2 (J-1) 1. 照明術語の定義

術語委員会委員長 工学博士 山川義太郎

DEFINITION OF TERMS RELATING TO ILLUMINATING ENGINEERING.

Report of the Japanese Committee on Definitions and Symbols.

By Prof. Dr. Gitaro YAMAKAWA, Chairman.

The Japanese Committee on Definitions and Symbols has established the definitions for the following 118 terms relating to the illuminating engineering, and arranged them in an alphabetical order for the sake of simplicity. This report includes some terms which have already been adopted by the International Commission on Illumination and which are also rearranged for the benefit of users with or without any revision.

1. **Absorption coefficient**, Cf. "Absorption factor".
2. **Absorption factor** of a body is the ratio of the flux absorbed by the body to the flux incident upon it. (This term is introduced to replace the more commonly used term, "coefficient of absorption" or "absorption coefficient" which refers to the specific property of materials rather than to the behavior of bodies under specified conditions such as angle of incidence, etc.)
3. **Accommodation** of the eye is the process by which the condition of the eye is changed in accordance with the distance at which an object is to be viewed, so as to secure effective focussing of the image on the retina.
4. **Achromatic colour** is the species of colours, which does not exhibit hue.
5. **Achromatic light** is light which does not exhibit hue.
6. **Aging** of an incandescent electric lamp is the fact that its filament becomes more steady or the state of its filament which became more steady due to the heating.
7. **Amplitude of accommodation** is the difference in diopter between the refraction by the eye adjusted for its far point and that by the eye adjusted for its near point.
8. **Angle of deviation** of the refracted ray is the acute angle through which the direction of the refracted ray has to be turned to bring it into the same direction as that of the incident ray.
9. **Angle of divergence** of a beam of light is the angle subtended by the width of the beam at its source.
10. **Angstrom unit** is the unit of length used for very short wave-lengths of radiation and is equal to 10^{-10} metres.
11. **Angular width** of a beam of light, Cf. "Angle of divergence".
12. **Apparent candle-power** is the apparent intensity expressed in candles.
13. **Artificial daylight** is a kind of light produced artificially whose colour resembles that of daylight.
14. **Artificial illuminant** is the illuminant prepared by artificial means.
15. **Axial intensity** is the intensity in the direction of the lamp axis.
16. **Black body radiation** is the radiation radiated from a black body.
17. **Blinding glare** is the high degree of brightness glare such as to cause blinding after-effect.
18. **Brightness** in a given direction of an element of a luminous surface is the quotient of the

luminous intensity measured in that direction by the area of this surface projected on a plane perpendicular to the direction considered.

19. **Brightness glare** is glare due to excessive brightness of the object viewed.
20. **Brightness temperature** of a body for a stated wave-length is the temperature at which an ideal black body has, at this wave-length, the same brightness as that body.
21. **Burning position** of a lamp is the orientation in which the lamp burns.
22. **Candle power** is the luminous intensity expressed in candles.
23. **Chroma** is a term used to designate briefly the chromatic colour.
24. **Chromatic colour** is the species of colours, which exhibits hue.
25. **Chromatic light** is light which exhibit hue.
26. **Chromatic sensation** is a faculty of the eye to distinguish certain colours.
27. **Coefficient of absorption**, Cf. "Absorption factor".
28. **Coefficient of utilization** of an illumination installation on a given plane is the total flux received by that plane divided by the total flux from the lamps illuminating it. When not otherwise specified, the plane of reference is the standard working plane. Cf. "Working plane.")
29. **Colour** is the sensation produced in the eye by reasons of the wave lengths or frequencies of light.
30. **Colour blind vision (Colour blindness, Achromatopsia)** is the absence or partial lack of the normal colour sensation, due to the congenial anomaly or acquired disturbance of the retina.
31. **Colour chart** is a system of colours arranged in series according to brilliance, hue and saturation.
32. **Colourless light** Cf. "Achromatic light".
33. **Colour music** is the view put forward by A.W. Remington that if different colours were thrown on to a screen, one after another in a rhythmical manner, after a suitable training, the spectators would derive the same pleasure from witnessing the performance, as they do from hearing music.
34. **Colour sensation**, Cf. "Chromatic sensation".
35. **Colour temperature** of a body is the temperature at which an ideal black body has the same integral (or apparent) colour as that body.
36. **Colour triangle** is the graphical representation in trilinear coordinates of the results of trichromatic analysis of colour.
37. **Comparison lamp** is a lamp of constant, but not necessarily known intensity against which a standard and test lamps are successively compared in photometry.
38. **Complementary colours** are the colours evoked by complementary stimuli, in the given proportions, separately.
39. **Complementary hue**. Two hues are complementary if they may be mixed to produce white.
40. **Complementary stimuli** are the stimuli which when mixed additively in certain required proportions evoke a grey.
41. **Composite light** is light which is a mixture, in varying proportions, of waves of all frequencies to which the eye is capable of responding.
42. **Continuous glare** is glare due to glaring effects above the maximal limit of full adaptation.
43. **Contrast glare** is glare due to excessive contrasts within the field of view.
44. **Dazzle glare** is glare due to adventitious light so refracted and scattered as not to form part of the retinal image.
45. **Density** of the developed silver deposit of a photographic plate or film is the common logarithm of the opacity.

46. **Depreciation factor** in the design of illumination installation is the safety factor provided against the decrease of the ability of the installation during the time of its working.
47. **Dichromatic vision** is a kind of the colour blindness, which has the faculty to distinguish only two colours, complementary to each other, lacking the vision of intermediate or mixed colour.
48. **Diffusing power** of a diffusing material, according to Dr. Halbertsma, is the ratio of the flux transmitted by the material to the flux transmitted by the perfectly diffusing material whose maximum brightness is equal to that of the material.
49. **Equiluminous curve** is the locus of equally illuminated points on the illuminated surface.
50. **Equilux curve**, Cf. "Equiluminous curve".
51. **Fundamental colours** are three component colours, homogeneous or composite, chosen from the three principal regions of the spectrum, suitable amounts of which are to be mixed in order to obtain colour match to all other colours.
52. **Glare** is that effect produced by the light in the field of view, which has an objectionable influence upon the ability to perceive objects.
53. **Grey** is a term used to designate briefly the achromatic colour.
54. **Group illumination**, Cf. "Modified general illumination".
55. **Homogeneous light** is light consisted entirely of waves of a single frequency.
56. **Homogeneous radiant energy**, Cf. "Homogeneous light".
57. **Horizontal light distribution curve** is a kind of distribution curve representing the luminous intensity of a luminous source, in the horizontal plane situating the unit in a position of ordinary use.
58. **Hue** is that property of colour by which the various spectral regions are characteristically distinguished. All colours except purple and white may be matched in hue with spectral colours. In the case of purple, the spectral hue which is complementary to the hue of the purple is ordinarily used for scientific designation.
59. **Illuminant** is the body which emits light.
60. **Illumination** means: (1) illuminating engineering, which is the science or art related to better use of light energy, (2) the density of the luminous flux at a point of a surface or the quotient of the flux by the area of the surface when the latter is uniformly illuminated.
61. **Illumination curve** is a curve showing the illumination along the straight line considered.
62. **Illumination efficiency**, Cf. "Coefficient of utilization".
63. **Illumination photometry** is a method to measure illumination.
64. **Index of refraction** is the ratio between the sines of the angles of incidence and refraction of a ray of a light passing from one medium into another.
65. **International candle** is the candle adopted by the International Commission on Illumination which is resulted from the agreement effected between the three National Standardizing Laboratories of France, Great Britain and the United States in 1909. This unit has been maintained since then by means of incandescent electric lamps in these laboratories, which continue to be entrusted with its maintenance. These laboratories are: the Laboratoire Centrale d'Electricité in Paris, the National Physical Laboratory in Teddington and the Bureau of Standards in Washington. Candle officially adopted in Japan is equal to the international candle.
66. **Irradiation** is the phenomenon that one sees a bright object larger than its real size. In radiometry irradiation is the term which corresponds to illumination in photometry.
67. **Isolux curve**, Cf. "Equiluminous curve".

68. **Least mechanical equivalent of light** is the mechanical equivalent of monochromatic radiation of greatest luminous efficiency.
69. **Life of a lamp** is the lighting time elapsed before the lamp becomes useless.
70. **Light** is (1) the visual sensation produced normally when radiant flux within the proper limit of wave-length of sufficient intensity and of sufficient duration, impinges on the retina, (2) the luminous flux which produces the visual sensation.
71. **Light adaptation** is the reversible process of retina, which decreases the sensitivity to light by exposing the eye to a bright light.
72. **Light distribution curve** of a luminous source is a curve representing space distribution of the luminous intensity of the unit.
73. **Localized general illumination**, Cf. "Modified general illumination".
74. **Lumen** is the unit of luminous flux and is equal to the flux emitted in a unit solid angle by a uniform point source of one international candle.
75. **Luminous efficiency** of the radiant energy is the ratio of the luminous flux to the radiant flux from the source.
76. **Luminous flux** is the rate of passage radiant energy evaluated by reference to the luminous sensation produced by it.
77. **Lux** is the practical unit of illumination. It is the illumination of a surface 1 square metre in area, receiving a uniformly distributed flux of 1 lumen, or the illumination produced at the surface of a sphere having a radius of 1 metre by a uniform point source of 1 international candle situated at its centre.
78. **Mechanical equivalent of light** of a given radiant energy is the power radiated per unit of luminous flux.
79. **Modified general illumination** is such a mode of illumination as a combination of a local illumination of fairly high intensity with a general illumination of lower intensity.
80. **Monochromatic light**, Cf. "Homogeneous light".
81. **Monochromatic radiant energy**, Cf. "Homogeneous radiant energy".
82. **Mounting height** of a luminair shall be understood, when not otherwise specified, as the height of its light-centre from the standard working plane.
83. **Normal brightness** of an element of a luminous surface is the brightness in the direction normal to the surface.
84. **Opacity** of the developed silver deposit of a photographic plate or film is the ratio of the intensity of light incident upon it to that of the transmitted light.
85. **Opalescence** is the property of certain kinds of material which renders it a diffuser of light by reason of its containing small white particles which reflect the rays of light as they pass through.
86. **Opaque body** is a body which does not transmit the flux incident upon it.
87. **Photometer** is the instrument to be used for photometry.
88. **Photometric standard**, Cf. "Primary standard", "Secondary standard".
89. **Photometry** is the science and art of the measurement of quantities associated with luminous flux.
90. **Primary colours**, Cf. "Fundamental colours".
91. **Primary (luminous) standard** is one by which the unit of light is established and from which the values of other standard are derived. It must be reproducible from specifications.
92. **Radiant flux** is the time rate of transfer of energy by radiation.
93. **Radiation temperature** of a body is the temperature at which the rate of total energy radiation from an ideal black body is equal to the rate from that body.

94. **Range of accommodation** is the distance from the far point of the eye to its near point.
 95. **Refraction** is the phenomenon that the light ray undergoes a change in direction when it passes from one medium into another.
 96. **Refractive index**, Cf. "Index of refraction".
 97. **Room index** is an index for the classification of lighting installations in ordinary rooms into groups depending upon the relative dimension of the room with respect to the mounting height of light sources. It is used for finding their coefficients of utilization.
 98. **Seasoning**, Cf. "Aging".
 99. **Secondary luminous standard** is one calibrated by direct or indirect comparison with a primary standard.
 100. **Simultaneous contrast** is a subjective phenomenon due to the mutual influence of different luminosities colours appearing side by side in the visual field. Thus each portion of visual field next a brighter one looks darker and vice versa; and a colour alongside another colour resembles more or less the complementary colour of the latter.
 101. **Successive contrast** is a subjective phenomenon due to the influence of different colours appearing one after another upon the same retinal area. If the second colour is of the same hue as the first, it becomes whiter by successive contrast, while if complementary, it becomes more saturated.
 102. **Temperature radiation** is the radiation the frequency of which depends solely on the temperature of the body which emits it.
 103. **Temporary glare** is glare due to temporary lack of adaptation to glaring effects.
 104. **Translucent body** is a body which transmits a certain amount of flux incident upon it.
 105. **Transmission factor** of a body is the ratio of the flux transmitted by the body to the flux incident upon it.
 106. **Transparency** of the developed silver deposit of a photographic plate or film is the reciprocal of the opacity.
 107. **Transparent body** is a body which transmits a greater part of flux incident upon it.
 108. **Veiling glare** is glare due to light somewhat uniformly superimposed on the retinal image, reducing contrasts.
 109. **Vertical illumination** at a point is the illumination at that point on a vertical plane through it.
 110. **Vertical light distribution curve** is a kind of distribution curve representing the luminous intensity of a luminous source, in a vertical plane situating the unit in a position of ordinary use. Unless otherwise specified, a vertical distribution curve is assumed to be an average vertical distribution curve, (such as may in many cases be obtained by rotating the unit about its axis and measuring the average intensities at the different elevations.)
 111. **Vision** is act or faculty of seeing.
 112. **Visual illusion** is the visual perception of an external object involving a false belief.
 113. **Visual photometry** is one in which the balance is taken visually.
 114. **Width of a beam** of light is the distance between such two points on a lateral line that the normal illumination at each point is 10% of the maximum on the line. When not otherwise stated, the lateral line is taken so that it is horizontal and intersects the axis of the beam.
 115. **Working plane** is the plane, on which the illumination is to be considered.
 116. **Working standard** is any standardized lamp for daily use in photometry.
 117. **Zonal factor** is the factor which should be multiplied to the average luminous intensity in a zone in order to obtain the flux in the zone.
 118. **Zone factor**, Cf. "Zonal factor".
-