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[\[PDF \(819K\)\]](#) [\[References\]](#)**Effect of Inhomogeneity of Light from Light Curing Units on the Surface Hardness of Composite Resin**[Hiroyuki ARIKAWA](#)¹⁾, [Takahito KANIE](#)¹⁾, [Koichi FUJII](#)¹⁾, [Hideo TAKAHASHI](#)²⁾ and [Seiji BAN](#)¹⁾

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Abstract:

This study investigated the characteristics of output light from different types of light curing units, and their effects on polymerization of light-activated composite resin. Three quartz-tungsten-halogen lamps, one plasma arc lamp, and one LED light curing unit were used. Intensity distribution of light emitted from the light guide tip was measured at 1.0-mm intervals across the guide tip. Distribution of Knoop hardness number on the surface of resin irradiated with the light curing units was also measured. For all units, inhomogeneous distribution of light intensity across the guide tip was observed. Minimum light intensity values were 19-80% of the maximum values. In terms of surface hardness, inhomogeneous distribution was also observed for the materials irradiated with the tested units. Minimum values were 53-92% of the maximum values.

Our results indicated that markedly inhomogeneous light emitted from light curing unit could result in inhomogeneous polymerization in some areas of the restoration below the light guide tip.

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