BH1745NUC
Reference Calculation formula

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Sensor Development Department

ROHM Co.,Ltd.

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Illuminance

```
if (G < 1)
   lx_tmp = 0
else if (C/G < 0.160)
   lx_tmp = 0.202 * R + 0.766 * G
else
   lx_tmp = 0.159 * R + 0.646 * G
lx_tmp = MAX(lx_tmp, 0)
lx = lx_tmp / GAIN / ITIME * 160          // unit of  “ITIME” is [ms]
```

Color temperature

```
if ((G < 1) || (R + G + B < 1)){
   CCT=0
   return
}

R_ratio = R / (R + G + B)
B_ratio = B / (R + G + B)

if (C/G < 0.160){
   B_eff = MIN(B_ratio*3.13, 1)
   CCT = (1 - B_eff) * 12746 * e^(-2.911 * R_ratio) + B_eff  * 1637 * e^(4.865 * B_ratio)
}
else{
   B_eff = MIN(B_ratio*10.67, 1)
   CCT = (1 - B_eff) * 16234 * e^(-2.781 * R_ratio) + B_eff  * 1882 * e^(4.448 * B_ratio)
}

if (CCT > 10000)  CCT = 10000
```

R: Red Data, G: Green Data, B: Blue Data, C: Clear Data