See for similar files: http://www.ps.bam.de/TE15/
Technical information: http://www.ps.bam.de

BAM registration: 20060101-TE15/10Q/Q15E00F1.PS/.TXT
application for evaluation and measurement of printer or monitor systems, Y=2.5, XYZ

BAM material: code=tha4ta
Date: Sunday 2006-01-08, Serial: 1, Page: 1, Part: Content 1

**Input: Colorimetric Reflective System MRS1B**
for hue $h^* = lab^*h = 30/360 = 0.083$
*lab*tch* and *lab*nch*

D65: hue R
LCH*Ma: 50 77 30
olv*Ma: 1.0 0.0 0.0
triangle lightness $t^*$

**MRS18; adapted (a) CIELAB data**

| | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|---|---|---|---|---|---|
| $R_{Ma}$ | 49.63 | 66.96 | 38.37 | 77.18 | 30 |
| $B_{Ma}$ | 90.7 | −6.36 | 88.75 | 88.98 | 94 |
| $G_{Ma}$ | 52.11 | −69.73 | 9.44 | 70.37 | 172 |
| $G50B_{Ma}$ | 45.03 | −36.57 | −28.47 | 46.36 | 218 |
| $B_{Ma}$ | 36.65 | 23.19 | −63.05 | 67.18 | 290 |
| $B50R_{Ma}$ | 34.94 | 57.17 | −44.26 | 72.31 | 322 |
| $N_{Ma}$ | 18.01 | 0.0 | 0.0 | 0.0 | 0 |
| $W_{Ma}$ | 95.41 | 0.0 | 0.0 | 0.0 | 0 |
| $R_{CIE}$ | 39.92 | 58.66 | 26.98 | 64.56 | 25 |
| $J_{CIE}$ | 81.26 | −2.17 | 67.76 | 67.79 | 92 |
| $G_{CIE}$ | 52.23 | −42.26 | 11.75 | 43.87 | 164 |
| $B_{CIE}$ | 30.57 | 1.15 | −46.84 | 46.87 | 271 |

%Gamut
$u^*_{col} = 91$
%Regularity
$g^*_{t,rel} = 41$
$g^*_{C,rel} = 52$

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 1.0 | 1.0 | 1.0 | (1.0) |
| *cmyn3** | 0.0 | 0.0 | 0.0 | (0.0) |
| *olv4** | 1.0 | 1.0 | 1.0 | (1.0) |
| *cmyn4** | 0.0 | 0.0 | 0.0 | 0.0 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 95.41 | −0.97 | 4.75 |
| *LAB*LABa* | 95.41 | 0.0 | 0.0 |
| *LAB*TCHa* | 99.99 | 0.01 | – |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 1.0 | 0.0 | 0.0 |
| *lab*tch* | 1.0 | 0.0 | – |
| *lab*nch* | 0.0 | 0.0 | – |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 1.0 | 0.0 | 0.0 |
| *lab*rCe* | 1.0 | 0.0 | – |
| *lab*nCE* | 0.0 | 0.0 | – |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 0.5 | 0.5 | 0.5 | (1.0) |
| *cmyn3** | 0.5 | 0.5 | 0.5 | (0.0) |
| *olv4** | 1.0 | 1.0 | 1.0 | 0.5 |
| *cmyn4** | 0.0 | 0.0 | 0.0 | 0.5 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 56.71 | −0.23 | 2.14 |
| *LAB*LABa* | 56.71 | 0.0 | 0.0 |
| *LAB*TCHa* | 50.01 | 0.01 | – |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.5 | 0.0 | 0.0 |
| *lab*tch* | 0.5 | 0.0 | – |
| *lab*nch* | 0.5 | 0.0 | – |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.5 | 0.0 | 0.0 |
| *lab*rCe* | 0.5 | 0.0 | – |
| *lab*nCE* | 0.5 | 0.0 | – |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 0.0 | 0.0 | 0.0 | (1.0) |
| *cmyn3** | 1.0 | 1.0 | 1.0 | (0.0) |
| *olv4** | 1.0 | 1.0 | 1.0 | 0.0 |
| *cmyn4** | 0.0 | 0.0 | 0.0 | 1.0 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 18.02 | 0.5 | −0.46 |
| *LAB*LABa* | 18.02 | 0.0 | 0.0 |
| *LAB*TCHa* | 0.01 | 0.01 | – |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.0 | 0.0 | 0.0 |
| *lab*tch* | 0.0 | 0.0 | – |
| *lab*nch* | 1.0 | 0.0 | – |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.0 | 0.0 | 0.0 |
| *lab*rCe* | 0.0 | 0.0 | – |
| *lab*nCE* | 1.0 | 0.0 | – |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 1.0 | 0.5 | 0.5 | (1.0) |
| *cmyn3** | 0.0 | 0.5 | 0.5 | (0.0) |
| *olv4** | 1.0 | 0.5 | 0.5 | 1.0 |
| *cmyn4** | 0.0 | 0.5 | 0.5 | 0.0 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 72.52 | 33.47 | 19.18 |
| *LAB*LABa* | 72.52 | 32.93 | 22.4 |
| *LAB*TCHa* | 75.0 | 38.58 | 29.82 |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.704 | 0.434 | 0.249 |
| *lab*tch* | 0.75 | 0.5 | 0.083 |
| *lab*nch* | 0.75 | 0.5 | 0.083 |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.704 | 0.496 | 0.06 |
| *lab*rCe* | 0.75 | 0.5 | 0.019 |
| *lab*nCE* | 0.0 | 0.5 | r07j |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 0.5 | 0.0 | 0.0 | (1.0) |
| *cmyn3** | 0.5 | 1.0 | 1.0 | (0.0) |
| *olv4** | 1.0 | 0.5 | 0.5 | 0.5 |
| *cmyn4** | 0.0 | 0.5 | 0.5 | 0.5 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 33.82 | 33.67 | 19.79 |
| *LAB*LABa* | 33.82 | 33.47 | 19.18 |
| *LAB*TCHa* | 25.01 | 38.58 | 29.82 |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.204 | 0.434 | 0.249 |
| *lab*tch* | 0.25 | 0.5 | 0.083 |
| *lab*nch* | 0.25 | 0.5 | 0.083 |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.204 | 0.496 | 0.06 |
| *lab*rCe* | 0.25 | 0.5 | 0.019 |
| *lab*nCE* | 0.5 | 0.5 | r07j |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 0.0 | 0.0 | 0.0 | (1.0) |
| *cmyn3** | 1.0 | 1.0 | 1.0 | (0.0) |
| *olv4** | 1.0 | 1.0 | 1.0 | 0.0 |
| *cmyn4** | 0.0 | 0.0 | 0.0 | 1.0 |

***standard and adapted* CIELAB**

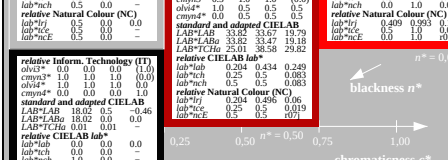
| | | | |
|---|---|---|---|
| *LAB*LAB* | 49.63 | 66.84 | 40.03 |
| *LAB*LABa* | 49.63 | 66.95 | 38.36 |
| *LAB*TCHa* | 50.0 | 77.16 | 29.82 |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.409 | 0.867 | 0.497 |
| *lab*tch* | 0.5 | 1.0 | 0.083 |
| *lab*nch* | 0.0 | 1.0 | 0.083 |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.409 | 0.593 | 0.119 |
| *lab*rCe* | 0.5 | 1.0 | 0.019 |
| *lab*nCE* | 0.0 | 1.0 | r07j |




**Output: Colorimetric Reflective System ORS1B**
for hue $h^* = lab^*h = 38/360 = 0.105$
*lab*tch* and *lab*nch*

D65: hue O
LCH*Ma: 48 83 38
olv*Ma: 1.0 0.0 0.0
triangle lightness $t^*$

**ORS18; adapted (a) CIELAB data**

| | $L^*=L^*_a$ | $a^*_a$ | $b^*_a$ | $C^*_{ab,a}$ | $h^*_{ab,a}$ |
|---|---|---|---|---|---|
| $O_{Ma}$ | 47.94 | 65.37 | 50.52 | 82.62 | 38 |
| $Y_{Ma}$ | 90.37 | −10.27 | 91.77 | 92.34 | 96 |
| $L_{Ma}$ | 50.9 | −62.79 | 34.95 | 71.87 | 151 |
| $C_{Ma}$ | 58.62 | −30.35 | −45.01 | 54.3 | 236 |
| $V_{Ma}$ | 25.71 | 31.11 | −44.42 | 54.24 | 305 |
| $M_{Ma}$ | 48.13 | 75.27 | −8.35 | 75.73 | 354 |
| $N_{Ma}$ | 18.01 | 0.0 | 0.0 | 0.0 | 0 |
| $W_{Ma}$ | 95.41 | 0.0 | 0.0 | 0.0 | 0 |
| $R_{CIE}$ | 39.92 | 58.66 | 26.98 | 64.56 | 25 |
| $J_{CIE}$ | 81.26 | −2.17 | 67.76 | 67.79 | 92 |
| $G_{CIE}$ | 52.23 | −42.26 | 11.75 | 43.87 | 164 |
| $B_{CIE}$ | 30.57 | 1.15 | −46.84 | 46.87 | 271 |

%Gamut
$u^*_{col} = 93$
%Regularity
$g^*_{t,rel} = 57$
$g^*_{C,rel} = 59$

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 1.0 | 1.0 | 1.0 | (1.0) |
| *cmyn3** | 0.0 | 0.0 | 0.0 | (0.0) |
| *olv4** | 1.0 | 1.0 | 1.0 | 1.0 |
| *cmyn4** | 0.0 | 0.0 | 0.0 | 0.0 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 95.41 | −0.97 | 4.75 |
| *LAB*LABa* | 95.41 | 0.0 | 0.0 |
| *LAB*TCHa* | 99.99 | 0.01 | – |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 1.0 | 0.0 | 0.0 |
| *lab*tch* | 1.0 | 0.0 | – |
| *lab*nch* | 0.0 | 0.0 | – |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 1.0 | 0.0 | 0.0 |
| *lab*rCe* | 1.0 | 0.0 | – |
| *lab*nCE* | 0.0 | 0.0 | – |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 0.5 | 0.5 | 0.5 | (1.0) |
| *cmyn3** | 0.5 | 0.5 | 0.5 | (0.0) |
| *olv4** | 1.0 | 1.0 | 1.0 | 0.5 |
| *cmyn4** | 0.0 | 0.0 | 0.0 | 0.5 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 56.71 | −0.23 | 2.14 |
| *LAB*LABa* | 56.71 | 0.0 | 0.0 |
| *LAB*TCHa* | 50.01 | 0.01 | – |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.5 | 0.0 | 0.0 |
| *lab*tch* | 0.5 | 0.0 | – |
| *lab*nch* | 0.5 | 0.0 | – |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.5 | 0.0 | 0.0 |
| *lab*rCe* | 0.5 | 0.0 | – |
| *lab*nCE* | 0.5 | 0.0 | – |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 0.0 | 0.0 | 0.0 | (1.0) |
| *cmyn3** | 1.0 | 1.0 | 1.0 | (0.0) |
| *olv4** | 1.0 | 1.0 | 1.0 | 0.0 |
| *cmyn4** | 0.0 | 0.0 | 0.0 | 1.0 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 18.02 | 0.5 | −0.46 |
| *LAB*LABa* | 18.02 | 0.0 | 0.0 |
| *LAB*TCHa* | 0.01 | 0.01 | – |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.0 | 0.0 | 0.0 |
| *lab*tch* | 0.0 | 0.0 | – |
| *lab*nch* | 1.0 | 0.0 | – |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.0 | 0.0 | 0.0 |
| *lab*rCe* | 0.0 | 0.0 | – |
| *lab*nCE* | 1.0 | 0.0 | – |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 1.0 | 0.5 | 0.5 | (1.0) |
| *cmyn3** | 0.0 | 0.5 | 0.5 | (0.0) |
| *olv4** | 1.0 | 0.5 | 0.5 | 1.0 |
| *cmyn4** | 0.0 | 0.5 | 0.5 | 0.0 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 71.67 | 32.15 | 28.41 |
| *LAB*LABa* | 71.67 | 32.68 | 25.25 |
| *LAB*TCHa* | 75.0 | 41.3 | 37.7 |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.693 | 0.396 | 0.306 |
| *lab*tch* | 0.75 | 0.5 | 0.105 |
| *lab*nch* | 0.75 | 0.5 | 0.105 |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.693 | 0.477 | 0.15 |
| *lab*rCe* | 0.75 | 0.5 | 0.048 |
| *lab*nCE* | 0.0 | 0.5 | r19j |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 0.5 | 0.0 | 0.0 | (1.0) |
| *cmyn3** | 0.5 | 1.0 | 1.0 | (0.0) |
| *olv4** | 1.0 | 0.5 | 0.5 | 0.5 |
| *cmyn4** | 0.0 | 0.5 | 0.5 | 0.5 |

***standard and adapted* CIELAB**

| | | | |
|---|---|---|---|
| *LAB*LAB* | 32.98 | 32.9 | 25.8 |
| *LAB*LABa* | 32.98 | 32.68 | 25.25 |
| *LAB*TCHa* | 25.01 | 41.3 | 37.7 |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.193 | 0.396 | 0.306 |
| *lab*tch* | 0.25 | 0.5 | 0.105 |
| *lab*nch* | 0.25 | 0.5 | 0.105 |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.193 | 0.477 | 0.15 |
| *lab*rCe* | 0.25 | 0.5 | 0.048 |
| *lab*nCE* | 0.5 | 0.5 | r19j |

***relative* Inform. Technology (IT)**

| | | | | |
|---|---|---|---|---|
| *olv3** | 1.0 | 1.0 | 1.0 | (1.0) |
| *cmyn3** | 0.0 | 0.0 | 0.0 | (0.0) |
| *olv4** | 1.0 | 1.0 | 1.0 | 0.0 |
| *cmyn4** | 0.0 | 0.0 | 0.0 | 1.0 |

***standard and adapted* CIELAB**

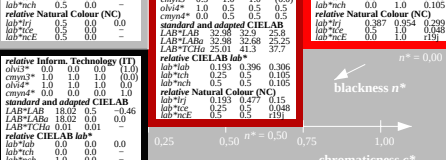
| | | | |
|---|---|---|---|
| *LAB*LAB* | 47.95 | 65.29 | 52.06 |
| *LAB*LABa* | 47.95 | 65.36 | 50.51 |
| *LAB*TCHa* | 50.0 | 82.6 | 37.7 |

***relative* CIELAB *lab****

| | | | |
|---|---|---|---|
| *lab*lab* | 0.387 | 0.791 | 0.611 |
| *lab*tch* | 0.5 | 1.0 | 0.105 |
| *lab*nch* | 0.0 | 1.0 | 0.105 |

***relative* Natural Colour (NC)**

| | | | |
|---|---|---|---|
| *lab*lrj* | 0.387 | 0.954 | 0.299 |
| *lab*rCe* | 0.5 | 1.0 | 0.048 |
| *lab*nCE* | 0.0 | 1.0 | r19j |




TE150−7, 3 step scales for constant CIELAB hue 30/360 = 0.083 (left) 3 step scales for constant CIELAB hue 38/360 = 0.105 (right)

BAM-test chart TE15; Colorimetric systems MRS18 & ORS18 input: *olv* setrgbcolor*
D65: 2 coordinate data of 3 step colour scales for 10 hues output: *olv* setrgbcolor / w* setgray*