

Figure 6



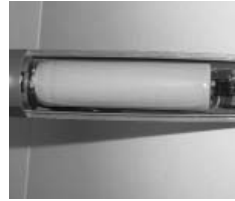
Figure 7



Figure 8



Figure 9



- 3) Bend the replacement battery's connector wires to align with the socket in the Aurora S<sup>3</sup>'s battery compartment (FIGURE 7).
- 4) Although the battery replacement can be accomplished with one person, plugging in the new battery may be easier for some people if one person holds the Aurora S<sup>3</sup>, while another positions and snaps the connector into its socket.
- 5) Using the battery as a handle, position the connector in front of the socket and slide it forward until it begins to enter the socket. Note: The battery's red wire should be positioned toward the outside edge of the battery compartment (FIGURE 8).
- 6) Use your finger to push the connector the rest of the way into the socket. Do not use a metal tool.
- 7) Insert the replacement battery into the compartment (FIGURE 9), protect the wires from binding, and slide the compartment cover back on and replace the screw.
- 8) Allow the battery to fully charge for 3 hours before first use to maximize the battery performance.
- 9) Dispose of the old battery properly.

#### CONFORMANCE TO STANDARDS

The Parkell Aurora S<sup>3</sup> conforms to IEC 60601-1, IEC 60601-1-2 and CAN/CSA C22.2 No. 601.1. The device is CE marked—certified to European Medical Device Directive (93/42/EEC). Parkell's quality system is certified to ISO9001/13485.

#### TWO (2) YEAR LIMITED WARRANTY

Your Parkell Aurora S<sup>3</sup>, charger and battery are warranted for 2 years from the date of purchase against manufacturing defects. The warranty covers Parkell factory labor for any authorized repair to the aforementioned device and parts.

For warranty service, return the unit to PARKELL, freight prepaid, carefully packed with an explanation of the problem. The unit will be repaired and returned to you. After the warranty period, please call PARKELL for instructions before returning your unit for service.

The Aurora S<sup>3</sup> is NOT covered for damage due to misuse, abuse, tampering, modifications, installation of a non-Parkell battery, or opening of the Aurora S<sup>3</sup> case by anyone other than authorized Parkell personnel, other than for replacement of the battery. The Reflector Lenses are meant to be periodically replaced at the user's expense, and are not covered by the warranty.

If you have any questions or problems with the installation or use of your curing light, please call our Toll-Free Technical Support Service at 1-800-243-7446 from 8:00AM to 6:30PM EST (outside USA and Canada, call 631-249-1134).

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Caution: Federal Law restricts use of this device to or on the order of a properly licensed practitioner.

## Parkell, Inc.

# Aurora™ S<sup>3</sup> LED Dental Curing Light

### Model D546 • Instructions for Use



#### DEVICE DESCRIPTION

The Aurora™ S<sup>3</sup> is a high intensity curing light for use with light-cured dental materials. It is designed with an ultra-thin, low profile head and a unique curved shape, allowing excellent access to all areas of the mouth, especially the hard-to-reach palatal and lingual surfaces.

The light uses three high-performance Light Emitting Diodes (LEDs) that emit a bright blue beam with a wavelength range of 420-480 nm and a user-selectable intensity of 1000 or 1300 mW/cm<sup>2</sup>. This high intensity, when combined with the wide beam spot diameter of 11 mm, permits the Aurora S<sup>3</sup> to deliver speedy, complete curing of entire restorations in one cycle.

The Aurora S<sup>3</sup> will fully cure materials that include camphorquinone as the photo-initiator. The light is controlled via a single button and has three modes of operation, a 3-second "gel" curing cycle at 1000mW/cm<sup>2</sup>, a 20-second "standard" curing cycle at 1000 mW/cm<sup>2</sup>, and a 10-second "turbo" curing cycle at 1300 mW/cm<sup>2</sup>. Audible tones allow the operator to monitor the progress of each cycle, and stop the curing at any desired duration by simply pressing the button.

The curing light operates on an internal, rechargeable lithium-ion battery which can be replaced if necessary by the user. The unit is capable of battery operation for at least 120 20-second curing cycles between charges. The Aurora S<sup>3</sup> may also be operated as a corded light while it is recharging.

#### INDICATIONS FOR USE

The Aurora S<sup>3</sup> Dental Curing Light is solely intended for the polymerization of visible light-cured dental materials, used in accordance with the instructions provided. It should be used in an environment suitable for the practice of dentistry using clinically acceptable techniques. The light is intended for use by qualified dental professionals including, but not limited to, dentists, dental hygienists and dental auxiliaries trained in the use of visible light cured materials and equipment.

#### THE AURORA S<sup>3</sup> KIT INCLUDES:

- 1 –Aurora S<sup>3</sup> Curing Light
- 1 –Wall Power Transformer / Charger
- 2 –Clear Curing Lenses
- 1 –Black Tacking Lens
- 1 –Plastic Barrier Sleeve Sample
- 1 –Instructions for use and Warranty registration card
- 1 –Rechargeable Battery

#### ALSO AVAILABLE:

- Replacement Battery Charger (230 VAC); Also available in 220/230V
- Replacement Battery

#### CURING LIGHT SPECIFICATIONS

- Power Supply: Lithium-Ion battery, 3.7 V, 2000 mA
- Wavelength Range: 420-480 nm
- Light Intensity (approx.): 1000–1300mW/cm<sup>2</sup>
- Operation: Duty cycle of 1.5 minutes ON, 5 minutes OFF
- Dimensions (approx.): Length 9.4" (240 mm); Diameter 1" (25 mm)
- Weight (approx.): 4 oz (111 g)

#### WALL POWER TRANSFORMER/CHARGER SPECIFICATIONS

- Operating Voltage: 100-240 VAC, 50/60 Hz input
- Output Voltage: 5 VDC
- Output Current: 2.0 A
- Dimensions: 3.4" (86 mm) x 1.8" (46 mm) x 1.3" (33mm)
- Weight: 4.2 oz (120g)
- Classification: Class II Equipment
- Operating temperature: 10° -32°C
- Relative humidity: 30%-75%
- The time to charge a discharged battery is approximately 3 hours.

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## TRANSPORT AND STORAGE CONDITIONS

- Ambient temperature range: -20°C to +40°C
- Relative Humidity range: 10%-80%, non-condensing

## GLOSSARY OF SYMBOLS



Attention, consult accompanying documents



Medical equipment with respect to electrical shock, fire and mechanical hazards only in accordance with UL 60601-1 1st Edition standard and CAN/CSA-C22.2 No. 601.1-M90

## PRECAUTIONS FOR USE

- The Aurora S<sup>3</sup> must be used in strict accordance with these operating instructions. Parkell accepts no liability for any damage resulting from the misuse of this unit or uses for any other purpose.
- **Safety Notice (IEC60825):** Class 2 LED Product. Warning: LED Radiation. Avoid Direct Eye Exposure. Eye injury can result.
- Always utilize proper blue light filtering eye protection for both clinicians and patients during use of the light. Do not look directly at the light source and do not stare at light reflected from the tooth surface. Prolonged exposure may cause retinal damage.
- This equipment is not intended for direct patient contact. Exposure must be restricted to the area of the oral cavity in which clinical treatment is intended. The curing light generates heat when on. The operator must take care to avoid contact between the patient's soft tissues and the device while in use. Prolonged exposure of soft tissue or skin to heat may result in patient injury.
- Use only the original Parkell charger. The use of third party AC/DC wall plug adapters/chargers will result in damage to the unit, and will void your warranty.
- This equipment produces electromagnetic energy and may cause interference with other electronic devices. Should this occur, changing the positioning or location of the device may be necessary.
- Protection Against Electric Shock - Class II.
- This equipment is not suitable for use in the presence of a flammable anesthetic gas mixture.
- Do not use on patients with a history of photo-biological conditions including urticaria solaris or erythropoetic photoporphyria, or who are on photosensitizing medications.

## CHARGING YOUR AURORA S<sup>3</sup> CURING LIGHT

**IMPORTANT:** Before using your new Aurora S<sup>3</sup> curing light for the first time, let it charge for a minimum of 3 hours. To charge the unit, plug the wire from the charger into the socket at the end of the light's handle (FIGURE 1), then plug the charger into the appropriate wall outlet. All the indicator lights will come on. When the unit is fully charged in about 3 hours, the blue indicator light will flash.

Since the Aurora S<sup>3</sup> cannot be overcharged if it is left plugged in, Parkell recommends that the light should be connected to its charger each evening to assure a full charge the next time you need it.

When the battery capacity is low, the mode indicator light will flash when the unit is activated. Recharge the unit as described above. The curing light can be used while it is recharging. To protect the battery from damage, the curing LED will not light when the battery is completely discharged. If this should happen, charge the unit or use it with the cord. The Aurora S<sup>3</sup> will maintain its output power during the curing cycle, even when the battery is weak.

## CLEANING AND DISINFECTION

- Use of Parkell's Aurora Barrier Sleeves (Stock No. S130) is highly recommended to eliminate the need to disinfect the light after every patient, and prevent composite from bonding to the lens.
- To disinfect the light, spray disinfectant onto a cloth and wipe down the unit. Use an EPA-approved, high-level surface disinfectant based upon glutaraldehyde or quaternary ammonium.
- To protect your warranty:
  - Do not steam autoclave the light, or use dry heat or Chemclave.
  - Do not spray disinfectant directly onto the light.
  - Do not immerse the unit in any liquid.
  - Do not use phenolic-based disinfectants or alcohol to disinfect the light.
  - Always clean the light with a curing lens in place.

Parkell will not be responsible for units that have been improperly disinfected.

## OPERATING THE AURORA S<sup>3</sup> CURING LIGHT

- All light operating modes are controlled using a single button. The Aurora S<sup>3</sup> has three curing modes. During operation, indicator lights on the top and underside of the case (FIGURE 2) will show the current curing mode as follows:

### Indicator Light

### Mode

Orange (with 2 bars)	03 sec @ 1000 mW/cm <sup>2</sup> ("Gel" mode)
Green (with 3 bars)	10 sec @ 1300 mW/cm <sup>2</sup> ("Turbo" mode)
Blue (with 2 bars)	20 sec @ 1000 mW/cm <sup>2</sup> ("Standard" mode)

- To change the mode, press and hold the button down. After about 1 second the unit will start to cycle through the three modes as shown by the indicator lights. Release the button when the required mode is reached.
- If the light is not used for 10 minutes it will enter "sleep mode" to conserve the battery. All the indicator lights will go out. One press and release of the button will wake the unit up in the last used setting prior to entering "sleep mode".
- To start the curing cycle, press and release the button. This will activate the light in the curing mode selected. The light will shut off automatically at the end of the curing cycle.
- To turn the Aurora S<sup>3</sup> curing light off at any time during a curing cycle, simply press and release the button for a second time.
- Due to the variation in light-cured materials, curing times will differ between products and between batches of the same product. Review the manufacturer's product instructions for their recommended curing times. Use these numbers as a starting point, but ALWAYS bench test new materials before use in vivo to verify the suggested curing time.
- If the patient is new to light-cured resin dentistry, explain to them what to expect before use.

## A GUIDE TO THE AURORA S<sup>3</sup>'s AUDIO SIGNALS

During the 3-second curing cycle, a beep will sound every second. During the 10- and 20-second curing cycles, a beep will sound every 5 seconds. For convenience during intraoral use, an auxiliary mode indicator LED on the bottom of the unit mimics the mode LED colors, allowing you to always know what mode has been selected. At the end of a curing cycle, the curing light will beep and automatically shut off with an ending sound.

## REFLECTOR LENS CARE

The Aurora S<sup>3</sup> Reflector and LED's are protected by the lenses (FIGURE 3). Do not touch the surface of the Reflector or the LED's, as this will contaminate them and decrease their effectiveness.

The Aurora S<sup>3</sup> comes with two Clear Lenses and one Tacking Lens. Additional lenses may be purchased separately. To remove a lens, turn it 1/8<sup>th</sup> turn counter-clockwise and remove it from the light. Reverse the process to install the new lens (FIGURE 4).

The lenses are made of a chemically resistant material. They should be inspected prior to each use for scratches, cracks or adherent resin material that may interfere with output of the Aurora S<sup>3</sup>. If necessary, clean with a soft cloth wetted with disinfectant, or replace the lens. Any spots of dried liquid should be wiped off the lens, and adhering polymerized composite should be removed with alcohol or a non-scratching plastic spatula. To protect the surface, do not use any sharp or pointed tools.

## MAINTENANCE AND CARE

Other than the rechargeable battery, there are no user-serviceable components in the Aurora S<sup>3</sup> light. Only Parkell technicians are authorized to open the housing to repair the unit. Use Parkell-supplied batteries only. The use of other batteries is a potential hazard and may damage the unit.

## REPLACEMENT OF THE BATTERY

- 1) Remove the Phillips screw below the charger socket (FIGURE 5) and remove the battery compartment cover.
- 2) Remove the battery from the compartment and disconnect the two-prong connector by pulling the battery's connector wires (FIGURE 6).

Figure 2

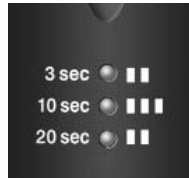


Figure 1



Figure 3



Figure 4



Figure 5



(Continued)