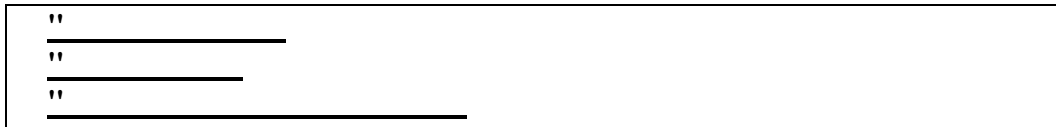




| | |
|----------------|---|
| DATA PROJECTOR | |
| VIDEOPROJECTOR | X |
| MONITOR | |
| REAR PROJECTOR | |
| IRD | |
| Others | |

27 April 2011

DMD evaluation criteria'April 2011



INFORMATION

The present document is intended to give an overview on DMD Chips evaluation criteria and is used by SIM2 to define the DMD chips acceptance; this is the amendment to the “2004 Service policy”.

DEFINITIONS

Blemish

A blemish is an obstruction, reflection, or refraction of light that is visible, but out of focus in the projected image under specified conditions of inspection. It is caused by a particle, scratch, or other artefact located in the image illumination path. Blemishes can be classified as either ‘light’ or ‘dark’ depending on how they appear as viewed on the screen.

Dark pixel

A dark pixel is a single pixel or mirror that is non-functional (stuck) in the OFF position.

Bright pixel

A bright pixel is a single pixel or mirror that is non-functional (stuck) in the ON position.

Adjacent pixels

Adjacent pixels are defined as sharing a common border or common point. A group of more than two adjacent bright, dark, or unstable pixel defects is also referred to as a ‘cluster’ defect.



TEST PATTERNS USED.

The following test patterns are used to properly check the DMD quality.

BLUE 90; Blue value 90; Red value 0, Green value 0.

GREY 10; Blue value 10; Red value 10, Green value 10.

WHITE; Blue value 255; Red value 255, Green value 255.

BLACK; Blue value 0; Red value 0, Green value 0.

RED RAMP SCREEN; Blue value 0; Red value 0-255 (16/32 STEPS), Green value 0.

These test patterns are available on service menu of some models (refer to relative service manual); for other models, the test pattern must be drew with “picture editing” i.e. Microsoft Paintbrush or Adobe Photo-shop

The following faulty cases are covered by warranty

DMD SVGA 800x600 Texas number: 8460-xxx1B

This chip is used on following models: **HT200, HT200DM, HT200DMF**

=/> 1 (one), or more, bright pixels

=/> 4 (four), or more, dark pixels (up to three is not covered by warranty)

=/> 2 (two), or more, adjacent pixels

| | Test pattern used |
|--------------|-------------------|
| Bright pixel | Black |
| Dark pixels | White |

DMD XGA 1024x768 Texas number: 1076-xxx1x

This chip is used on following models: **HT250**

=/>1 (one), or more, bright pixel.

=/>5 (five), or more, dark pixels (up to four is not covered by warranty)

=/>2 (two), or more, adjacent pixels

| | Test pattern used |
|--------------|-------------------|
| Bright pixel | Black |
| Dark pixels | White |



DMD WXGA 1280x720 HD1

This chip is used on following models: **HT300HD**

=/>1 (one), or more, bright pixel.

=/>5 (five), or more, dark pixels (up to four is not covered by warranty)

=/>2 (two), or more, adjacent dark pixels

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |

DMD WXGA 1280x720 HD2 Texas number: **X1272-0201/2 X1272-0203/4**

This chip has been used on following models: **HT300Plus**

=/>1 (one), or more, bright pixel.

=/>2 (two), or more, dark pixels on area A (refer to picture 1)

=/>5 (five), or more, dark pixels on area A+B (refer to picture 1)

=/>2 (two), or more, adjacent dark pixels

=/>1 (one), ore more, blemish pixel

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |

DMD WXGA 1280x720 HD2 (HD2+) Texas number: **X1272-0203/4**

This chip has been used on following models: **RTX45, RTX55, RTX55_H**

=/>1 (one), or more, bright pixel.

=/>2 (two), or more, dark pixels on area A (refer to picture 1)

=/>5 (five), or more, dark pixels on area A+B (refer to picture 1)

=/>2 (two), or more, adjacent dark pixels

=/>1 (one), ore more, blemish pixel

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |



DMD WXGA 1280x720 HD2+ DC2 Texas number: X1272-0232

This chip has been used on following models:

HT300Xtra, HT300Xtra-H, HT300Link.

=/>1 (one), or more, bright pixel.

=/>2 (two), or more, dark pixels on area A (refer to picture 1)

=/>5 (five), or more, dark pixels on area A+B (refer to picture 1)

=/>2 (two), or more, adjacent dark pixels

=/>1 (one), ore more, blemish pixel

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |

DMD WXGA 1280x720 HD2 (HD2+) Texas number: X1272-0201/2 X1272-0203/4

This chip has been used on following models: **DOMINO 30, DOMINO 30-H, D35**

=/>1 (one), or more, bright pixel.

=/>2 (two), or more, dark pixels on area A (refer to picture 1)

=/>5 (five), or more, dark pixels on area A+B (refer to picture 1)

=/>2 (two), or more, adjacent dark pixels

=/>1 (one), ore more, blemish pixel

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |

DMD WXGA 1024x576 ED2 Texas number: DMD MATTERHORN 12°

This chip has been used on following models: **DOMINO 20, HT280.**

=/>1 (one), or more, bright pixel.

=/>5 (five), or more, dark pixels (up to four is not covered by warranty)

=/>2 (two), or more, adjacent pixels

| | Test pattern used |
|--------------|-------------------|
| Bright pixel | Black |
| Dark pixels | White |



DMD WXGA 1280x720 HD2+ ftp DC3 Texas number: X1272-0260 type A

This chip has been used on following models:

HT300Evolution, HT300Evolution – Link, HT305

- =/>1 (one), or more, bright pixel.
- =/>2 (two), or more, dark pixels on area A (refer to picture 1)
- =/>5 (five), or more, dark pixels on area A+B (refer to picture 1)
- =/>2 (two), or more, adjacent dark pixels
- =/>1 (one), ore more, blemish pixel

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |

DMD WXGA 1280x720 HD2+ ftp DC3 Texas number: X1272-0260 type A

This chip has been used on following models:

C3X, C3X Lite, C3X Link, C3XE, C3XE.TN520

- =/>1 (one), or more, bright pixel GREEN.
- =/>2 (two), or more, bright pixel RED.
- =/>2 (two), or more, bright pixel BLUE.
- =/>4 (four), or more, dark pixels GREEN on area A+B (refer to picture 1)
- =/>4 (four), or more, dark pixels RED on area A+B (refer to picture 1)
- =/>5 (five), or more, dark pixels BLUE on area A+B (refer to picture 1)

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |



DMD WXGA 1920x1080 DC3 IQ-

This chip has been used on following models:

HT3000/HT3000E/D80/HT5000//HT3000Host

=/>1 (one), or more, bright pixel.

=/>1 (one), or more, dark pixels on area A (refer to picture 1)

=/>2 (two), or more, dark pixels on area B (refer to picture 1)

=/>1 (one), or more, dark pixels on area A+B (refer to picture 1)

=/>1 (one), or more, adjacent dark pixels

=>1 (one), ore more, blemish pixel

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |

DMD WXGA 1920x1080 DC4

This chip has been used on following models:

C3X1080, LUMIS, LUMIS-HOST, LUMISUNO, LUMISC, LUMIS3D-S, MICO40/50/60/ST, HT5000E/Teatro line

=/>1 (one), or more, bright pixel.

=/>1 (one), or more, dark pixels on area A (refer to picture 1)

=/>2 (two), or more, dark pixels on area B (refer to picture 1)

=/>1 (one), or more, dark pixels on area A+B (refer to picture 1)

=/>1 (one), or more, adjacent dark pixels

=>1 (one), ore more, blemish pixel

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | Blue 90 |
| Blemish pixel | Grey 10 |
| Unstable pixels | Any |



DMD WXGA 1280x720 HD2+ DC2 Texas number: 1276-xxxx-7

This is used on D10 models

- =/>1 (one), or more, bright pixel.
- =/>1 (one), or more, dark pixels on area A (refer to picture 1)
- =/>3 (two), or more, dark pixels on area B (refer to picture 1)
- =/>1 (one), or more, adjacent dark pixels
- =>1 (one), ore more, blemish pixel

| | Test pattern used |
|-----------------|-------------------|
| Bright pixel | Grey 10 |
| Dark pixels | White |
| Blemish pixel | Any |
| Unstable pixels | Any |

Furthermore:

>in case of blemishes due to particles that obstruct the light path:

| DEFECT | TEST PATTERN | ACCEPTANCE CRITERIA |
|--|--------------|--|
| Major dark blemish | Blue 60 | 0 dark blemish in zone A |
| | | Max 4 dark blemishes in zone B |
| | | No blemishes bigger than 1 Inch diameter |
| Major Light blemish | Gray 10 | 0 dark blemish in zone A |
| | | Max 4 dark blemishes in zone B |
| | | No blemishes bigger than 1 Inch diameter |
| Non active area artefacts/border defects | any | Any artefacts in non-active-area is accepted |
| | | Any border defect in non-active-area is accepted |
| Minor blemish | any | Max 8 blemishes around the active area |
| | | No blemished higher than 10 Inches diameter |

The above are with:

- >Screen size 60” diagonal;
- >Keystone set to zero;
- >BRI and CON set to normal;
- >Picture must be inspected from a minimum 8 feet viewing distance; image must be well focused.



D60

| TEST | SCREEN | ACCEPTANCE CRITERIA |
|------------------------------|---------------|---|
| Major Dark Blemish | Blue 60 | 1. Up to 4 visible dark blemishes are allowed in the active area 2. No blemish will be > 1"(2.5cm) long/diameter |
| Major Light Blemish | Gray 10 | 1. Up to 4 visible dark blemishes are allowed in the active area 2. No blemish will be > 1"(2.5cm) long/diameter |
| Reset Boundary Artifact | Gray 30 | 1. No reset boundary artifacts allowed |
| Eyecatchers & Border Defects | Any Screen | 1. Eyecatcher and border artifacts are allowed |
| Projected Image | 1. Any Screen | 1. No adjacent pixels |
| | 2. Gray 10 | 2. No bright pixels in Active Area |
| | 3. Any Screen | 3. No unstable pixels in Active Area |
| | 4. Gray 10 | 4. Up to 1 bright pixel in the POM |
| | 5. White | 5. Up to 6 dark pixels in the active area |
| | 6. Any Screen | 6. No DMD window aperture shadowing on the active area |
| | 7. Any Screen | 7. Minor blemishes are allowed |

The above are with:

>Screen size 60" diagonal;

>Keystone set to zero;

>BRI and CON set to normal;

>Picture must be inspected from a minimum 8 feet viewing distance; image must be well focused.



CRYSTAL

| TEST | SCREEN | ACCEPTANCE CRITERIA |
|-------------------------|---------------|--|
| Major Dark Blemish | Blue 60 | 1. No defects in area A 2. Up to 4 visible dark blemishes are allowed in the active area (zone B) 3. No blemish will be > 1"(2.5cm) long/diameter |
| Major Light Blemish | Gray 10 | 4. No defects in area A 5. Up to 4 visible light blemishes are allowed in the active area (zone B) 6. No blemish will be > 1"(2.5cm) long/diameter |
| Reset Boundary Artifact | Gray 30 | 7. Reset boundary artefacts allowed |
| Minor Light Blemish | Any Screen | 1. up to 8 minor blemishes are allowed 2. no blemishes longer 5" are allowed |
| Projected Image | 1. Any Screen | 1. No adjacent pixels |
| | 2. Gray 10 | 2. No bright pixels in Active Area |
| | 3. Any Screen | 3. No unstable pixels in Active Area |
| | 4. Gray 10 | 4. Up to 1 bright pixel in the POM |
| | 5. White | 5. Up to 2 dark pixels in the zone B 6. none dark pixel |
| | 6. Any Screen | 7. No DMD window aperture shadowing on the active area |

The above are with:

>Screen size 60" diagonal;

>Gamma linear

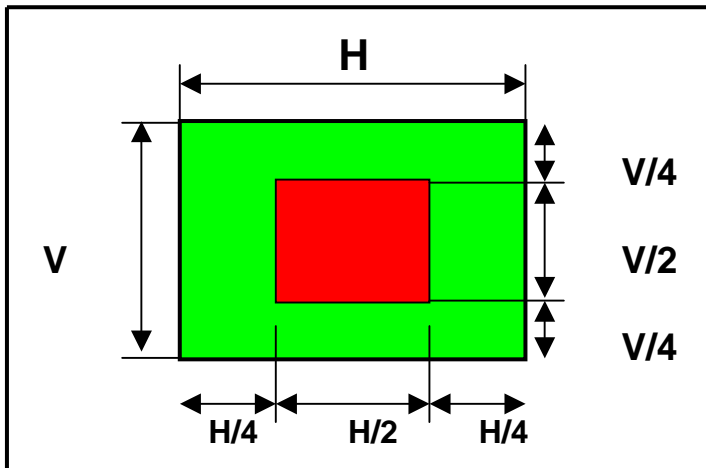
>BRI and CON set to normal;

>Picture must be inspected from a minimum 8 feet viewing distance; image must be well focused.

Picture 1.

Green area => area B

Red area => area A



The Texas number is written underneath the DMD Chip (see example)