SAE International

# SURFACE VEHICLE STANDARD

SAE J578 JUL2012

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Revised 2012-07

Superseding J578 DEC2006

## Color Specification

RATIONALE

In this revision the following boundaries were harmonized with the ECE fog lighting requirements as specified in UNECE Regulation 48:

- the specification for Selective Yellow was changed to the ECE requirements. The boundary y = 0.966 – x was replaced with the pair of boundaries y = 0.440 and y = 0.940 – x.

- the specification for White to Yellow was removed.

Figure 1 was updated accordingly.

1. SCOPE

This SAE Standard defines and provides a means for the control of colors employed in motor vehicle external lighting equipment, including lamps and reflex reflectors. The document applies to the overall effective color of light emitted by the device in any given direction and not to the color of the light from a small area of the lens. It does not apply to pilot, indicator, or tell-tale lights.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

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 724-776-4970 (outside USA), www.sae.org.

SAE J578 JUN1995 Color Specification for Electric Signal Lighting Devices

SAE J774 Emergency Warning Device

SAE HS 34 SAE Ground Vehicle Lighting Standards Manual





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**http://www.sae.org/technical/standards/J578_201207**

2.1.2 Federal Publications

Available from the Superintendent of Documents, U.S. Government Printing Office, Mail Stop: SSOP, Washington, DC 20402-9320.

FMVSS No. 125 Warning Devices, 39 FR 28636, Aug. 9, 1974 as amended at 40 FR 4, Jan. 2, 1975

49 CFR 571.108 Lamps, Reflective Devices and Associated Equipment (FMVSS 108)

2.1.3 ASTM Publication

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org

ASTM E 308-01 Method for Computing the Colors of Objects by Using the CIE System

2.1.4 CIE Publication

Available from Commission Internationale de l'Eclairage, CIE Central Bureau, Kegelgasse 27, A-1030 Wien, Austria, Tel: +43-1-714-31-87-0, www.cie.co.at.

CIE 1931 Standard - Colorimetry

3. DEFINITIONS

3.1 CHROMATICITY COORDINATES

The fundamental requirements for color are expressed as chromaticity coordinates according to the CIE (1931) standard colorimetric system (see Figure 1). The following requirements shall apply when measured by the tristimulus or spectrophotometric methods.

3.1.1 Red

The color of light emitted from the device shall fall within the following boundaries:

y = 0.335 (yellow boundary)
y = 0.980 – x (purple boundary)

3.1.2 Yellow (Amber)

The color of light emitted from the device shall fall within the following boundaries:

y = x – 0.120 (green boundary)
y = 0.390 (red boundary)
y = 0.790 – 0.670x (white boundary)

3.1.2.1 Selective Yellow (See A.2 Appendix)

The color of light emitted from the device shall fall within the following boundaries:

y = 1.290x – 0.100 (green boundary)
y = 0.138 + 0.580x (red boundary)
y = 0.440 (white boundary)
y = 0.940 – x (white boundary)

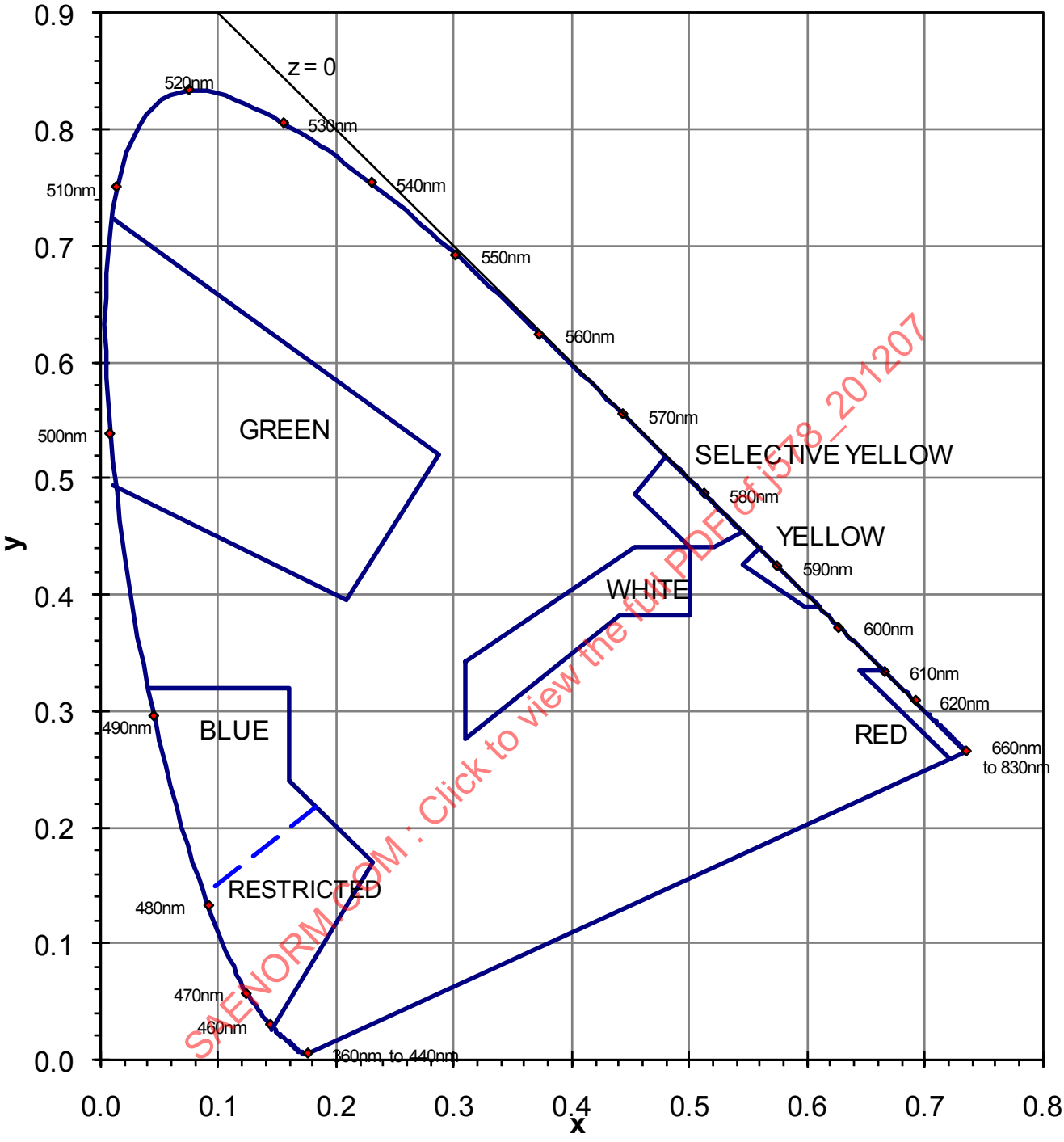




FIGURE 1 - CHROMATICITY DIAGRAM

3.1.3 White (Achromatic)

The color of light emitted from the device shall fall within the following boundaries:

x = 0.310 (blue boundary)
x = 0.500 (yellow boundary)
y = 0.150 + 0.640x (green boundary)
y = 0.050 + 0.750x (purple boundary)
y = 0.440 (green boundary)
y = 0.382 (red boundary)

3.1.4 Green

The color of light emitted from the device shall fall within the following boundaries:

y = 0.730 – 0.730x (yellow boundary)
x = 0.630y – 0.040 (white boundary)
y = 0.500 – 0.500x (blue boundary)

3.1.5 Blue

The color of light emitted from the device shall fall within the following boundaries:

3.1.5.1 Restricted Blue

This color should be elected when recognition of blue as such is necessary.

y = 0.070 + 0.810x (green boundary)
x = 0.400 – y (white boundary)
x = 0.130 + 0.600y (violet boundary)

3.1.5.2 Signal Blue

This color may be elected when, due to other factors, it is not always necessary to identify blue as such.

y = 0.320 (green boundary)
x = 0.160 (white boundary)
x = 0.400 – y (white boundary)
x = 0.130 + 0.600y (violet boundary)