

# Equal 9 step grey scaling between $L^*_{0aN}=-27.3$ and $L^*_{0aW}=27.3$ , $Y_{0ref}=0.9$ , normalisation grey U

$L^*_{0aN}=-27.2$ ,  $L^*_{0aU}=0.0$ ,  $L^*_{0aW}=27.3$ ,  $Y_{0aN}=6.0$ ,  $Y_{0aU}=18.0$ ,  $Y_{0aW}=54.0$ ,  $C_{0aY}=Y_{0aW}:Y_{0aN}=9.0$

$L^*_{taN}=-25.0$ ,  $L^*_{taU}=0.0$ ,  $L^*_{taW}=26.5$ ,  $Y_{taN}=6.6$ ,  $Y_{taU}=18.0$ ,  $Y_{taW}=52.3$ ,  $C_{taY}=Y_{taW}:Y_{taN}=7.9$

**Regularity index according to ISO/IEC 15775:2022, annex G for 5 and 9 steps**

$g^* = 100 [\Delta L^*_{min}] / [\Delta L^*_{max}]$ ,  $L^*_{TUBJND1} = 40 / \log(5) [\log ( Y/Y_u )]$  with  $Y_u=18$

$g^*_5=99$ ,  $g^*_9=99$

$g^*_5=91$ ,  $g^*_9=90$

$g^*_5=99$ ,  $g^*_9=97$

$L^*_{TUBJND1}$  intended output real output linearized output

| n0. i | $L^*_{0a}$ | $L^*_{0r}$ | $Y_{0a}$ | $Y_{0r}$ | $L^*_{ta}$ | $\Delta L^*_{ta}$ | $L^*_{tr}$ | $Y_{ta}$ | $(L^*_{tr})^{1/1.04}$ | $L^*_{la}$ | $\Delta L^*_{la}$ |
|-------|------------|------------|----------|----------|------------|-------------------|------------|----------|-----------------------|------------|-------------------|
| 9     | 27.3       | 1.0        | 54.0     | 1.0      | 26.5       |                   | 1.0        | 52.3     | 1.0                   | 26.5       |                   |
| 8     | 20.5       | 0.875      | 41.0     | 0.73     | 19.8       | 6.7               | 0.87       | 39.9     | 0.874                 | 20.0       | 6.5               |
| 7     | 13.6       | 0.75       | 31.2     | 0.524    | 13.1       | 6.6               | 0.741      | 30.5     | 0.749                 | 13.6       | 6.5               |
| 6     | 6.8        | 0.625      | 23.7     | 0.368    | 6.5        | 6.6               | 0.613      | 23.4     | 0.624                 | 7.1        | 6.4               |
| 5     | 0.0        | 0.5        | 18.0     | 0.25     | 0.0        | 6.5               | 0.486      | 18.0     | 0.499                 | 0.7        | 6.4               |
| 4     | -6.7       | 0.375      | 13.7     | 0.16     | -6.4       | 6.4               | 0.361      | 13.9     | 0.374                 | -5.7       | 6.4               |
| 3     | -13.6      | 0.25       | 10.4     | 0.091    | -12.7      | 6.3               | 0.237      | 10.7     | 0.25                  | -12.0      | 6.4               |
| 2     | -20.4      | 0.125      | 7.9      | 0.039    | -18.9      | 6.2               | 0.117      | 8.4      | 0.127                 | -18.4      | 6.4               |
| 1     | -27.2      | 0.0        | 6.0      | 0.0      | -25.0      | 6.0               | 0.0        | 6.6      | 0.0                   | -25.0      | 6.5               |

$\Delta L^*_{0a}=6.8$

(i=1,2,...,8)

normalisation:  $Y_{taiU}=Y_{0aU} \frac{Y_{0ai}+Y_{0ref}}{Y_{0aU}+Y_{0ref}}$