



AEROSPACE STANDARD

AS25050™**REV. B**

Issued 1998-08
Revised 2017-03
Reaffirmed 2022-09

Superseding AS25050A

(R) Colors, Aeronautical Lights and Lighting Equipment,
General Requirements for

FSC 6220

RATIONALE

The color definitions have been consolidated in table form for clarity and ease-of-use. The CIE chromaticity plots have been updated to a more modern format, and the outdated rectangular uniform chromaticity charts have been replaced with the more commonly used CIELUV color space charts.

AS25050B has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

This specification covers the chromaticity and transmission requirements of aircraft lighting and light transmitting ware in descending order of transmission. It is intended for use in aviation lighting.

1.1 Classification

Colors shall be furnished in two types in accordance with the following designations, as specified:

Type I - Aviation colors:

- a. Aviation red
- b. Aviation yellow
- c. Aviation green
- d. Aviation blue
- e. Aviation white
- f. Instrument and panel lighting red
- g. Instrument and panel lighting white
- h. Blue-filtered white
- i. Instrument and panel lighting blue-green

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Documents

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Type II - Identification colors:

- a. Identification red
- b. Identification yellow
- c. Identification green
- d. Identification lunar white

2. REFERENCES

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 Applicable Documents

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AS8017 Minimum Performance Standard for Anticollision Light Systems

AS8037 Minimum Performance Standard for Aircraft Position Lights

ARP4032 Human Engineering Considerations in the Application of Color to Electronic Aircraft Displays

2.1.2 FAR Publications

Available from http://www.faa.gov/regulations_policies/faa_regulations/

Federal Aviation Regulation, Parts 23, 25, 27, and 29 Airworthiness Standards

2.1.3 U.S. Government Publications

Copies of these documents are available online at <http://quicksearch.dla.mil>.

MIL-L-25467 Lighting, Integral, Aircraft Instrument, General Specification for

FED-STD-3 Colors, Aeronautical Lighting

2.2 Streamlining

This document has been streamlined. Appendix A to AS25050B lists those documents required for acquisition and is a mandatory part of AS25050B. All other documents, referenced through tiering, may be used as guidance and information to supplement AS25050B. AS25050B is a streamlined document.

3. REQUIREMENTS

3.1 Aviation Colors

Standards for aviation colors shall conform to the following fundamental colorimetric definitions. In Figure 1, these limits are shown graphically in the coordinate system of the International Commission on Illumination (CIE) in which they are stated numerically Figure 2 shows those same limits in the CIELUV color space (see 6.3.1.) The x,y and u',v' vertex coordinates in these tables are included as an aid to those wishing to generate their own plots and should not be considered prescriptive. The color definitions should be used to determine compliance. The color coordinates for aviation red, aviation green and aviation white specified in FAR 23.1397, FAR 25.1397, FAR 27.1397, FAR 29.1397, AS8037, and AS8017 are acceptable alternatives to the colors specified in this document.

Table 1 - Aviation colors

Color	References	Color Definition	x, y Vertex Coordinates ¹	u',v' Vertex Coordinates ¹
Aviation Red Type I(a)	FAR 23.1397 FAR 25.1397 FAR 27.1397 FAR 29.1397 AS8037 AS8017	y is not greater than 0.335 z is not greater than 0.002	0.665, 0.335 0.663, 0.335 0.735, 0.263	0.467, 0.530 0.466, 0.530 0.627, 0.505
Aviation Yellow Type I(b)		y is not less than 0.370 y is not greater than 0.425 z is not greater than 0.007	0.630, 0.370 0.623, 0.370 0.568, 0.425 0.575, 0.425	0.408, 0.539 0.402, 0.538 0.326, 0.549 0.331, 0.550
Aviation Green Type I(c)	FAR 23.1397 FAR 25.1397 FAR 27.1397 FAR 29.1397 AS8037	x is not greater than 0.440 – 0.320 y x is not greater than y – 0.170 y is not less than 0.390 – 0.170 x	0.028, 0.385 0.188, 0.358 0.292, 0.462 0.188, 0.787	0.015, 0.458 0.109, 0.466 0.147, 0.522 0.062, 0.587
Aviation Blue Type I(d)		x is not greater than 0.175, y is not greater than x, $\varnothing_r$ divided by $\varnothing_w$ is not greater than 0.015. ²	0.175, 0.000 0.175, 0.175 0.103, 0.103	0.264, 0.000 0.147, 0.332 0.102, 0.230
Aviation White Type I(e)	FAR 23.1397 FAR 25.1397 FAR 27.1397 FAR 29.1397 AS8037 AS8017	x is not less than 0.350 x is not greater than 0.540 y – y _o is not numerically greater than 0.01 ³	0.540, 0.420 0.540, 0.400 0.468, 0.402 ⁴ 0.417, 0.386 ⁴ 0.376, 0.364 ⁴ 0.350, 0.345 0.350, 0.365 0.376, 0.384 ⁴ 0.417, 0.406 ⁴ 0.468, 0.422 ⁴	0.310, 0.543 0.321, 0.536 0.272, 0.525 ⁴ 0.245, 0.511 ⁴ 0.227, 0.495 ⁴ 0.217, 0.482 0.210, 0.492 0.219, 0.504 ⁴ 0.237, 0.519 ⁴ 0.263, 0.533 ⁴

1. The spectrum locus is used as a boundary for some color regions.
2. $\varnothing_w$ is the total flux of the light under consideration, and $\varnothing_r$ is the part of that flux which is transmitted by a replica of identification red transmission-standard filter designation as National Bureau of Standards (NBS) 3055A.
3. Y_o is the y coordinate of the Planckian Radiator for which x_o = x.
4. Representative points have been chosen to approximate a smooth curve.

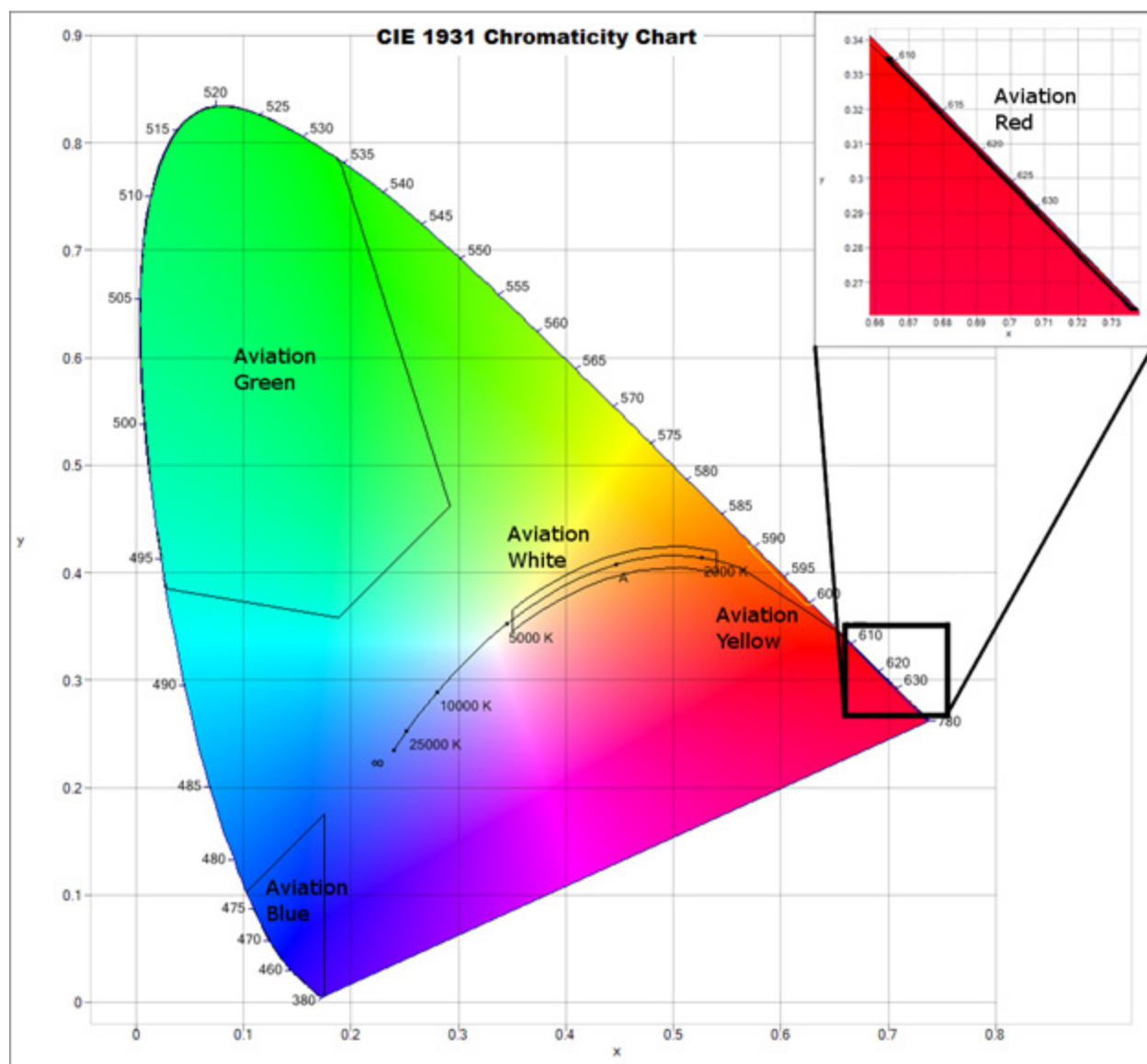


Figure 1 - CIE 1931 plot of aviation colors



Standards for instrument and panel colors shall conform to the following fundamental colorimetric definitions (see Table 2). In Figure 3, these limits are shown graphically in the coordinated system (CIE) in which they are stated numerically. Figure 4 shows those same limits in the CIELUV uniform color space.

Table 2 - Instrument and panel colors

Color	Color Definition	x, y Vertex Coordinates³	u',v' Vertex Coordinates
Instrument and Panel Lighting Red Type I(f)	y is not greater than 0.306 z is not greater than 0.001	0.694, 0.306 0.693, 0.306 0.735, 0.264	0.525, 0.521 0.524, 0.521 0.626, 0.506
Instrument and Panel Lighting White Type I(g)	x is not less than 0.48 x is not greater than 0.54 y - y _o is not numerically greater than 0.01 ¹	0.540, 0.420 0.540, 0.400 0.527, 0.403 ² 0.506, 0.405 ² 0.486, 0.405 ² 0.480, 0.404 0.480, 0.424 0.486, 0.425 ² 0.506, 0.425 ² 0.527, 0.424 ²	0.310, 0.543 0.321, 0.536 0.311, 0.535 ² 0.296, 0.532 ² 0.282, 0.529 ² 0.279, 0.528 0.269, 0.535 0.273, 0.537 ² 0.286, 0.540 ² 0.300, 0.543 ²
Blue-Filtered White Type I(h)	x is not less than 0.420 x is not greater than 0.460 y is not less than 0.385 y is not greater than 0.425	0.420, 0.385 0.460, 0.385 0.460, 0.425 0.420, 0.425	0.248, 0.511 0.275, 0.517 0.256, 0.533 0.231, 0.527
Instrument and Panel Lighting Blue-Green Type I(i)	x is not less than 0.02 x is not greater than 0.19 y is not less than 0.18 y is not greater than 0.44	0.075, .180 0.190, 0.180 0.190, 0.440 0.020, 0.440	0.060, 0.323 0.159, 0.339 0.096, 0.501 0.010, 0.481

1. Y_o is the y coordinate of the Planckian Radiator for which x_o = x.
2. Representative points have been chosen to approximate a smooth curve.
3. The spectrum locus is used as a boundary for some color regions.

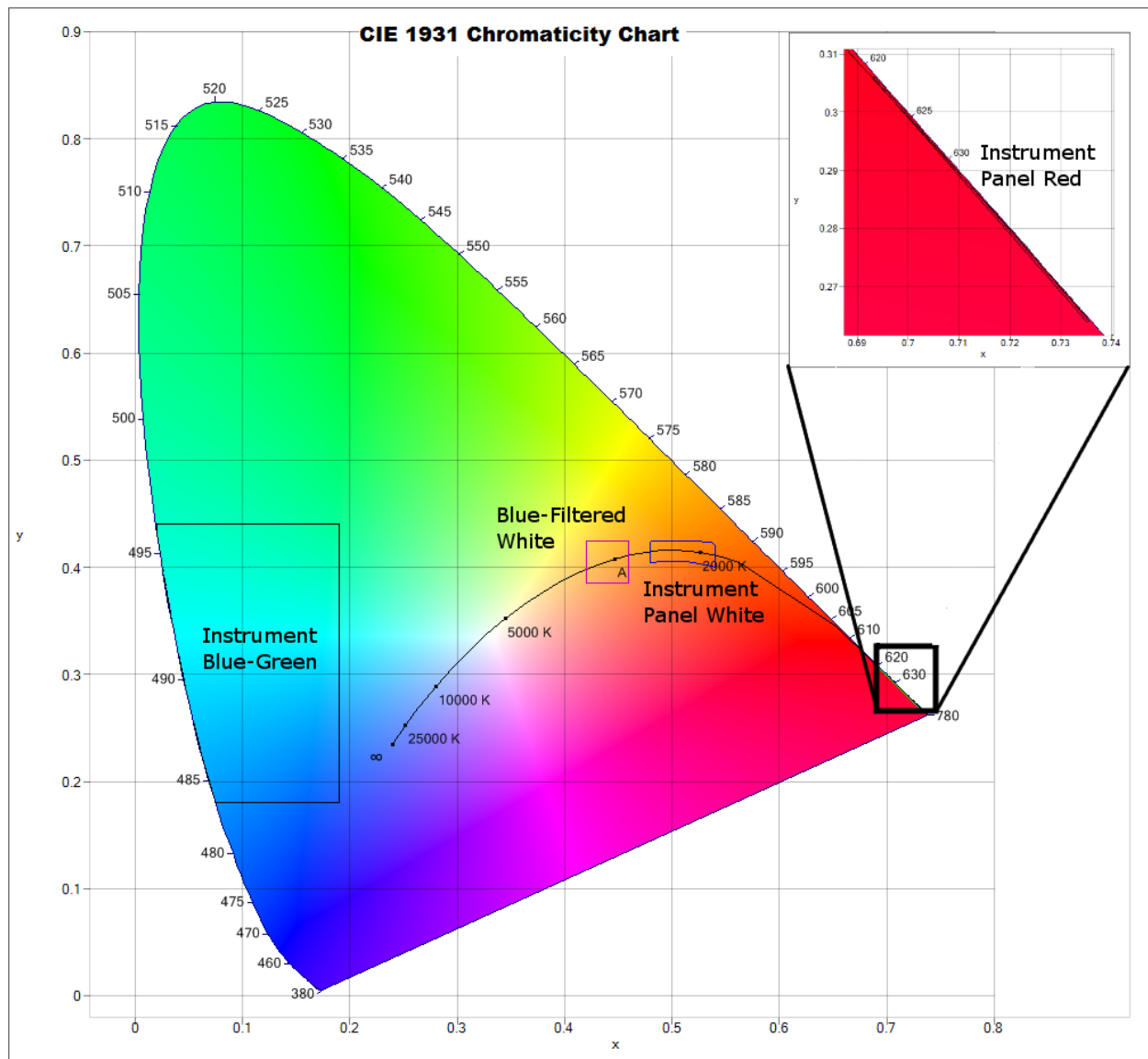


Figure 3 - CIE 1931 plot of instrument and panel colors

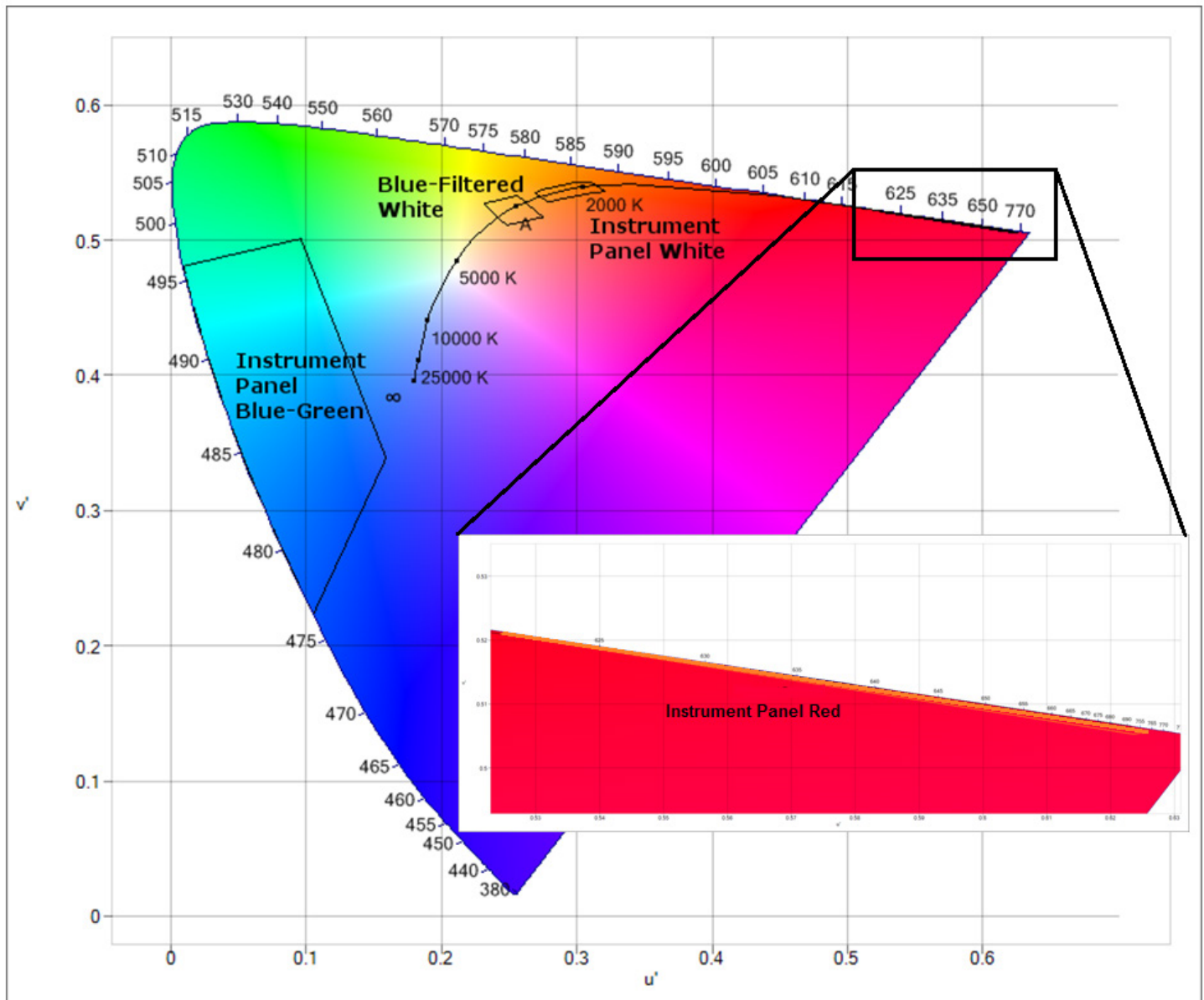


Figure 4 - CIELUV plot of instrument and panel colors

3.3 Identification Colors

Standards for identification colors shall conform to the following fundamental colorimetric definitions. In Figure 5, these limits are shown graphically in the coordinated system (CIE) in which they are stated numerically. Figure 6 shows the limits in the CIELUV uniform color space.