

ANSI/INFOCOMM 3M-2011 *Projected Image System Contrast Ratio*

Overview

Abstract: This Standard defines projected image system contrast ratio and its measurement. It applies to both permanently installed systems and live events. It applies to front and rear projection. This Standard defines four contrast ratios based on content viewing requirements. System contrast ratio refers to the image as it is presented to viewers in a space with ambient light. Practical metrics to measure and validate the defined contrast ratios are provided.

Application: This Standard is designed to facilitate informed decision making for projector and screen selection, relative to location and stated purpose. Requirements of this performance Standard apply to:

- Planning and designing projected image system installations;
- Setting minimum and optimum contrast ratios relative to stated purposes;
- Evaluating completed projected image system installations;
- Assisting in assessing possible remedial solutions when a system is out of conformance with this Standard or otherwise inadequate for the stated purpose.

Technical Concept: The contrast ratios defined in this Standard comprise a combined output of a “projected image system,” defined within the Standard as a projector, projection screen, and the impact of ambient light. The term “contrast” is further qualified as “projected image system contrast ratio” (PISCR) because the individual performance factors of the projector and screen are only contributory factors to the delivered contrast ratio of the installed system. It is also termed as “system” contrast ratio because the maximum contrast ratio a projector and screen can deliver is ultimately affected and thus determined by ambient light.

In this Standard, contrast is defined as the absolute difference in luminance between the peak white and black levels, where white and black luminance is displayed simultaneously. The measurement technique is adopted from a prior contrast ratio standard, which defines what is commonly referred to as “ANSI contrast ratio.” However, the original ANSI standards, retired in July of 2003, ANSI/NAPM IT7.228-1997 *Electronic Projection – Fixed Resolution Projectors* and ANSI/PIMA IT7.227-1998 *Electronic Projection – Variable Resolution Projectors*, measured **illuminance** (i.e., measurement of direct light from the projector). This Standard uses the same 16-zone black and white checkerboard intra-frame test pattern used in the aforementioned standards to measure **luminance** reflected from or transmitted through the projection screen.

Benefits: The PISCR Standard has been developed using the ANSI imperatives of *consensus, openness, balance, transparency, due process, flexibility, timeliness, and coherence*. Architects, designers, integrators, technicians, and technology managers will benefit from having practical metrics to measure, validate, and design audiovisual projected image systems that provide minimum contrast ratios appropriate for the stated purpose.

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