

# ProView<sup>™</sup>

## 8100

RELEASE 1.3.1

## Installation Guide



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December 2015

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This guide may use some special symbols and fonts to call your attention to important information. The following symbols appear throughout this guide:



**DANGER:** The Danger symbol calls your attention to information that, if ignored, can cause physical harm to you.



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



**LASER DANGER:** The Laser symbol and the Danger alert call your attention to information about the lasers in this product that, if ignored, can cause physical harm to you.



**NOTE:** The Note symbol calls your attention to additional information that you will benefit from heeding. It may be used to call attention to an especially important piece of information you need, or it may provide additional information that applies in only some carefully delineated circumstances.



**IMPORTANT:** The Important symbol calls your attention to information that should stand out when you are reading product details and procedural information.



**TIP:** The Tip symbol calls your attention to parenthetical information that is not necessary for performing a given procedure, but which, if followed, might make the procedure or its subsequent steps easier, smoother, or more efficient.

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

| Convention             | Explanation                                                                                                         |
|------------------------|---------------------------------------------------------------------------------------------------------------------|
| Typed Command          | Indicates the text that you type in at the keyboard prompt.                                                         |
| <Ctrl>, <Ctrl>+<Shift> | A key or key sequence to press.                                                                                     |
| <i>Links</i>           | The <i>italics in blue</i> text to indicate Cross-references, and hyperlinked cross-references in online documents. |
| <b>Bold</b>            | Indicates a button to click, or a menu item to select.                                                              |
| ScreenOutput           | The text that is displayed on a computer screen.                                                                    |
| <i>Emphasis</i>        | The <i>italics</i> text used for emphasis and document references.                                                  |



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# Chapter 1

## Introduction to ProView 8100

- [Packing list](#)
- [Earthing](#)
- [Connecting the power supply to the unit](#)

### Packing list

Before installation, ensure that all the equipment and the attached parts are available and undamaged, according to the following list:

Table 1-1: Packing list

| Item              | Quantity |
|-------------------|----------|
| ProView 8100 Unit | 1        |
| Power cable       | 1        |

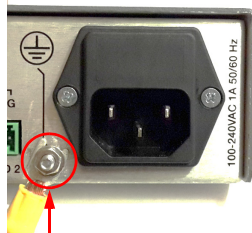


**CAUTION:** If anything is missing or damaged, do not continue with the installation and report to your Harmonic support representative.

### Earthing

The guidelines for earthing the unit should be followed.

- The unit must be connected to earth before any other cables are connected.
- The unit should remain permanently connected to protected earth.
- Cable 18AWG should be used.
- When the unit is rack-mounted, the device's earth stud must be connected to the rack housing, which must be correctly grounded.
- When removing cables, the ground must be removed last.



Earth stud

## Connecting the power supply to the unit



**DANGER:** To avoid electrocution, ensure that the rack has been correctly grounded before connecting the ProView 8100 device to the main power supply. When removing the unit, remove the grounded connection only after the unit is unplugged from the main power supply.

- Ensure that a qualified electrician has installed the main power supply in accordance with power authority regulations.
- Make sure all powering must be wired with an earth leakage, according to local regulations.
- When the unit is rack-mounted, ensure that the rack is correctly grounded.

## Chapter 2

# Introduction to ProView 8100

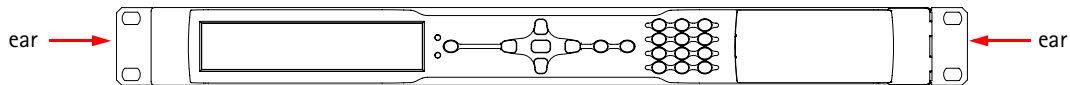
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- [About the installation of the ProView 8100](#)
- [Installing the L-shape slides](#)
- [Mounting the ProView 8100 units in the 19" Rack](#)
- [Electrical power connection](#)
- [Connecting the cables](#)
- [Connecting the unit to the electrical power](#)

### About the installation of the ProView 8100

For rack installation, ensure that a designated 19" rack is fully prepared for installation.

The ProView 8100 comes with ears fitted to each side of the chassis.

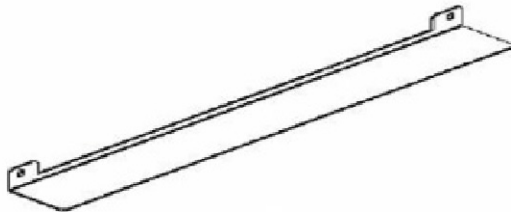


There must be sufficient space behind the rack for easy access for installation and maintenance. Rack mounting requires the use of L-shape slides, not included, but available from Harmonic. The amount of units installed in a rack is a function of the units' power consumption and heat dissipation. Address Harmonic support for calculating the maximum load on the rack.

The following sections detail the installation of a ProView 8100 unit in a 19" rack using mounting slides.

### Installing the L-shape slides

The ProView 8100 uses forced air ventilation, evacuating the air out the left side of the 19" rack. To ensure smooth airflow, L-shape slides are provided for rack mounting.



Prerequisites:

Use 4 x M6 16mm long screws (not included)

- Fit one L-shape slide to each side of the 19" rack and fasten each with two screws (M6 16mm long).



## Mounting the ProView 8100 units in the 19" rack

The ProView 8100 19" rack mounting instructions.

Prerequisites:

Use 4 x M6 16mm long screws (not included)

1. Mount ProView 8100 units in groups of no more than five units on each pair of L-shape slides.
2. Leave one-unit-space between each group of five units.
3. Mount the ears to the rack, using M6 16mm long screws.

## Electrical power connection

The ProView 8100 is powered by an AC power supply.

## Connecting the cables

All ProView 8100 connectors are located on the rear panel.

Connect the following:

- Connect an input cable to an RF IN, ASI IN, or MPEGoIP port.
- Connect the management LAN cable to the Management port.
- Connect an output destination to one of the output connectors on the output interface.
- Connect a video monitor, for local monitoring of the output, to the CV MON or the HDMI port.

## Connecting the unit to the electrical power

Before connecting the power cable of the ProView 8100 to the main power supply, make sure that all other cables are correctly connected.

- Ensure that the unit is correctly grounded.
- Connect the power cable to the main power supply.

Once the boot process is completed (after 1-2 minutes) the Harmonic Idle message displays on the front panel LCD.



# Appendix A

## Contacting the Technical Assistance Center

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Harmonic Global Service and Support has many Technical Assistance Centers (TAC) located globally, but virtually co-located where our customers can obtain technical assistance or request on-site visits from the Regional Field Service Management team. The TAC operates a Follow-The-Sun support model to provide Global Technical Support anytime, anywhere, through a single case management and virtual telephone system. Depending on time of day, anywhere in the world, we will receive and address your calls or emails in one of our global support centers. The Follow-the-Sun model greatly benefits our customers by providing continuous problem resolution and escalation of issues around the clock.

**Report an issue online at:**

<http://harmonicinc.com/webform/report-issue-online>

**Table A-1: Technical Support Phone Numbers and Email Addresses**

| Region                              | Telephone Technical Support                       | E-mail                                                                         |
|-------------------------------------|---------------------------------------------------|--------------------------------------------------------------------------------|
| Americas                            | 888.673.4896 (888.MPEG.TWO)<br>or +1.408.490.6477 | <a href="mailto:support@harmonicinc.com">support@harmonicinc.com</a>           |
| Europe, Middle East,<br>and Africa  | +44.1252.555.450                                  | <a href="mailto:emeasupport@harmonicinc.com">emeasupport@harmonicinc.com</a>   |
| India                               | +91.120.498.3199                                  | <a href="mailto:apacsupport@harmonicinc.com">apacsupport@harmonicinc.com</a>   |
| Russia                              | +7.495.926.4608                                   | <a href="mailto:rusupport@harmonicinc.com">rusupport@harmonicinc.com</a>       |
| Mainland China                      | +86.10.6569.5580                                  | <a href="mailto:chinasupport@harmonicinc.com">chinasupport@harmonicinc.com</a> |
| Japan                               | +81.3.5565.6737                                   | <a href="mailto:japansupport@harmonicinc.com">japansupport@harmonicinc.com</a> |
| Asia Pacific – Other<br>Territories | +852.3184.0045<br>or 65.6542.0050                 | <a href="mailto:apacsupport@harmonicinc.com">apacsupport@harmonicinc.com</a>   |

**The Harmonic Inc. support website is:**

<http://www.harmonicinc.com/content/technical-support>

**The Harmonic Inc. software download locations are:**

|                                                     |                                                                                                                       |
|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| All Harmonic software except Cable<br>Edge software | <a href="https://harmonic.force.com/SWAccess/SWDownloadLogin">https://harmonic.force.com/SWAccess/SWDownloadLogin</a> |
| Cable Edge software                                 | <a href="ftp://ftp.harmonicinc.com">ftp://ftp.harmonicinc.com</a>                                                     |

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Attn: Customer Support

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Tel. 1.800.788.1330 (inside the U.S.)  
Tel. +1.408.542.2500 (outside the U.S.)  
Fax.+1.408.542.2511

# Appendix B

## Safety and Regulatory Compliance Information

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**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.



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

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### 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 & Translated Safety, Warning & 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.

| Mark                                                                                               | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><br>Warning   | <p><b>Installing or Replacing the Product Unit Warning</b></p> <ul style="list-style-type: none"> <li>■ 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).</li> <li>■ Read the installation instructions before connecting the system to the power source.</li> <li>■ When installing or replacing the unit, always make the ground connection first and disconnect it last.</li> <li>■ Installation of the unit must comply with local and national electrical codes.</li> <li>■ 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.</li> <li>■ Use only specified replacement parts.</li> <li>■ 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.</li> </ul> |
| <br><br>Warning  | <p><b>Rack Mount Warning</b></p> <ul style="list-style-type: none"> <li>■ 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:</li> <li>■ Conform to local occupational health and safety requirements when moving and lifting the equipment.</li> <li>■ Ensure that mounting of the unit by mechanical loading tools should not induce hazardous conditions.</li> <li>■ 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.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       |
| <br><br>Warning | <p><b>Chassis Warning</b></p> <ul style="list-style-type: none"> <li>■ Before connecting or disconnecting ground or power wires to the chassis, ensure that power is removed from the DC circuit.</li> <li>■ 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.</li> <li>■ Any instructions in this guide that require opening the chassis or removing a board should be performed by qualified service personnel only.</li> <li>■ 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.</li> </ul>                                                                                                                                                                                                  |

| Mark                                                                                               | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <br><br>Warning   | <p><b>Electric Shock Warning</b></p> <ul style="list-style-type: none"> <li>■ 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.</li> <li>■ Before working on a chassis or working near power supplies, unplug the power cord on AC units.</li> <li>■ Do not work on the system or connect or disconnect cables during periods of lightning activity.</li> <li>■ 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.</li> <li>■ 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.</li> <li>■ 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</li> <li>■ Never install an AC power module and a DC power module in the same chassis.</li> <li>■ Do not wear hand jewelry or watch when troubleshooting high current circuits, such as the power supplies.</li> <li>■ 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.</li> <li>■ 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).</li> <li>■ 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.</li> </ul> |
| <br><br>Caution | <p><b>Electrostatic Discharge (ESD) Caution</b></p> <ul style="list-style-type: none"> <li>■ Follow static precaution at all times when handling this unit.</li> <li>■ 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</li> <li>■ Handle cards by the faceplates and edges only; avoid touching the printed circuit board and connector pins.</li> <li>■ Place any removed component on an antistatic surface or in a static shielding bag.</li> <li>■ Avoid contact between the cards and clothing.</li> <li>■ Periodically check the resistance value of the antistatic strap. Recommended value is between 1 and 10 mega-ohms (Mohms).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| Mark                                                                                             | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <br><br>Warning | <b>Laser Radiation Warning</b><br>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.                                                                                                                                                                         |
| <br><br>Warning | <b>Lithium Battery Handling Safety Instructions</b> <ul style="list-style-type: none"><li>■ CALIFORNIA PERCHLORATE ADVISORY: Some lithium batteries may contain perchlorate material. The following advisory is provided: "Perchlorate Material - special handling may apply, see: <a href="http://www.dtsc.ca.gov/hazardous_waste/perchlorate/for_information">www.dtsc.ca.gov/hazardous_waste/perchlorate/for_information</a>".</li></ul> |
| <br><br>Caution | <ul style="list-style-type: none"><li>■ Risk of explosion if battery is replaced incorrectly or with an incorrect type</li><li>■ Dispose of used batteries according to the manufacturer's instructions</li><li>■ There are no user-serviceable batteries inside Harmonic products. Refer to Harmonic qualified personnel only to service the replaceable batteries</li></ul>                                                               |

## 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.

| Mark                                                                                                     | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <br><br>Avertissement   | <b>Installation ou remplacement de l'unité de produit Avertissement</b> <ul style="list-style-type: none"><li>■ 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).</li><li>■ Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.</li><li>■ 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.</li><li>■ L'équipement doit être installé conformément aux normes électriques nationales et locales.</li><li>■ 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.</li><li>■ Utilisez uniquement des pièces de rechange spécifiées.</li><li>■ 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.</li></ul> |
| <br><br>Avertissement  | <b>Rack Monture Avertissement</b> <p>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:</p> <ul style="list-style-type: none"><li>■ Conformez-vous aux exigences de médecine du travail et de sécurité lorsque vous déplacez et soulevez le matériel.</li><li>■ Assurez-vous que le montage de l'appareil par des outils de chargement mécaniques ne doit pas induire des conditions dangereuses.</li><li>■ 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.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <br><br>Avertissement | <b>Châssis Avertissement</b> <ul style="list-style-type: none"><li>■ 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.</li><li>■ 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.</li><li>■ 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.</li><li>■ 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.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     |



| Mark                                                                                                         | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <div data-bbox="354 289 474 401" data-label="Image"> </div> <p data-bbox="347 485 519 512">Avertissement</p> | <p data-bbox="558 281 943 308"><b>Choc électrique Avertissement</b></p> <ul style="list-style-type: none"> <li data-bbox="558 315 1414 405">■ 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.</li> <li data-bbox="558 411 1425 501">■ Avant de travailler sur un châssis ou à proximité d'une alimentation électrique, débrancher le cordon d'alimentation des unités en courant alternatif.</li> <li data-bbox="558 508 1419 564">■ Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.</li> <li data-bbox="558 571 1414 690">■ 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.</li> <li data-bbox="558 697 1455 819">■ Installer les cordons d'alimentation et autres cables 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.</li> <li data-bbox="558 825 1463 976">■ 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.</li> <li data-bbox="558 982 1317 1039">■ N'installez jamais un module d'alimentation AC et un module d'alimentation DC dans le même châssis.</li> <li data-bbox="558 1045 1463 1102">■ Ne pas porter de bijoux aux mains ni de montre durant le dépannage des circuits à haute tension, comme les transformateurs.</li> <li data-bbox="558 1108 1463 1230">■ 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.</li> <li data-bbox="558 1236 1455 1388">■ 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).</li> <li data-bbox="558 1394 1463 1516">■ 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.</li> </ul> |

| Mark                                                                                                     | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <br><br>Attention       | <b>Les décharges électrostatiques (ESD) Attention</b> <ul style="list-style-type: none"> <li>■ Respecter systématiquement les précautions relatives aux charges électrostatiques durant la manipulation de cet unité.</li> <li>■ 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.</li> <li>■ Manipulez les cartes en les faces avant et les bords seulement; éviter de toucher la carte de circuit imprimé et les broches du connecteur.</li> <li>■ Placer un composant retiré sur une surface antistatique ou dans un sac de protection statique.</li> <li>■ Éviter tout contact entre les cartes et les vêtements.</li> <li>■ Vérifier périodiquement la valeur de résistance de la sangle antistatique. Valeur recommandée est comprise entre 1 et 10 méga-ohms (Mohms).</li> </ul> |
| <br><br>Avertissement   | <b>Rayonnement laser Attention</b> <ul style="list-style-type: none"> <li>■ 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.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <br><br>Avertissement | <b>Batterie au lithium Manipulation instructions de sécurité</b> <ul style="list-style-type: none"> <li>■ Perchlorate pour la Californie Consultatif: Certaines batteries au lithium, peuvent contenir du perchlorate. le texte qui suit consultatif est prévu: "Présence de perchlorate - une manipulation spéciale peut s'appliquer, voir: <a href="http://www.dtsc.ca.gov/hazardous_waste/perchlorate/for_information">www.dtsc.ca.gov/hazardous_waste/perchlorate/for_information</a>".</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <br><br>Attention     | <ul style="list-style-type: none"> <li>■ Il y a danger d'explosion si la batterie est remplacée de manière incorrecte ou par une batterie de type incorrect.</li> <li>■ Mettre au rebut les batteries usagées conformément aux instructions du fabricant.</li> <li>■ 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.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 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.

| Mark                                                                                               | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <br><br>Warnung   | <b>Installation oder den Austausch des Produkts Einheit Warnung</b> <ul style="list-style-type: none"> <li>■ Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden (siehe AS / NZS 3260 Clause 1.2. 14.3 Servicepersonal)</li> <li>■ Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen.</li> <li>■ Der Erdanschluß muß bei der Installation der Einheit immer zuerst hergestellt und zuletzt abgetrennt werden.</li> <li>■ Die Installation der Geräte muss den Sicherheitsstandards entsprechen.</li> <li>■ 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.</li> <li>■ Verwenden Sie nur die angegebenen Ersatzteile</li> <li>■ Das Gerät in oder in der Nähe von Wasser verwenden. Trennen Sie vor der Installation von Optionen oder Wartung des Gerätes, es sei denn, dies wurde von diesem Handbuch alle Netz.</li> </ul> |
| <br><br>Warnung  | <b>Rack-Montage-Warnung</b><br>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: <ul style="list-style-type: none"> <li>■ Entsprechen den lokalen Arbeitsschutzanforderungen beim Bewegen und Heben der Ausrüstung.</li> <li>■ Stellen Sie sicher, dass die Montage des Gerätes durch mechanische Belastung Werkzeuge sollten nicht gefährlichen Bedingungen zu induzieren.</li> <li>■ Um das Risiko von möglichen elektrischen Schlag zu vermeiden, muss mit einer angemessenen Erdung für Rack und jedes Gerät installiert ist implementiert werden.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <br><br>Warnung | <b>Chassis Warnung</b> <ul style="list-style-type: none"> <li>■ Gleichstrom-Unterbrechung Bevor Sie Erdungs- oder Stromkabel an das Chassis anschließen oder von ihm abtrennen, ist sicherzustellen, daß der Gleichstrom-Stromkreis unterbrochen ist.</li> <li>■ 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.</li> <li>■ Alle Hinweise in diesem Handbuch, die das Öffnen benötigen Sie das Gehäuse oder das Entfernen eines Board sollte nur von qualifiziertem Fachpersonal durchgeführt werden.</li> <li>■ 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</li> </ul>                                                                                                                                                                                      |

| Mark                                                                                                   | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| <div data-bbox="354 296 472 401" data-label="Image"> </div> <p data-bbox="347 489 456 516">Warnung</p> | <p data-bbox="521 285 816 312"><b>Elektroschock-Warnung</b></p> <ul style="list-style-type: none"> <li data-bbox="521 317 1414 407">■ Diese Einheit hat möglicherweise mehr als ein Netzkabel. Zur Verringerung der Stromschlaggefahr trennen Sie beide Netzgerätekabel ab, bevor Sie die Einheit warten.</li> <li data-bbox="521 411 1240 470">■ Vor der Arbeit an einem Chassis für Arbeiten in der Nähe Stromversorgung, ziehen Sie das Netzkabel mit Netzeinheiten.</li> <li data-bbox="521 474 1365 533">■ Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.</li> <li data-bbox="521 537 1419 630">■ 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.</li> <li data-bbox="521 634 1386 758">■ 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.</li> <li data-bbox="521 762 1430 915">■ Gefährliche Spannungen vorhanden sind an mehreren Stellen in diesem Produkt. Um Verletzungen zu vermeiden, berühren Sie nicht freiliegenden Anschlüsse und Komponenten während schaltet ist. Sie keine Gegenstände in einem der beiden Stromversorgungs Hohlräume des Systems mit Strom verbunden einführen.</li> <li data-bbox="521 919 1382 978">■ Ein Wechselstrommodul und ein Gleichstrommodul dürfen niemals in demselben Chassis installiert werden.</li> <li data-bbox="521 982 1403 1041">■ Tragen Sie keine Hand Schmuck oder schauen Sie bei der Fehlersuche hohen Stromkreise, wie beispielsweise die Stromversorgung.</li> <li data-bbox="521 1045 1430 1169">■ 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.</li> <li data-bbox="521 1173 1419 1327">■ Dieses Produkt ist darauf angewiesen, daß im Gebäude ein Kurzschluß- bzw. Überstromschutz installiert ist. Stellen Sie sicher, daß eine Sicherung oder ein Unterbrecher von nicht mehr als 240 V Wechselstrom, 10 A (bzw. in den USA 120 V Wechselstrom, 15 A) an den Phasenleitern (allen stromführenden Leitern) verwendet wird.</li> <li data-bbox="521 1331 1377 1455">■ 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.</li> </ul> |

| Mark                                                                                                | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
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| <br><br>Vorsicht   | <b>Elektrostatische Entladung (ESD) Vorsicht</b> <ul style="list-style-type: none"> <li>■ Folgen Sie statische vorsorglich zu jeder Zeit beim Umgang mit diesem Gerät.</li> <li>■ 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.</li> <li>■ Hand Karten nur durch die Faceplates und Kanten; Berühren Sie die bedruckte Leiterplatte und Steckerstifte.</li> <li>■ Legen Sie alle entfernten Komponenten auf eine antistatische Oberfläche oder in einem Statik-Beutel.</li> <li>■ Kontakt zwischen den Karten und Kleidung vermeiden.</li> <li>■ Den Widerstandswert der gegen statische Gurt in regelmäßigen Abständen überprüfen. Empfohlener Wert ist zwischen 1 und 10 Mega-Ohm (MOhm).</li> </ul> |
| <br><br>Warnung    | <b>Laserstrahlungen Warnung.</b><br>Unsichtbare Laserstrahlung kann von getrennten Fasern oder Stecker emittiert werden. Nicht in die Strahlen blicken oder direkt mit optischen Instrumenten. Niemals ein Gerät mit einem gebrochenen Faser oder mit einem Glasfaseranschluss getrennt.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <br><br>Warnung  | <b>Lithium-Batterie Handhabung Sicherheitshinweise</b><br>CALIFORNIA PERCHLORATE ADVISORY: Einige Lithium-Batterien kann Perchlorat enthalten. Die folgende Beratungs gesetz: "Perchlorat - Sonderbehandlung kann erforderlich sein, finden Sie unter: <a href="http://www.dtsc.ca.gov/hazardous_waste/perchlorate/for_information">www.dtsc.ca.gov/hazardous_waste/perchlorate/for_information</a> ".                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <br><br>Vorsicht | <ul style="list-style-type: none"> <li>■ Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr</li> <li>■ Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.</li> <li>■ Es gibt keine zu wartenden Akkus im Harmonic Produkte. Siehe Harmonic qualifiziertes Personal, um die austauschbare Batterien Service</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Site Preparation Instructions



**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
  - a. 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 powerings 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.
  - b. DC Power
    - ❑ Ensure a suitable overcurrent device is in-line between the equipment and the power source.
    - ❑ 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 Contacting the [Technical Assistance Center](#).

### Product Disassembly Process

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.
  - c. Metals such as steel, brass, and aluminum.
  - d. Plastics such as fan casings, housings, covers, etc.
  - e. Fiber optics and plastic tubing not containing electrical or data wiring.

### 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 (French)

Le personnel du recycleur 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 recycleur 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](mailto:regulatory.compliance@harmonicinc.com)

## Electromagnetic Compatibility Notices – Class A

### a. 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.

### b. 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.

### c. 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.



d. 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.

e. BSMI EMC Notice (Taiwan)

**警告使用者：**  
**這是甲類的資訊產品，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.

f. 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.

g. 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.

h. 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.

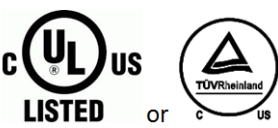
## Product Regulatory Compliance

Harmonic products are typically tested to the latest safety and electromagnetic compatibility (EMC) specifications and test methods, and are marked with one or more of the following regulatory/certification markings. Some of the certification markings will vary depending on what certifier was used to obtain a certification.

Please visit Harmonic [Product Regulatory Compliance](#) page to view information on applied safety & EMC standards and regulatory marks on Harmonic products. You can also email us at [regulatory.compliance@harmonicinc.com](mailto:regulatory.compliance@harmonicinc.com) for assistance on regulatory compliance for Harmonic products.

## Product Regulatory Compliance Markings

Table B–1: Regulatory Compliance Markings

| Country/<br>Region | Testing Standard/<br>Specification                                                                 | Certification<br>Type | Regulatory<br>Mark Name                    | Product Marketing                                                                                                                                                                                                                                                                                                                                      |
|--------------------|----------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| USA/<br>Canada     | EN 60950-1:2006+A11:2009+A1:2010+A12:2011;<br>CAN/CSA C22.2 No. 60950-1-07+A1:2011/UL 60950-1:2011 | Safety                | NRTL (National Recognized Test Laboratory) |                                                                                                                                                                                                                                                                   |
| USA/<br>Canada     | FCC CFR 47 Part 15, Class A<br>ICES-003: Issue 5, 2012; Class A                                    | EMC                   | FCC Class A Statement                      | <div style="border: 1px solid black; padding: 5px;"> <p>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.</p> </div> |

**Table B-1: Regulatory Compliance Markings**

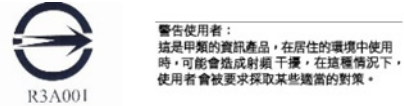
| Country/<br>Region              | Testing Standard/<br>Specification                                                                                                                                         | Certification<br>Type | Regulatory<br>Mark Name                                       | Product Marketing                                                                     |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------|
| European<br>Union               | RoHS: EN<br>50581:2012;<br>EN55022:2010/<br>CISPR 22:2008;<br>EN55024:2010/<br>CISPR 24:2010;<br>EN61000-3-<br>2:2006+A1:2009+A<br>2:2009;<br>EN61000-3-3:2008;<br>Class A | Safety and<br>EMC     | CE / Low<br>Voltage<br>Directive                              |    |
| Germany                         | EN 60950-1;<br>EN60825-1 (for laser)                                                                                                                                       | Safety                | GS                                                            |    |
| Mexico                          | NOM-019-SCFI-1998                                                                                                                                                          | Safety                | NOM                                                           |   |
| Taiwan                          | CNS 14336-1:2010<br>CNS 13438:2006;<br>Class A                                                                                                                             | Safety and<br>EMC     | BSMI<br>Certification<br>(RPC) Number<br>& Class A<br>Warning |  |
| Japan                           | VCCI V-3/2013.04;<br>CISPR 22:2008, Class<br>A                                                                                                                             | EMC                   | VCCI                                                          |  |
| Australia<br>and New<br>Zealand | AS/NZS<br>CISPR22:2009+A1:2<br>010; Class A                                                                                                                                | Safety                | C-Tick                                                        |  |
| Korea                           | KN22 Class A and KN<br>24                                                                                                                                                  | EMC                   | KC                                                            |  |

Table B-1:Regulatory Compliance Markings

| Country/<br>Region | Testing Standard/<br>Specification             | Certification<br>Type | Regulatory<br>Mark Name           | Product Marketing                                                                   |
|--------------------|------------------------------------------------|-----------------------|-----------------------------------|-------------------------------------------------------------------------------------|
| China              | GB4943.1-2011<br>GB9254-2008<br>GB17625.1-2012 | Safety and<br>EMC     | CCC                               |  |
| India              | IS 13252 (Part 1):<br>2010                     | Safety                | BIS<br>Compulsory<br>Registration | "Self Declaration - Conforming to<br>IS 13252 (Part 1):2010, R-<br>XXXXXXXX"        |

## 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.

[http://ec.europa.eu/environment/waste/rohs\\_eee/legis\\_en.htm](http://ec.europa.eu/environment/waste/rohs_eee/legis_en.htm)

### 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

| Restricted Substance    | Permitted Limit* |
|-------------------------|------------------|
| Cadmium (Cd)            | ≤0.01%           |
| Lead (Pb)               | ≤0.1%            |
| Chromium (VI) (Cr (VI)) | ≤0.1%            |
| Mercury (Hg)            | ≤0.1%            |

**Table B–2:Restricted Substances**

| Restricted Substance                                      | Permitted Limit* |
|-----------------------------------------------------------|------------------|
| Polybrominated biphenyls (PBBs)                           | $\leq 0.1\%$     |
| Polybrominated diphenyl ether (PBDE)                      | $\leq 0.1\%$     |
| *Homogeneous material definition as per the EU Directive. |                  |

## EU REACH

REACH (Registration, Evaluation, Authorization and restriction of Chemicals) (EC 1907/2006) is a European Union's regulation on chemicals and their safe use which came into force in June, 2007.

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](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/>

## China RoHS Disclosure Report

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

该表显示哈雷公司产品中可能含有的有毒有害物质元配件的信息，除了来源于元配件供应商的物料成分资料，亦来自其它相关的机构与资料。哈雷产品不一定使用这些元配件。

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 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.

| 部件名称 (Part name)                      | 有毒有害物质或元素 (Hazardous Substance) |        |        |            |            |              |
|---------------------------------------|---------------------------------|--------|--------|------------|------------|--------------|
|                                       | 铅 (Pb)                          | 汞 (Hg) | 镉 (Cd) | 六价铬 (CrVI) | 多溴联苯 (PBB) | 多溴二苯醚 (PBDE) |
| 印刷线路板<br>(Printed Circuit Assemblies) | X                               | O      | O      | O          | O          | O            |
| 机械组件<br>(Mechanical Subassemblies)    | X                               | O      | O      | O          | O          | O            |
| 光学组件<br>(Optical Subassemblies)       | X                               | O      | O      | O          | O          | O            |
| 电源<br>(Power Supplies)                | X                               | O      | O      | O          | O          | O            |
| 缆线 / 线束<br>(Cables, harnesses)        | X                               | O      | O      | O          | O          | O            |
| 屏幕 / 显示器<br>(Screens, Monitors)       | X                               | O      | O      | O          | O          | O            |
| 金属零件<br>(Metal Parts)                 | X                               | O      | O      | O          | O          | O            |
| 塑料 / 发泡材料<br>(Plastics, foams)        | O                               | O      | O      | O          | O          | O            |
| 电池<br>(Batteries)                     | O                               | O      | O      | O          | O          | O            |

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](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's Environmental Compliance Statement at the following location:

<http://www.harmonicinc.com/sites/default/files/Environmental%20Compliance%20Statement.pdf>

## 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> or contact [Harmonic Technical Assistance Center \(TAC\)](#) or email RMA team at [rma.emea@harmonicinc.com](mailto: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](mailto:regulatory.compliance@harmonicinc.com) or your local sales representative for more information about compliance with particular country or standard.



