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APPROPRIATE LIGHTING CONDITIONS FOR MAKEUP

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Most women make up so as to make them attractive. When they makeup, they watch their face in the mirror, in a variety of room under different lighting conditions. But the appropriate lighting conditions for makeup was not determined.

In the Illuminance Standard issued within the Japanese Industrial Standard, the value of the horizontal illuminance for makeup is 200-500lx in a lavatory, and is 300-750lx in a family room or a bedroom. The Illuminance Engineering Institute of Japan issued a Technical Guide for Residential Lighting Design, in which the value of the vertical illuminance on the face is 200-500lx. However, these values had to take into consideration lighting quality as well as illuminance.

This study aims to determine the appropriate lighting conditions for makeup. In this study, we conducted subjective evaluation for makeup, under different conditions of light source, illuminance and light color. And we presumed that the task of makeup included 2 tasks; 'base-makeup', foundation cream or cheek rouge, and 'point-makeup', mascara or lipstick. This paper reports on the brightness or visibility of one's face, and the task performance of makeup in different lighting conditions.

We conducted the subjective experiment on the lighting environment in a lavatory. We made the experimental apparatus which equipped 4 fluorescent lamps or 2 incandescent lamps, and which presented varying conditions of the illuminance on face, the light color, and the lighting position of the mirror. When the fluorescent lamps were equipped, we set 2 conditions of illuminance on one's face (200lx / 800lx), 2 conditions of the light color (5000K / 3000K), and 4 conditions of the lighting position against the mirror (upper / side-to-side / above and below / all 4 sides). When the incandescent lamps were equipped, we set 2 conditions of illuminance on one's face (200lx / 800lx), 1 condition of the light color (3000K), and 2 conditions of the lighting position against the mirror (upper side-to-side / middle side-to-side). And we measured the illuminance of each light direction (azimuth angle 90°/-90° or 0°/180°) in each lighting condition. Afterwards, Subjects observed their face under 32 lighting conditions, and they evaluated "Brightness of one's face", "Visibility of features of one's face", "Visibility of the shadow", "Glare of lighting", "Discomfort of glare", "Annoyance of shadow", "Task performance", and "Satisfaction" in both base-makeup and point-makeup. They answered according to a 4-6 oral evaluation scale in each. The subjects were 20 females, university students, all in their twenties.

As a result, "Visibility of features of one's face" was good, when the vertical illuminance on face was 800 lx. It was shown that "Annoyance of shadow" was a little bad, in the case of the incandescent lamps. And it was also that, under the fluorescent lamps, "Annoyance of shadow" was a little bad, when the lighting position against the mirror was above and below, but was good when it was side-to-side or all 4 sides. "Task performance" was affected by "Annoyance of shadow", so that "Task performance" was good, when the lighting position against mirror was side-to side or all 4 sides, in the case of the fluorescent lamps.



Above all, the lighting condition for makeup was best among all conditions in this experiment, when the illuminance on face was 800 lx, and when the lighting position of mirror was all 4 sides in both base-make and point-make.