



THX CONSUMER DISPLAY PROGRAM SUMMARY

Version 1.8

1.1 Device Performance Tests

White and Black Luminance	Measures maximum brightness.
Gamut and Colors of Full Screen	Measures maximum color rendering capability.
Gray Scale of Full Screen and Determination of Gamma	Ensures there is proper playback of luminance levels.
Sequential Contrast Ratio of Full Screen	Measures maximum image clarity.
Checkerboard Luminance and Contrast	Checks clarity and detail in varying luminances.
Full Screen Gray-Scale Color Changes and Gray Scale Artifacts	Validates the right color is maintained with all screen luminances.
Maximum Display Resolution as determined from Contrast Modulation	Demonstrates whether the display can make a good image at the rated resolution.
Luminance and Contrast of Centered Box (PDP and CRT only)	Validates whether the contrast is the same for low and high brightness scenes.
Uniformity and Color of White, Black, Dark Gray	Demonstrates whether the picture level is the same everywhere on the screen.
Four Point Viewing Angle (LCD and RPTV only)	Ensures a good image can be viewed from the side.
Convergence (for multi-image systems only)	Demonstrates whether the colors are aligned properly for good detail reproduction.

1.2 Video Signal Processing Tests

Cadence Detection and Correction	Motion pictures and other media are produced at varying frame rates, and it is critical to properly convert them to the frame rate of the display to minimize visual artifacts.
Constancy of Primary Colors with Video Level	Validates that the correct primary colors are maintained with all screen luminances.
Contouring	Occurs mainly in scenes of gently changing areas of contrast, such as a cloudy sky; looks like blocks where there shouldn't be any.
Dynamic Contrast Modulation	This testing ensures that the contrast of detailed moving images enables a clean, clear picture.
Jaggies	When lines or borders are at low angles from horizontal or vertical, they can appear disjointed, reducing image smoothness and clarity.
Image Retention Restoration	Evaluates the effectiveness of the image retention restoration mode to eliminate "burned-in" artifacts.
Luminance of Full Screen Black	This test is a primary component of the sequential contrast measurement when calculated with the white level of the THX Mode.
Noise Reduction	Tests how well the processor removes noise from the picture, also while distinguishing the noise from real picture data.
Overscan	When images are scaled, there can be artifacts at the edges of the display, and these can be hidden by over-scanning the image; ideally a display will not overscan more than a few percent, as it can

add other scaling artifacts.

Image Break-up Sometimes occurs in scenes of very fast-moving, highly detailed images, and appears as a garbled image.

1.3 Other Tests

Audible Noise (Displays with Plasma and Cooling Fans Only) Fan noise and other audible noise can be annoying in scenes of low dialog, etc.

Audio-Video Lip Sync Test Confirming the audio from the internal speakers is in sync with events on the screen.

Rainbowing (Field Sequential Displays Only) White objects can appear multi-colored at times.

Digital Photograph Viewing (sRGB mode, if implemented) Enables correct viewing of photographs with gamma, luminance, etc.

Screen Door This occurs in displays that have a relatively low pixel “fill factor”, so that viewing it is similar to looking through a screen door.

Dropped Frames This is where the processors will periodically drop a frame, causing a glitch in the picture.

Zoom Lens Efficiency (projectors only) This is important when using an extreme zoom setting for an installation, so that luminance does not suffer.

Moire This is when an interference pattern is present on the screen, which is very distracting and detrimental to the image.

1.4 THX Mode

In addition to the performance testing, THX requires implementation of a THX Movie Mode, with performance characteristics determined by THX after the display is completely characterized.

The THX Movie Mode has specific settings for gamma, color point, luminance, overscan, and other settings specific to the certified display. This setting is intended to provide the optimum settings for playback of movie titles, but can be used for viewing other content as well.