

### 58-24 Apollo 95E Curing Light (Project 98-53) (8/99)

The Apollo 95E Curing Light is a hand-held, corded, visible light polymerization unit. Rather than a conventional halogen bulb, the light is generated by a high-energy plasma lamp. The lamp is purported to provide adequate polymerization of dental materials in as little as one to three seconds rather than the usual 40 seconds required of conventional halogen curing lights. The unit consists of a wand-style handpiece connected to a power supply control unit via a six-foot flexible cord containing a liquid-filled fiberoptic line. A foot pedal connected to the control unit is depressed to activate the light. Membrane touch pad controls on the front of the control unit allow selection of either a curing or tooth whitening mode and exposure times of 1,2,3 seconds, or a stepped-cure mode of two seconds at low intensity followed by four seconds at high intensity. The unit is supplied with two removable curing tips (an 8-mm, curved tip and an 8-mm straight tip) that can be sterilized or disinfected between uses. The power control unit measures 4"H x 12"W x 11"D and weighs 14 pounds.



#### **Manufacturer:**

Dental/Medical Diagnostic Systems, Inc (DMD)  
200 N. Westlake Blvd., Suite 202  
Westlake Village, CA 91362  
(800) 399-0999  
(805) 381-2700  
(805) 374-2137 FAX

#### **Suggested Retail Price:**

\$4500.00 Includes: Apollo 95E, 8-mm-diameter curved fiberoptic light tip, 8-mm-straight fiberoptic light tip, foot control, and protective light shield.

#### **Government Price:**

\$4500.00 Includes: same as above.

#### **ADVANTAGES:**

- + Had higher measured irradiance values than any other unit previously tested by DIS.
- + Faster curing than conventional halogen curing lights.
- + Sterilizable curing tips.
- + Internal voltage regulator.
- + Contains stepped-cure mode.
- + Cooling fan operation is proportional to bulb usage.
- + Easily cleaned or barrier protected.

#### **DISADVANTAGES:**

- Doesn't polymerize resin composite in as short a time as advertised.
- Operator instructions are incomplete and confusing.
- Doesn't have a built-in radiometer.
- Only one size curing tip is available.
- Protective light shield does not fit handpiece correctly and is difficult to position.
- Much more expensive than conventional halogen curing light.
- Replacement bulb is very expensive.
- Clinical users found wand handpiece and cord were heavy, poorly balanced, and more difficult to use than gun-type curing lights.

- Clinical evaluators disliked foot pedal activation.
- Curing tip is secured to handpiece magnetically and frequently came loose.
- All exposure times and curing modes are selected at the power unit; more convenient handpiece controls are not available.
- Leakage current exceeds National Fire Prevention Association (NFPA 99) electrical safety requirements for medical/dental equipment used within a six-foot radius of patients.

**SUMMARY AND CONCLUSIONS:**

The Apollo 95E Curing Light is a high-intensity unit designed to expedite the polymerization of light-cured materials. Its irradiance (2494 mW/cm<sup>2</sup>), which is approximately four times greater than conventional halogen curing lights, helps it cure light-activated materials faster. Although the manufacturer claims a 1 to 3 second cure, DIS laboratory testing found that 13 seconds (includes lamp cooling delays) were required to adequately polymerize a 2-mm-thick layer of resin composite. Clinical evaluators appreciated the shorter curing time and quiet operation, but did not like the wand-style handpiece or the foot pedal activator. The protective light shield did not fit the handpiece well and clinical users found that the magnetically-held curing tip was not securely fixed to the handpiece. The unit's voltage regulator allowed consistent irradiance over a wide range of voltages, and the curing tip was unaffected by repeated sterilization in an autoclave. The Apollo 95E's leakage current exceeds recommended NFPA 99 electrical safety levels and would require 3-month re-evaluations if used in DoD facilities. Overall, four of eight clinical evaluators rated the Apollo 95E as "Good," three rated it as "Average," and one rated it as "Fair." The **Apollo 95E Curing Light** is rated **Marginal** for use by the federal dental services.

**UPDATE** In July 2001, Dental/Medical Diagnostic Systems, Inc. announced that it planned to file Chapter 7 bankruptcy. In April 2001, D.M.D. reported to the Securities and Exchange Commission that it had stopped all direct sales of dental equipment.