

---

# Technical Bulletin

---

RE: ANSI method of light output measurement

## ANSI (lumen) METHOD

It would appear that 1993 is the year that manufacturers are beginning to use the ANSI method of light output measurement. Electrohome has begun publishing lumens measured using the ANSI method in their brochures. This has resulted in a flood of questions asking just what is an ANSI lumen. The purpose of this document is to explain in simplified terms the methodology used to obtain an ANSI lumens measurement.

---

ANSI is an acronym which stands for American National Standards Institutes. Within the ANSI organization, a committee made up of manufacturers in the large screen CRT and LCD industry has developed a number of standards for measuring various performance criteria of a displayed image. These standards are contained in a document referred to as the ANSI IT7.215 document. (It is unknown at the time of this bulletin whether this reference number is official or not.) The IT7.215 deals with several aspects of picture performance. We will concentrate mainly on the measurement of light output. What follows is a simplified explanation of how light output is measured using the ANSI method.

---

### Light Output Measurements

The projector must be optically and electrically setup/focussed for optimum performance over the entire screen area. Projector must be allowed to stabilize for 15 minutes before measurement can be taken. Room ambient temperature of 25 degrees Centigrade should be used. No other light source should exist in the room. Any light falling on the screen as a result of reflections and or refractions should be less than 1% of the main incident light. Aspect ration of 4:3 should be used unless projector is specifically designed for some other ratio.

## ANSI LUMENS

The test pattern shown in Figure 1 was developed by ANSI to be used to setup a projector and prepare it for ANSI measurements. It is made up of a full white field with 6 blocks. Each block is sized to represent 5% of the total area. The projector's Brightness control is adjusted so that the 5% block is clearly distinguishable between the 0% and 10% block. The Contrast of the projector is increased until the 95% block is still distinguishable between the 90% and 100% block. Both the Brightness and Contrast is adjusted back and forth until the above conditions are obtained.

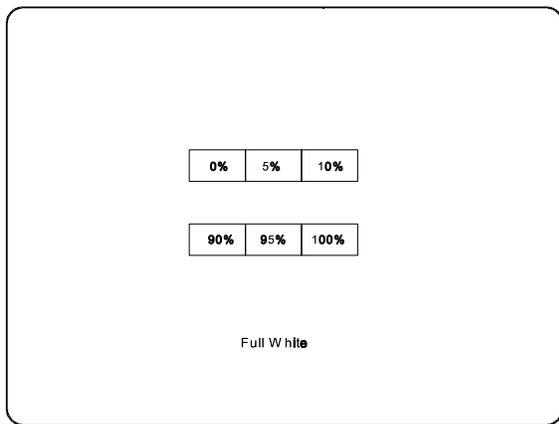


Figure 1

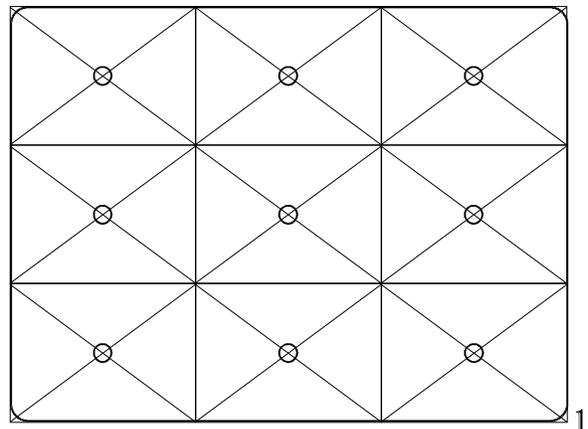


Figure 2

Once the projector is adjusted and stable, a full white field similar to figure 1 but without the 6 blocks, is used for the actual light measurements. Light output is measured at 9 places on the screen. Location of these 9 spots are shown on Figure 2 as the circles in the middle of each block. The 9 measurements are then averaged and screen size is factored in to give a Lumens reading.

This ANSI method of setting up a projector helps to prevent a projector from being overdriven in terms of maintaining a reasonable contrast ratio. However, it does not necessary reflect the quality of the resolution, ie focus.