Remove Device page.
3. Click Stop Monitoring to stop device monitoring.
   Once the “Current state of Device Monitoring” field displays NOT monitoring, continue to the next step.

   NOTE: Note this may take a few minutes depending on the number of devices in your system.

4. Select one or more devices from one of the menus on the page.

5. Click the Remove button at the bottom of the menu, and then click OK to confirm.
   After a brief pause, a message appears indicating that the device has been removed (it has also been removed from the System Diagram).

6. Click Start Monitoring to resume device monitoring.
   Make sure the “Current state of Device Monitoring” field changes to monitoring.

   NOTE: Device status may show Not Responding for a brief interval after monitoring has been turned back on.

Replacing the chassis

When replacing the chassis, transfer all replaceable components from the old MediaPort to the new MediaPort. Refer to the Spectrum System Installation Guide for complete racking instructions.

1. Disconnect any cables from the original MediaPort.
2. Remove the bezel. Refer to "Bezel replacement" in this guide for instructions.
3. Remove the power supplies from the original chassis and install them in the replacement chassis. Refer to "Power supply unit replacement" for instructions.
4. Remove the MediaPort from the rack.
5. Remove the ChannelPort modules from the original chassis and install them in the replacement chassis. Refer to "ChannelPort module replacement" in this guide for instructions.
7. Install the bezel on the replacement chassis. Refer to "Bezel replacement" in this guide for instructions.

   ! IMPORTANT: Before connecting a device to SystemManager, make sure that device monitoring is on. To check device monitoring, click the Home tab to open the Options page, and view the “Current state of Device Monitoring” field at the top of the page. If the “Current state of Device Monitoring” field displays NOT monitoring, then click Start Monitoring and wait for the state to change to monitoring before continuing to connect the device. This may take a few minutes depending on the number of devices in your system. Also, note the status of devices may show Not Responding for a brief interval after monitoring has been turned on.

Changing the MediaPort name in SystemManager

The replacement MediaPort appears in SystemManager with the default name. To change the name, follow the instructions in “Changing the MediaPort name” in the Harmonic SystemManager User Guide.

Upgrading MediaPort firmware

Make sure that the replacement MediaPort is running the same version of firmware as the rest of your Spectrum System. For instructions on upgrading, refer to “Upgrading MediaPort/ChannelPort/Spectrum X firmware” in the Spectrum System Installation Guide.

Activating players

Activate players from the Player List page in SystemManager.

1. From SystemManager, click the Configuration tab.
2. Click the Player Configuration button in the left-hand column to view the Player Configuration window.
3. From the Player Configuration window, click the icon for the Spectrum server on which the players reside.
   The Player List window appears, showing a list of players that reside on the selected device.
4. For the player you wish to activate, select Activate-as-disabled or Enable.
   Your changes are effective immediately. For more information about activating and enabling players, refer to "Changing the player state: Activating and Deactivating, Enabling and Disabling" in the Harmonic SystemManager User Guide.

Verifying functionality

Harmonic recommends that you verify functionality of the replacement equipment in your Spectrum System before using it on air.
Appendix A

Harmonic Technical Assistance Center contact information

A list of phone numbers, e-mail addresses, and important links for the Harmonic Technical Assistance Center (TAC).

Table A-1: Technical Assistance Center phone numbers and email addresses

<table>
<thead>
<tr>
<th>Region</th>
<th>Telephone Technical Support</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americas</td>
<td>888.673.4896 (888.MPEG.TWO) 408.490.6477</td>
<td><a href="mailto:support@harmonicinc.com">support@harmonicinc.com</a></td>
</tr>
<tr>
<td>Europe, the Middle East and Africa (EMEA)</td>
<td>+44.1252.555.450</td>
<td><a href="mailto:emeasupport@harmonicinc.com">emeasupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>India</td>
<td>+91.120.498.3199</td>
<td><a href="mailto:apacsupport@harmonicinc.com">apacsupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Russia</td>
<td>+7.495.926.4608</td>
<td><a href="mailto:rusupport@harmonicinc.com">rusupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Mainland China</td>
<td>+86.10.6569.5580</td>
<td><a href="mailto:chinasupport@harmonicinc.com">chinasupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Japan</td>
<td>+81.3.5565.6737</td>
<td><a href="mailto:japansupport@harmonicinc.com">japansupport@harmonicinc.com</a></td>
</tr>
<tr>
<td>Asia Pacific (APAC) – Other Territories</td>
<td>+852.3184.0045 +65.6542.0050</td>
<td><a href="mailto:apacsupport@harmonicinc.com">apacsupport@harmonicinc.com</a></td>
</tr>
</tbody>
</table>

Report an issue online
http://www.harmonicinc.com/webform/report-issue-online

Harmonic Inc. support website
http://www.harmonicinc.com/content/technical-support

Harmonic Inc. Distribution and Delivery Product Software Downloads Site
ftp://ftp.harmonicinc.com

Harmonic Inc. Playout and Production Software Downloads Site

• Harmonic corporate contact information
Harmonic corporate contact information

Phone numbers and addresses for the corporate office.

Harmonic Inc. corporate address

4300 North First Street
San Jose, CA 95134
U.S.A.

Harmonic Inc. corporate telephone numbers

Tel. 1.800.788.1330 (from the U.S. and Canada)
Tel. +1.408.542.2500 (outside the U.S. and Canada)
Fax.+1.408.542.2511
Appendix B

Safety and regulatory compliance information

Legal disclaimer: Information in this document is provided in connection with Harmonic products. Unless otherwise agreed in writing Harmonic products are not designed nor intended for any application in which the failure of the product could cause personal injury or death.

NOTE: The information in this appendix may apply to purchased products only.

- Important safety instructions
- Safety symbols and translated safety, warning, and caution instructions (English)
- Symboles de sécurité et traduits de sécurité, d’avertissement et Attention Instructions (français)
- Sicherheit Symbole und übersetzt Sicherheit, Achtung & Vorsicht Anleitung (Deutsch)
- Site preparation instructions
- Product end-of-life disassembly instructions
- Safety rules (English)
- Règles de sécurité
- EU manufacturer’s Declaration of Conformity
- Electromagnetic compatibility notices – Class A
- Product regulatory compliance markings
- Product environmental compliance
- Compliance with additional country-specific environmental, safety, and EMC standards

Important safety instructions

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions are found throughout the guide where they apply, but may not appear here. Please read and follow the important safety information, noting especially those instructions related to risk of fire, electric shock or injury to persons. You must adhere to the guidelines in this document to ensure and maintain compliance with existing product certifications and approvals. In this document, we use “product,” “equipment,” and “unit” interchangeably.

This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if it is not installed and used in accordance with the instructions in this manual. Operation of this equipment in a residential area is likely to cause harmful interference. If this occurs, the user will be required to correct the interference at his or her own expense.

In event of conflict between the information in this document and information provided with the product or on our website for a particular product, this product documentation takes precedence.
Safety symbols and translated safety, warning, and caution instructions (English)

To avoid personal injury or property damage, before you begin installing or replacing the product, read, observe, and adhere to all the following safety instructions and information. Harmonic products and/or product packaging may be marked with the safety symbols used throughout this document, when it is necessary to alert operators, users, and service providers to pertinent safety instructions in the manuals.

<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
</table>
| ![Warning](image) | **Installing or replacing the product unit warning**
- Only trained and qualified service personnel should be allowed to install, replace, or service this unit (refer AS/NZS 3260 Clause 1.2.14.3 Service Personnel).
- Read the installation instructions before connecting the system to the power source.
- When installing or replacing the unit, always make the ground connection first and disconnect it last.
- Installation of the unit must comply with local and national electrical codes.
- This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of special tool, lock and key or other means of security.
- Use only specified replacement parts.
- Do not use this unit in or near water. Disconnect all AC power before installing any options or servicing the unit unless instructed to do so by this manual. |
| ![Warning](image) | **Rack mount warning**

To prevent bodily injury when mounting or servicing this unit in a rack, special precautions must be taken to ensure your safety and stability of system:
- Conform to local occupational health and safety requirements when moving and lifting the equipment.
- Ensure that mounting of the unit by mechanical loading tools should not induce hazardous conditions.
- To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed on it. |
### Chassis warning
- Before connecting or disconnecting ground or power wires to the chassis, ensure that power is removed from the DC circuit.
- To prevent personal injury or damage to the chassis, lift the unit only by using handles that are an integral part of the chassis, or by holding the chassis underneath its lower edge.
- Any instructions in this guide that require opening the chassis or removing a board should be performed by qualified service personnel only.
- Slots and openings in the chassis are provided for ventilation. Do not block them. Leave the back of the frame clear for air exhaust cooling and to allow room for cabling - a minimum of 6 inches (15.24 cm) of clearance is recommended.

### Electric shock warning
- This unit might have more than one power cord. To reduce the risk of electric shock, disconnect the two power supply cords before servicing the unit.
- Before working on a chassis or working near power supplies, unplug the power cord on AC units.
- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- This unit is grounded through the power cord grounding conductor. To avoid electric shock, plug the power cord into a properly wired receptacle before connecting the product input or outputs.
- Route power cords and other cables so that they are not likely to be damaged. Disconnect power input to unit before cleaning. Do not use liquid or aerosol cleaners; use only a damp cloth to clean chassis.
- Dangerous voltages exist at several points in this product. To avoid personal injury, do not touch exposed connections and components while power is on. Do not insert anything into either of the system's two power supply cavities with power connected.
- Never install an AC power module and a DC power module in the same chassis.
- Do not wear hand jewelry or watch when troubleshooting high current circuits, such as the power supplies.
- To avoid fire hazard, use only the specified correct type voltage and current ratings as referenced in the appropriate parts list for this unit. Always refer fuse replacement to qualified service personnel.
- This unit relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).
- To avoid electrocution ensure that the rack has been correctly grounded before switching on the unit. When removing the unit remove the grounding connection only after the unit is switched off and unplugged.
<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Caution</td>
<td><strong>Electrostatic Discharge (ESD) caution</strong>&lt;br&gt;• Follow static precaution at all times when handling this unit.&lt;br&gt;• Always wear an ESD-preventive wrist or ankle strap when handling electronic components. Connect one end of the strap to an ESD jack or an unpainted metal component on the system.&lt;br&gt;• Handle cards by the faceplates and edges only; avoid touching the printed circuit board and connector pins.&lt;br&gt;• Place any removed component on an antistatic surface or in a static shielding bag.&lt;br&gt;• Avoid contact between the cards and clothing.&lt;br&gt;• Periodically check the resistance value of the antistatic strap. Recommended value is between 1 and 10 mega-ohms (Mohms).</td>
</tr>
<tr>
<td>Warning</td>
<td><strong>Laser radiation warning</strong>&lt;br&gt;Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Never operate a unit with a broken fibre or with a separated fiber connector.</td>
</tr>
</tbody>
</table>
| Warning | **Lithium battery handling safety instructions**<br>• CALIFORNIA PERCHLORATE ADVISORY: Some lithium batteries may contain perchlorate material. The following advisory is provided: "Perchlorate Material - special handling may apply, see: [http://www.dtsc.ca.gov/hazardouswaste/perchlorate/](http://www.dtsc.ca.gov/hazardouswaste/perchlorate/) for information."

| Caution | • Risk of explosion if battery is replaced incorrectly or with an incorrect type<br>• Dispose of used batteries according to the manufacturer's instructions<br>• There are no user-serviceable batteries inside Harmonic products. Refer to Harmonic qualified personnel only to service the replaceable batteries |

**Symboles de sécurité et traduits de sécurité, d'avertissement et Attention Instructions (français)**

Pour éviter des blessures ou des dommages matériels, avant de commencer l'installation ou le remplacement du produit, lire, observer, et de respecter toutes les instructions et informations de sécurité suivantes. Produits harmoniques et / ou l'emballage du produit peuvent être marqués avec les symboles
de sécurité utilisés dans le présent document, lorsque cela est nécessaire pour alerter les opérateurs, les utilisateurs et les fournisseurs de services de consignes de sécurité pertinentes dans les manuels.

<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
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</table>
| ![Avertissement](image) | **Installation ou remplacement de l'unité de produit avertissement**  
* Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés. (voir AS / NZS 3260 article 1.2.14.3 du personnel de service).  
* Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.  
* Lors de l'installation ou le remplacement de l'appareil, la mise à la terre doit toujours être connectée en premier et déconnectée en dernier.  
* L'équipement doit être installé conformément aux normes électriques nationales et locales.  
* Cet appareil est à installer dans des zones d'accès réservé. Ces dernières sont des zones auxquelles seul le personnel de service peut accéder en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.  
* Utilisez uniquement des pièces de rechange spécifiées.  
* Ne pas utiliser ce produit dans l'eau ni à proximité de l'eau. Débrancher toutes les prises d'alimentation secteur avant d'installer des options ou d'effectuer l'entretien de l'unité, à moins d'instructions contraires dans le présent manuel. |
| ![Avertissement](image) | **Rack monture avertissement**  
Pour éviter les blessures corporelles lors du montage ou l'entretien de cet appareil dans un rack, des précautions particulières doivent être prises pour assurer votre sécurité et la stabilité du système:  
* Conformez-vous aux exigences de médecine du travail et de sécurité lorsque vous déplacez et soulevez le matériel.  
* Assurez-vous que le montage de l'appareil par des outils de chargement mécaniques ne doit pas induire des conditions dangereuses.  
* Pour éviter tout risque d'électrocution, le rack et chaque élément de l'équipement installé dans le rack doivent être correctement reliés à la terre. |
| ![Avertissement](image) | **Châssis avertissement**  
* Avant de connecter ou de déconnecter les câbles d'alimentation (pôles et terre) du châssis, vérifiez que le circuit de courant continu est hors tension.  
* Pour éviter toute blessure ou des dommages au châssis, soulevez l'unité uniquement par les poignées du châssis lui-même ou en portant celui-ci par le bord inférieur.  
* Toutes les opérations du présent guide nécessitant l'ouverture du châssis ou le retrait d'une carte doivent être uniquement effectuées par du personnel d'entretien qualifié.  
* Le châssis est muni de fentes et d'ouvertures d'aération. Ne pas les bloquer. Dégager l'arrière du cadre pour permettre le refroidissement de l'évacuation d'air et laisser de la place au câblage; un dégagement d'au moins 15.24 cm (6 po) est recommandé. |
Choc électrique avertissement

- Il est possible que cette unité soit munie de plusieurs cordons d'alimentation. Pour éviter les risques d'électrocution, débrancher les deux cordons d'alimentation avant de réparer l'unité.
- Avant de travailler sur un châssis ou à proximité d'une alimentation électrique, débrancher le cordon d'alimentation des unités en courant alternatif.
- Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.
- Ce unité est mis à la terre par le conducteur de protection intégré au cordon d'alimentation. Pour éviter les chocs électriques, brancher le cordon d'alimentation dans une prise correctement cable avant de raccorder les entrées ou sorties du unité.
- Installer les cordons d'alimentation et autres câbles de sorte qu'ils ne risquent pas d'être endommagés. Couper l'alimentation avant nettoyage. Ne pas utiliser de nettoyant liquide ou en aérosol; utiliser seulement un linge humide.
- Des courants électriques dangereux circulent dans cet appareil. Afin d'éviter les lessures, ne pas toucher les connexions et composants exposés lorsque l'appareil est sous tension. Ne rien insérer dans l'une ou l'autre des cavités des prises de courant du système lorsque l'appareil est sous tension.
- N'installez jamais un module d'alimentation AC et un module d'alimentation DC dans le même châssis.
- Ne pas porter de bijoux aux mains ni de montre durant le dépannage des circuits à haute tension, comme les transformateurs.
- Pour prévenir les risques d'incendie, n'utiliser que le type, la tension et le courant nominal spécifiés dans la nomenclature des pièces de ce unité. Toujours confier le remplacement des fusibles à du personnel d'entretien qualifié.
- Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifier qu'un fusible ou qu'un disjoncteur de 120 V alt., 15 A U.S. maximum (240 V alt., 10 A international) est utilisé sur les conducteurs de phase (conducteurs de charge).
- Pour éviter l'électrocution, assurez-vous que le rack a bien été mis à la terre avant de mettre l'unité en marche. Lors du retrait de l'unité, retirer le raccordement de terre seulement après avoir mis l'unité à l'arrêt et l'avoir débranchée.
### Spectrum™ Mark 
### Notes

<table>
<thead>
<tr>
<th>Attention</th>
<th>Les décharges électrostatiques (ESD) attention</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Attention Icon" /></td>
<td>• Respecter systématiquement les precautions relatives aux charges électrostatiques durant la manipulation de cet unité.</td>
</tr>
<tr>
<td></td>
<td>• Portez toujours un poignet ou la cheville bracelet antistatique préventive lors de la manipulation des composants électroniques. Branchez une extrémité de la sangle à une prise ESD ou d'un composant métallique non peinte sur le système.</td>
</tr>
<tr>
<td></td>
<td>• Manipulez les cartes en les faces avant et les bords seulement; éviter de toucher la carte de circuit imprimé et les broches du connecteur.</td>
</tr>
<tr>
<td></td>
<td>• Placer un composant retiré sur une surface antistatique ou dans un sac de protection statique.</td>
</tr>
<tr>
<td></td>
<td>• Éviter tout contact entre les cartes et les vêtements.</td>
</tr>
<tr>
<td></td>
<td>• Vérifier périodiquement la valeur de résistance de la sangle antistatique. Valeur recommandée est comprise entre 1 et 10 méga-ohms (Mohms).</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Avertissement</th>
<th>Rayonnement laser attention</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Avertissement Icon" /></td>
<td>Rayonnement laser invisible peut être émis à partir de fibres ou les connecteurs débranchés. Ne pas regarder en faisceaux ou regarder directement avec des instruments optiques. Ne jamais faire fonctionner une unité en cas de bris d'une fibre ou de séparation d'un connecteur de fibre.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Avertissement</th>
<th>Batterie au lithium manipulation instructions de sécurité</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Avertissement Icon" /></td>
<td>• Perchlorate pour la Californie Consultatif: Certaines batteries au lithium, peuvent contenir du perchlorate. le texte qui suit consultatif est prévu: &quot;Présence de perchlorate - une manipulation spéciale peut s'appliquer, voir: <a href="http://www.dtsc.ca.gov/hazardouswaste/perchlorate/">http://www.dtsc.ca.gov/hazardouswaste/perchlorate/</a> for information.&quot;</td>
</tr>
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<table>
<thead>
<tr>
<th>Attention</th>
<th>• Il y a danger d'explosion si la batterie est remplacée de manière incorrecte ou par une batterie de type incorrect.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Mettre au rebut les batteries usagées conformément aux instructions du fabricant.</td>
</tr>
<tr>
<td></td>
<td>• Les batteries des produits Harmonic ne peuvent pas être réparées ni entretenues par l'utilisateur. Ne confier l'entretien des batteries remplaçables qu’à du personnel compétent de Harmonic.</td>
</tr>
</tbody>
</table>

### Sicherheit Symbole und übersetzt Sicherheit, Achtung & Vorsicht Anleitung (Deutsch)

Um Verletzungen oder Sachschäden zu vermeiden, bevor Sie mit der Installation oder Austausch des Produkts zu beginnen, zu lesen, zu beobachten, und sich an all den folgenden Sicherheitshinweise und
Informationen. Harmonic Produkte und / oder Produktverpackungen können mit den Sicherheitssymbole in diesem Dokument verwendet werden, markiert, wenn es notwendig ist für die Betreiber, Anwender und Dienstleister, um relevante Sicherheitsanweisungen in den Handbüchern zu alarmieren.

<table>
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<tr>
<th>Mark</th>
<th>Notes</th>
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<tbody>
<tr>
<td><img src="image" alt="" /></td>
<td><strong>Installation oder den Austausch des Produkts Einheit Warnung</strong></td>
</tr>
<tr>
<td></td>
<td>• Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet warden (siehe AS / NZS 3260 Clause 1.2.14.3 Servicepersonal)</td>
</tr>
<tr>
<td></td>
<td>• Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen.</td>
</tr>
<tr>
<td></td>
<td>• Der Erdanschluß muß bei der Installation der Einheit immer zuerst hergestellt und zuletzt abgetrennt werden.</td>
</tr>
<tr>
<td></td>
<td>• Die Installation der Geräte muss den Sicherheitsstandards entsprechen.</td>
</tr>
<tr>
<td></td>
<td>• Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Ein Bereich mit beschränktem Zutritt ist ein Bereich, zu dem nur Wartungspersonal mit einem Spezialwerkzeugs, Schloß und Schlüssel oder anderer Sicherheitsvorkehrungen Zugang.</td>
</tr>
<tr>
<td></td>
<td>• Verwenden Sie nur die angegebenen Ersatzteile</td>
</tr>
<tr>
<td><img src="image" alt="" /></td>
<td><strong>Rack-Montage-Warnung</strong></td>
</tr>
<tr>
<td></td>
<td>Zur Vermeidung von Körperverletzung beim Anbringen oder Warten dieser Einheit in einem Gestell müssen Sie besondere Vorkehrungen treffen, um sicherzustellen, daß das System stabil bleibt:</td>
</tr>
<tr>
<td></td>
<td>• Entsprechen den lokalen Arbeitsschutzanforderungen beim Bewegen und Heben der Ausrüstung.</td>
</tr>
<tr>
<td></td>
<td>• Stellen Sie sicher, dass die Montage des Gerätes durch mechanische Belastung Werkzeuge sollten nicht gefährlichen Bedingungen zu induzieren.</td>
</tr>
<tr>
<td></td>
<td>• Um das Risiko von möglichen elektrischen Schlag zu vermeiden, muss mit einer angemessenen Erdung für Rack und jedes Gerät installiert ist implementiert werden.</td>
</tr>
<tr>
<td>Mark</td>
<td>Notes</td>
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</tbody>
</table>
| Warnung | **Chassis Warnung**  
- Gleichstrom-Unterbrechung Bevor Sie Erdungs- oder Stromkabel an das Chassis anschließen oder von ihm abtrennen, ist sicherzustellen, daß der Gleichstrom-Stromkreis unterbrochen ist.  
- Um Verletzungen und Beschädigung des Chassis zu vermeiden, sollten Sie das Chassis nicht an den Henkeln auf den Elementen (wie z.B. Stromanschlüsse, Kühlungen oder Karten) heben oder kippen; oder indem Sie es unterhalb der Unterkante packen.  
- Alle Hinweise in diesem Handbuch, die das Öffnen benötigen Sie das Gehäuse oder das Entfernen eines Board sollte nur von qualifiziertem Fachpersonal durchgeführt werden.  
- Für Schlitze und Öffnungen im Chassis vorgesehen. Blockieren Sie sie nicht. Lassen Sie die Rückseite des Rahmens frei für Abluftkühlung und um Platz für die Verkabelung ermöglichen - ein Minimum von 6 Zoll (15,24 cm) Abstand wird empfohlen |
Elektroschock-Warnung

- Diese Einheit hat möglicherweise mehr als ein Netzkabel. Zur Verringerung der Stromschlaggefahr trennen Sie beide Netzgerätekabel ab, bevor Sie die Einheit warten.
- Vor der Arbeit an einem Chassis für Arbeiten in der Nähe Stromversorgung, ziehen Sie das Netzkabel mit Netzeinheiten.
- Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.
- Dieses Gerät ist über das Netzkabel Erdungsleiter geerdet. Um einen Stromschlag zu vermeiden, stecken Sie das Netzkabel in eine Steckdose richtig verdrahtet, bevor Sie das Produkt Eingang oder Ausgänge.
- Verlegen Sie Netzkabel und andere Kabel, so dass sie wahrscheinlich nicht beschädigt werden. Trennen Eingangsleistung Einheit vor der Reinigung. Verwenden Sie keine flüssigen oder Aerosolreiniger; nur mit einem feuchten Tuch zu reinigen Chassis.
- Ein Wechselstromsmodul und ein Gleichstrommodul dürfen niemals in demselben Chassis installiert werden.
- Tragen Sie keine Hand Schmuck oder schauen Sie bei der Fehlersuche hohen Stromkreise, wie beispielsweise die Stromversorgung.
- Um die Brandgefahr zu vermeiden, verwenden Sie nur den genannten richtige Art von Spannung und Strom Ratings als in der entsprechenden Stückliste für diese Einheit verwiesen. Beziehen sich immer auf Austausch der Sicherung von qualifiziertem Fachpersonal.
- Um einen Stromschlag zu vermeiden, sicherzustellen, dass die Zahnstange wurde korrekt vor dem Einschalten des Gerätes geerdet. Beim Entfernen der Einheit entfernen Sie die Masseverbindung nur, nachdem das Gerät ausgeschaltet und der Netzstecker gezogen.
<table>
<thead>
<tr>
<th>Mark</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vorsicht</td>
<td><strong>Elektrostatische Entladung (ESD) Vorsicht</strong></td>
</tr>
<tr>
<td></td>
<td>• Folgen Sie statische vorsorglich zu jeder Zeit beim Umgang mit diesem Gerät.</td>
</tr>
<tr>
<td></td>
<td>• Tragen Sie immer einen ESD-präventive Handgelenk oder Knöchel-Riemen beim Umgang mit elektronischen Komponenten. Schließen Sie ein Ende des Bandes an einem ESD-Buchse oder ein unlackiertes Metallteil auf dem System.</td>
</tr>
<tr>
<td></td>
<td>• Hand Karten nur durch die Faceplates und Kanten; Berühren Sie die bedruckte Leiterplatte und Steckerstifte.</td>
</tr>
<tr>
<td></td>
<td>• Legen Sie alle entfernten Komponenten auf eine antistatische Oberfläche oder in einem Statik-Beutel.</td>
</tr>
<tr>
<td></td>
<td>• Kontakt zwischen den Karten und Kleidung vermeiden.</td>
</tr>
<tr>
<td></td>
<td>• Den Widerstandswert der gegen statische Gurt in regelmäßigen Abständen überprüfen. Empfohlener Wert ist zwischen 1 und 10 Mega-Ohm (MOhm).</td>
</tr>
<tr>
<td>Warnung</td>
<td><strong>Laserstrahlungen Warnung.</strong></td>
</tr>
<tr>
<td>Warnung</td>
<td><strong>Lithium-Batterie Handhabung Sicherheitshinweise</strong></td>
</tr>
<tr>
<td>Vorsicht</td>
<td>• Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr</td>
</tr>
<tr>
<td></td>
<td>• Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.</td>
</tr>
<tr>
<td></td>
<td>• Es gibt keine zu wartenden Akkus im Harmonic Produkte. Siehe Harmonic qualifiziertes Personal, um die austauschbare Batterien Service</td>
</tr>
</tbody>
</table>

**Site preparation instructions**

Make the equipment site ready for installation and use.

**NOTE:** Only trained and qualified service personnel (as defined in IEC 60950 and AS/NZS 3260) should install, replace, or service the equipment. Install the system in accordance with the U.S. National Electric Code if you are in the United States.
1. Preparing & choosing a site for installation
   - To ensure normal system operation, plan your site configuration and prepare the site before installation.
   - Install the unit in a restricted access area.
   - Choose a site with a dry, clean, well-ventilated and air-conditioned area.
   - Choose a site that maintains an ambient temperature of 32 to 104°F (0 to 40°C)

2. Creating a safe environment
   - Connect AC-powered systems to grounded power outlets or as per local regulations.
   - Do not move or ship equipment unless it is correctly packed in its original wrapping and shipping containers.
   - Only allow Harmonic trained personnel to undertake equipment service and maintenance. Do not permit unqualified personnel to operate the unit.
   - Wear ear protection when working near an NSG Pro platform for a longer period of time.

3. Rack mounting the unit
   - Install the system in an open rack whenever possible. If installation in an enclosed rack is unavoidable, ensure that the rack has adequate ventilation.
   - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips). This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
   - When mounting this unit in the partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
   - If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
   - The rack must be anchored to an immovable support to prevent it from tipping when the unit is mounted on it. The rack must be installed according to the rack manufacturer’s instructions.
   - Disconnect all power and external cables before lifting the unit. Depending on the weight of the unit, more than one person might be required to lift it.

4. Power considerations
   **Option** | **Description**
   --- | ---
   AC power
   - Adding to the system a UPS (Uninterrupted Power Supply) and an AVR (Automated Voltage Regulator) is highly recommended.
   - Installing the main power supply by a qualified electrician, according to power authority regulations. Make sure all powering are wired with an earth leakage, according to local regulations.
   - It is recommended to install the encoder within 1.5m (approximately 5 feet) from an easily accessible grounded AC outlet.
   - When the encoder is rack-mounted, ensure that the rack is correctly grounded.
   DC power
   - Ensure a suitable overcurrent device is in-line between the equipment and the power source.
Option | Description
---|---
| Connect DC-input power supplies only to a DC power source that complies with the safety extra-low voltage (SELV) requirements in the UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, AS/NZS 60950-1, EN/IEC 60825-1, 21 CFR 1040, EN 60950-1, and IEC 60950-1 standards.
| Ensure that power is removed from the DC circuit before installing or removing power supplies.

5. Handling Fiber Channel cables
   - Always read and comply with the handling instructions on the shipping container.
   - Follow all ESD precautions and approved fiber cleaning procedures.
   - The fiber is made of a very pure, expensive glass and should be treated with great care. Handle fibers only in areas that are very clean and do not contain sharp objects.
   - Wear finger cots or gloves as dirt and oils can damage the fiber and contaminate connectors.
   - Do not allow kinks or knots to develop in the fiber. If tangles occur, carefully work out the tangles avoiding pulling or bending the fibre beyond its bend radius.
   - Always use the correct tools for stripping and cleaving the fiber. It will save time and reduce breakage caused by scratches.
   - If you must secure a bundle of fiber cables together, avoid plastic and metal tie wraps; secure with Velcro instead.

6. Disposing of the unit
   - Dispose of the unit and its components (including batteries) as specified by all national laws and regulations.

Product end-of-life disassembly instructions

For disassembly instructions, please call the technical support in order to remove components requiring selective treatment, as defined by the EU WEEE Directive (2012/19/EU). See Harmonic Technical Assistance Center contact information on page 16.

1. Disassemble equipment at a dedicated area only, gather the needed tools for disassembly.
2. Remove covers, housing, etc.
3. Remove and separate sub-assemblies (i.e. cables, metals, displays, fans, etc.).
4. Separate hazardous materials from the remainder of the material.
   a. Sort hazardous materials into their different types (i.e., batteries, hazardous liquids, hazardous solids, fiberglass, etc.).
   b. Proceed with hazardous waste management processes only.
5. Identify re-usable materials/sub-assemblies and separate these from the rest of the material.
6. Identify and separate recyclable materials as per below examples:
   a. Scrap material to be sent to smelter(s).
   b. E-waste such as displays, CPU's, cables and wires, hard drives, keyboards, etc.
Safety rules (English)

Recycler personnel are to wear personal protective equipment including proper eye protection, proper hand protection, and proper breathing protection if needed.

Recycler personnel shall be experienced with using the proper tools required for disassembling equipment. Untrained personnel shall not disassemble Harmonic products. Unfamiliarity with tools can cause damage and injury.

Règles de sécurité

Le personnel du recyclage doit porter de l'équipement de protection individuelle, y compris des lunettes, des gants et un masque de protection appropriés au besoin.

Le personnel du recyclage doit avoir de l'expérience des outils de démontage de l'appareil. Les produits Harmonic ne doivent pas être démontés par du personnel non qualifié. Une mauvaise connaissance des outils peut causer des dommages et des blessures.

EU manufacturer’s Declaration of Conformity

This equipment is in compliance with the essential requirements and other provisions of Directives 73/23/EEC and 89/336/EEC as amended by Directive 93/68/EEC.

NOTE: For specifics, about which standards have been applied, refer to the Declaration of Conformity of the product on Harmonic website at Product Regulatory Compliance or contact Harmonic Compliance Team at regulatory.compliance@harmonicinc.com

Electromagnetic compatibility notices – Class A

1. FCC verification statement (USA)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case users will be required to correct the interference at their own expense.
Connections between the Harmonic equipment and other equipment must be made in a manner that is consistent with maintaining compliance with FCC radio frequency emission limits. Modifications to this equipment not expressly approved by Harmonic may void the authority granted to the user by the FCC to operate this equipment and you may be required to correct any interference to radio or television communications at your own expense.

2. ICES–003 statement (Canada)

**English:** This Class A digital apparatus complies with Canadian ICES-003.

**French:** Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

3. CE Declaration of Conformity (European Union)

This product has been tested in accordance too, and complies with the Low Voltage Directive (2014/30/EU) and EMC Directive (2014/35/EU). The product has been marked with the CE Mark to illustrate its compliance.

4. VCCI Class A warning (Japan)

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

English translation of the notice above: This is a Class A product based on the standard of the Voluntary Control Council for Interference (VCCI) from Information Technology Equipment. If this equipment is used in a domestic environment, it may cause radio interference. When such trouble occurs, the user may be required to take corrective actions.

5. BSMI EMC notice (Taiwan)

警告使用者：
這是一類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策

English translation of the notice above: This is a Class A Information Product, when used in residential environment, it may cause radio frequency interference, under such circumstances, the user may be requested to take appropriate counter measures.

6. Class A warning (Korea)

주의 A급 기기 이 기기는 업무용으로 전자파 적합 등록을 한 기기이 오니 판매자 또는 사용자는 이 점을 주의하시기 바라며 만약 잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.
English translation of the notice above: This is a Class A device and is registered for EMC requirements for industrial use. The seller or buyer should be aware of this. If this was sold or purchased by mistake, it should be replaced with a residential-use type.

7. Class A statement (China)

中华人民共和国“A类”警告声明

声明

此为A级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其他干扰采取切实可行的措施。

English translation of the notice above: When labeled with the CCC marking, the product meets the applicable safety and EMC requirements for China. This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

8. Class A warning – CISPR 22 (AS/NZS)

**Warning (English)** This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

**Attention (French)** Il s'agit d'un produit de classe A. Dans un environnement local, ce produit peut entraîner des perturbations radioélectriques, auquel cas l'utilisateur devra éventuellement prendre des mesures adéquates.

## Product regulatory compliance markings

Table B-1: Regulatory compliance markings

<table>
<thead>
<tr>
<th>Country/region</th>
<th>Testing standard/specification</th>
<th>Certification type</th>
<th>Regulatory mark name</th>
<th>Product marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country/region</td>
<td>Testing standard/specification</td>
<td>Certification type</td>
<td>Regulatory mark name</td>
<td>Product marks</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------------------------</td>
<td>--------------------</td>
<td>----------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>USA/Canada</td>
<td>FCC CFR 47 Part 15, Class A ICES-003: Issue 5, 2012; Class A</td>
<td>EMC</td>
<td>FCC Class A Statement</td>
<td>This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</td>
</tr>
<tr>
<td>Germany</td>
<td>EN 60950-1; EN60825-1 (for laser)</td>
<td>Safety</td>
<td>GS</td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>NOM-019-SCFI-1998</td>
<td>Safety</td>
<td>NOM</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>CNS 14336-1:2010 CNS 13438:2006; Class A</td>
<td>Safety and EMC</td>
<td>BSMI Certification (RPC) Number &amp; Class A Warning</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>VCCI V-3/2013.04; CISPR 22:2008, Class A</td>
<td>EMC</td>
<td>VCCI</td>
<td></td>
</tr>
<tr>
<td>Country/region</td>
<td>Testing standard/specification</td>
<td>Certification type</td>
<td>Regulatory mark name</td>
<td>Product marks</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------------------------</td>
<td>--------------------</td>
<td>----------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Australia and New Zealand</td>
<td>AS/NZS CISPR22:2009 +A1:2010; Class A</td>
<td>Safety</td>
<td>C-Tick</td>
<td>![image]</td>
</tr>
<tr>
<td>Korea</td>
<td>KN22 Class A and KN 24</td>
<td>EMC</td>
<td>KC</td>
<td>![image]</td>
</tr>
<tr>
<td>China</td>
<td>GB4943.1-2011 GB9254-2008 GB17625.1-2012</td>
<td>Safety and EMC</td>
<td>CCC</td>
<td>![image]</td>
</tr>
</tbody>
</table>

Product environmental compliance

Harmonic manufactures high quality and innovative IT and telecommunications equipment, video delivery infrastructure solutions and services for its customers worldwide. Harmonic is committed to providing our customers with safe and environmentally friendly products that are compliant with all relevant regulations, customer specifications, and environmental legislation, including the directives described below.

EU RoHS

In July 2006, the European Union’s (EU) Directive (2002/95/EC) on the Restriction of the use of certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment (EEE) went into effect, and in July, 2011, the European Union’s RoHS Recast Directive (2011/65/EU) also known as RoHS II entered into force.

Harmonic understands the environmental risks associated with the substances covered by the RoHS Directive and has committed to eliminating or reducing the use of these, as well as other environmentally sensitive substances in our products. Harmonic also continues to comply with the requirements under RoHS II.

For more information, please visit EU RoHS directive page at official EU website.

Restricted substance statement

Harmonic products contain less than the permitted limits for the six restricted substances except where exemptions published in the RoHS2 Directive are applicable. This statement is based on vendor-supplied analysis or material certifications, and/or lab test results of the component raw materials used in the manufacture of Harmonic products.

Table B-2: Restricted substances

<table>
<thead>
<tr>
<th>Restricted substance</th>
<th>Permitted limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (Cd)</td>
<td>&lt; 0.01%</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>&lt; 0.1%</td>
</tr>
<tr>
<td>Chromium (VI) (Cr (VI))</td>
<td>&lt; 0.1%</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>&lt; 0.1%</td>
</tr>
<tr>
<td>Polybrominated biphenyls (PBBs)</td>
<td>&lt; 0.1%</td>
</tr>
<tr>
<td>Polybrominated diphenyl ether (PBDE)</td>
<td>&lt; 0.1%</td>
</tr>
</tbody>
</table>

EU REACH


Harmonic supports the basic aim of REACH in improving the protection of human health and environment through the better and earlier identification of intrinsic properties of chemical substances. Harmonic products are considered “articles” under REACH; therefore, we are required to provide recipients of our products with information on Substance of Very High Concern (SVHC) present in concentration above 0.1% (w/w).

Substances in our products are not intended to be released under normal or reasonably foreseeable conditions of use; therefore, the registration requirement in REACH Article 7(1) does not apply to our products.

For more information, please visit REACH regulation page at official EU website.

http://ec.europa.eu/environment/chemicals/reach/reach_en.htm

China RoHS

China’s regulation on restriction of the use of certain hazardous substances commonly (China RoHS), is applicable to all Electronic and Information Products (EIPs) and parts sold in China after March 01, 2007. China RoHS regulation restricts the use of the same six substances as the European Union’s ROHS, but has requirements for product labeling and regulated substance information disclosure.

Harmonic complies with China RoHS Phase I for labeling and information disclosure requirements and continues to monitor new developments in China RoHS Phase II towards substance restriction and certification program.

For more information, please visit China RoHS regulation page at official US export website.

http://www.export.gov/china/doingbizinchina/

1 Homogeneous material definition as per the EU Directive.
China RoHS Disclosure report

Below table shows the presence of hazardous substances, or elements in Harmonic products, if the part is present.

This table shows those components where hazardous substances may be found in Harmonic products based on, among other things, material content information provided by third party suppliers. These components may or may not be part of the product.

除非特殊注明，哈雷公司产品的环保使用期限均为 20 年。该环保使用期限的有效条件为：必须遵循该产品使用手册的规定，对该产品进行使用或存储。

The Environmental Protective Use Period (EPUP) for Harmonic products is 20 years unless displayed otherwise on the product. The EPUP period is valid only when the products are operated or stored as per the conditions specified in the product manual.

<table>
<thead>
<tr>
<th>部件名称 (Part name)</th>
<th>有毒有害物质或元素 (Hazardous substance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>铅 (PB)</td>
</tr>
<tr>
<td>印刷电路板 (Printed circuit assemblies)</td>
<td>X</td>
</tr>
<tr>
<td>机械组件 (Mechanical subassemblies)</td>
<td>X</td>
</tr>
<tr>
<td>光学组件 (Optical subassemblies)</td>
<td>X</td>
</tr>
<tr>
<td>电源 (Power supplies)</td>
<td>X</td>
</tr>
<tr>
<td>缆线 / 线束 (Cables, harnesses)</td>
<td>X</td>
</tr>
<tr>
<td>屏幕 / 显示器 (Screens, monitors)</td>
<td>X</td>
</tr>
<tr>
<td>金属零件 (Metal parts)</td>
<td>X</td>
</tr>
<tr>
<td>塑料/ 发泡材料 (Plastics, foams)</td>
<td>O</td>
</tr>
<tr>
<td>电池 (Batteries)</td>
<td>O</td>
</tr>
</tbody>
</table>

O: 表示在该部件的所有均质材料中，此类有毒有害物质的含量均小于 SJ/T11363-2006 标准所规定的限量。

O: Indicates the content of the toxic and hazardous substances at the homogeneous material level of the parts is below the limit defined in SJ/T11363 2006 standard.
X: 表示至少在该部件的某一均质材料中，此类有毒有害物质的含量超出SJ/T11363-2006标准规定的限量。

X: Indicates that the content of the toxic and hazardous substances in at least one of the homogeneous materials of the parts is above the limit defined in SJ/T11363 2006 standard.

Other RoHS and REACH type regulations

Harmonic will comply with RoHS and REACH type regulations evolving in other countries, if they become relevant to our products or in markets where we sell our products.

Waste Electrical and Electronic Equipment (WEEE)

European Parliament and the Council of the European Union’s WEEE Directive (2002/96/EC) came into force on August, 2005 and, were more recently amended in July, 2012. This directive encourages the reuse, recycling, and recovery of WEEE and to improve the environmental performance of all operators involved in the life cycle of electrical and electronic equipment, especially those dealing with WEEE. Harmonic ensures that all requirements for registration, reporting, design and data tracking are complied with to meet the objectives of the WEEE directive.

For more information, please visit WEEE directive page at official EU website: http://ec.europa.eu/environment/waste/weee/legis_en.htm

Battery directive

In September 2006, the European Union’s Directive 2006/66/EC (Battery Directive) came into force with an aim to prohibit the sale of batteries and accumulators containing hazardous substances and to set rules and promote collection, treatment, recycling and disposal of waste batteries and accumulators. This directive applies to spent batteries collected together with WEEE and requires their removal and separate collection. Once removed from WEEE, spent batteries are governed by the Battery Directive. Harmonic uses lithium batteries in its products and our responsibility under the Battery Directive is taken care of under our WEEE Take-Back program.

For more information, please visit Batteries and Accumulators directive page at official EU website. http://ec.europa.eu/environment/waste/batteries/

Harmonic is committed to manufacturing environmentally safe products for the community, and will make reasonable efforts and required adjustments to its practices, if necessary, to comply with various environmental directives and industry initiatives on the elimination of hazardous substances, labeling, marking, certification and registration as required in markets where we sell our products.

Download Harmonic Environmental Compliance Statement at the following location:
http://www.harmonicinc.com/content/green-policy

WEEE Take-Back Request Program

In order to assist EU member states to preserve, protect and improve the quality of the environment, protect human health and utilize natural resources prudently and rationally, Harmonic strives to recycle in compliance with the WEEE Directive any of its products that cannot be re-used.

Harmonic’s customers should:
• Not discard equipment in household or office garbage
• Arrange proper recycling of unneeded equipment. For the take-back of Harmonic equipment, customers must:
  ◦ Collect the information required to complete Harmonic’s WEEE Take-Back Request form
  ◦ Complete and submit the online WEEE Take-Back Request form. Please note that forms must be fully completed in order to prevent process delays
  ◦ Receive instant online confirmation indicating the reference number
  ◦ Receive the End of Life (EOL) asset return authorization number and instruction for EOL asset return
• Not ship EOL product to Harmonic without a Harmonic-provided EOL asset return authorization number

The crossed-out wheeled bin symbol on a Harmonic-branded commercial product indicates that the product should not be disposed of along with municipal waste, but invites our customers to return the product to us under Harmonic’s WEEE Take-Back program for product disposal.

Harmonic will pay for the cost of shipping and will provide a Certificate of Recycling or a Certificate of Destruction upon request. For more information on collection, reuse and recycling or to initiate the WEEE take-back process, please complete the form at [http://www.harmonicinc.com/webform/weee-takeback-request](http://www.harmonicinc.com/webform/weee-takeback-request) or contact Harmonic Technical Assistance Center (TAC) or email RMA team at rma.emea@harmonicinc.com.

Compliance with additional country-specific environmental, safety, and EMC standards

In addition to above listed standards and compliance regulations, Harmonic products may also be compliant with other country-specific environmental, safety, and EMC requirements. Please contact Harmonic Compliance Team at regulatory.compliance@harmonicinc.com or your local sales representative for more information about compliance with particular country or standard.