

Technical Report BAM(7410/20/30/40)E

Wide Gamut colour space code (WGcode) for standard Printing (PR18) and Television (TV18) and CIELAB colours (RAL colour atlas) -Transformation from CIELAB data to Standard, Mean and Wide Gamut 8bit *colour code (SGcode, MGcode and WGcode of *o/v and *cmv**) and relative colour code *o/v**, *cmv**, *rtu** and *sRGB*, and *sRGB** within the range ...0...1... in PR18sa and TV18sa**

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<http://o2.ps.bam.de/INFVM03/7410/BAM7410E.PDF>

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The following paper may be used for an introduction:

<http://o2.ps.bam.de/CISO08.PDF>

There are very similar transformations in the technical reports

<http://o2.ps.bam.de/INFVM03/7110/BAM7110E.PDF>

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In all these reports the SGcode (Standard Gamut) *o/v**, *cmv**, *nru** and WGcode (Wide Gamut 88-166) *o/v**, *cmv** is calculated for the device adapted coordinates L^*CIE_{da} , A^*CIE_{da} , B^*CIE_{da} .

These technical reports include all important basic transformations in colour systems PR18sa ($L^*=18-95$), TV18sa ($L^*=18-95$), CPR (colorimetric PR, $L^*=0-100$), and CTV (Colorimetric TV, $L^*=0-100$). The series 7210 to 7290 show transformations to the *sRGB* tristimulus value and the *sRGB** perceptive *colour space.

Report 7410/20/30/40

The report here calculates the transformations, e. g. from the CIELAB data to the WGcode. All series 7410 to 7440 include the transformation from CIELAB data to the WGcode of *o/v** within the range 0...255, the SGcode of *o/v** within the range ...0...255..., and relative *o/v** and *cmv** data within the range ...0...1... .

Reference system is here the system adapted (sa) system of offset printing (PR18sa) or television (TV18sa) with the lightness range between $L^*=18$ and $L^*=95$ for Black *N* and White *W*.

There are transformations of all the standard printing colours PR18 and television colours TV18 in both systems PR18sa and TV18sa including mixed mode (series 7410, 7420, 7430)

All green CIELAB colours of the RAL colour atlas are calculated in PR18sa. Many of the RAL colours are outside the PR18sa system (out of gamut) (see negative *o/v** values or *o/v** values larger compared to 1 in the series 7440).

The MGcode allows to code all RAL colours in the range 0 ... 255. The series 7440 uses the WGcode with 6bit for the gray colours *N-W*.

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Similar data:

The Technical Reports 7450/60/70/80/90 include the **reverse** transformation from the WGcode to the CIELAB data in Systems PR18sa and TV18sa. Examples of the reverse transformations are given for the standard colours of printing (PR18) and television (TV18) and the green RAL colours.

The Technical Reports 7310/20/30/40/50/60/70/80 transform Standard printing colours (Series 7310) and RAL colours of the four different hues green (Series 7320/30), red (7340/50), yellow (7360/70) and blue (7380/90) (CIELAB hue angle 180, 360, 90 and 270). The CIELAB coordinates of real RAL colours of the RAL colour atlas are transformed to the SGcode and WGcode of both the Television (Series 7320/40/60/80) and the Printing (Series 7330/50/70/90) colour spaces.

The Technical Reports 8650,8750,8870,8880,8890 include similar. The SGcode (Standard Gamut) olv^* , $cm y^*$, nru^* and WGcode (Wide Gamut 77-177) olv^* , $cm y^*$ is calculated for the device adapted coordinates L^*CIE_{da} , A^*CIE_{da} , B^*CIE_{da} . See for instance the technical report:

<http://o2.ps.bam.de/INFVM03/8650/BAM8650E.PDF>

or one example;

<http://o2.ps.bam.de/INFVM03/8650/A4Q8650E.PDF>

<http://o2.ps.bam.de/INFVM03/8600/A4Q8650E.PS>

These technical reports include transformations in colour systems PR18sa ($L^*=18-95$), PR14sa ($L^*=14-95$), PR10sa ($L^*=10-95$), PR0sa ($L^*=0-95$)

The Technical Reports 8930,8940,8950,8950,8960,8970,8980,8990 include similar data. The SGcode (Standard Gamut) olv^* , $cm y^*$, nru^* and WGcode (Wide Gamut 77-177) olv^* , $cm y^*$ is calculated for the device adapted coordinates L^*CIE_{da} , A^*CIE_{da} , B^*CIE_{da} . See for instance the technical report:

<http://o2.ps.bam.de/INFVM03/8930/BAM8930E.PDF>

or one example;

<http://o2.ps.bam.de/INFVM03/8930/A4Q8930E.PDF>

<http://o2.ps.bam.de/INFVM03/8930/A4Q8930E.PS>

The technical report 8930 include transformations in colour system PR18sa ($L^*=18-95$)

The technical reports 8940 to 8950 include transformations in colour systems PR18sa ($L^*=18-95$) for the 16 step colour series $W-C$, $N-C$, $W-M$, $N-M$, $W-Y$, $N-Y$, $W-N$, $N-W$

The technical reports 8960 to 8990 include transformations in colour systems TV18sa ($L^*=18-95$), TV14sa ($L^*=14-95$), TV10sa ($L^*=10-95$), TV0sa ($L^*=0-95$)