

Colour management by a change of the *rgb* data within the colour workflow before the linearized output

See ISO-Ergonomics of human-systems interaction – Field assessment methods for electronic visual displays

For ISO-test charts according to ISO 9241-306:2018 see: <http://standards.iso.org/iso/9241/306/ed-2/index.html>

The computer with an **Ergonomic Colour Processor (ECP)** includes the **1-Minus-Relations (1MR)**. It is valid:

$r=1-c$, $g=1-m$, $b=1-y$. [1]. The output is equal for: $r=g=b=0,5$ or $c=m=y=0,5$ or $k=0,5$ or $w=1-k=0,5$. [2]

If the 1MR is active, then the output of the ISO-test chart shows **equal output** in each colour square of:

<http://standards.iso.org/iso/9241/306/ed-2/AE49/AE490-7N.PDF> and independent of the use of *rgb* or *cmk*.

Computer software of
an ergonomic colour
processor (ECP),
it includes 1MR

rgb

rgb start

rgb' linearized

Software RIP
calculates transfer
rgb → *rgb'*

Appropriate fixed transfer T :¹⁾

rgb - T - *cmk* with 100% UCR

rgb' - T - *cmk'* with 100% UCR

for example, if:

$r=g=b$, then $k=1-r$, and $c=m=y=0$

$c=m=y$ and $k=0$, then $k=c$ and $c=m=y=0$

Only *cmk* files can
print 100% UCR (grey
printed only by black *k*).

cmk

cmk'

Output (*cmk*):

offset print
(all PS-)printer
digital print

729 measurement data in CIELAB colour space

¹⁾ For an example see the printed english version of <http://standards.iso.org/iso/9241/306/ed-2/ES15.PDF>

This offset print includes the start and linearized output of many analog ISO-test charts of ISO 9241-306.

In a general case the Software Image Processor (RIP) transfers 16,7 (256x256x256-1) million *rgb* to *rgb'* data.

The appropriate fixed transfer T shall fill the CIELAB colour triangle: $W - N - \text{maximal colour} - W$.

For any maximal colour it is valid: $k=0$. One of the 3 values **cmk0** or **rgb** has the value 1 and one other the value 0.

For linearization methods see Klaus Richter (2016), 1,4MB, http://farbe.li.tu-berlin.de/OUTLIN16_01.PDF