

EYESAFE Display 3.0 and Low Blue Light Hardware Solution VERIFICATION MARK REPORT

Total number of pages.....:	8	
Report Reference No.....:	4791928441-V1	
Date of issue.....:	2025-10-20	
Product	Interactive Flat Panel	
Model/type Tested.....:	RP6505, RP6505*, (*=0-9,B-Z or blank for marketing purpose.) RP7505, RP7505*, (*=0-9,B-Z or blank for marketing purpose.) RP8605, RP8605*, (*=0-9,B-Z or blank for marketing purpose.)	
Rating.....:	Eyesafe Display 3.0 - RPF 60, CPF 50 Low Blue Light Hardware Solution - Platinum	
Notes: <ol style="list-style-type: none"> 1. The sample set to Eyesafe mode on in default. 2. The sample model RP6505 tested can be representative of model RP6505*. These two models are identical except for model names and appearance with no impact on display performance. The sample model RP7505 tested can be representative of model RP7505*. These two models are identical except for model names and appearance with no impact on display performance. The sample model RP8605 tested can be representative of model RP8605*. These two models are identical except for model names and appearance with no impact on display performance. 3. The minimum rating of RPF60 and CPF50 were claimed per client's request. 		
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SECTION A: PREFACE AND GENERAL PRODUCT INFORMATION

The purpose of this report is to provide the results of testing and evaluation of the product to requirements of the Eyesafe Display 3.0 and Low Blue Light Hardware Solution Verification Mark Program. For this report, as-received samples provided by the Applicant were tested. UL LLC neither selected the samples nor determined whether the samples were representative of production samples. The test results apply only to the actual samples tested except where otherwise indicated. UL LLC has prepared this report with information provided in part from the Applicant.

The products are Interactive Flat Panel for Models RP6505, RP6505*, RP7505, RP7505*, RP8605, RP8605*.

This report evaluated RPF (BLTF, Color Gamut Coverage, Color Temperature), CPF and Low Blue Light Hardware Solution per client’s request.

SECTION B: TEST PARAMETERS AND CRITERIA

Criteria for Eyesafe Display Requirements 3.0:

Eyesafe RPF® (Radiance Protection Factor)	Blue Light Toxicity Factor	Color Gamut Coverage %	Color Temperature
RPF35	0.085≥BLTF>0.083	sRGB: ≥95% Adobe RGB: ≥90% DCI-P3 color mode: ≥90% NTSC color mode: ≥72% *For battery powered products NTSC color mode: ≥45%	5500-7000K
RPF40	0.083≥BLTF>0.079		
RPF50	0.079≥BLTF>0.075		
RPF60	0.075≥BLTF>0.072		
RPF70	0.072≥BLTF>0.068		
RPF80	0.068≥BLTF>0.064		
RPF90	0.064≥BLTF>0.060		
RPF100	0.060≥BLTF		

CPF Option:

If RPF above is minimum 35, the CPF assessment is optional for manufacturers. If the CPF option is chosen, the RPF / blue light mark is replaced with the CPF / blue light Mark.

Final CPF rating is rounded down to next lower multiple of 10 (except for 35 ≤ CPF < 40 which rounds to 35).

1. Measure spectral radiance of the display using white setting. Calculate Chromaticity Coordinate (x,y), Correlated Color Temperature (CCT), Blue Light Toxicity Factor, and Radiance Protection Factor (RPF) from spectral or radiance of the display.
 - a. Chromaticity Coordinate calculated from measured spectral radiance and CIE1931 Color Matching Function.
 - b. Correlated Color Temperature (CCT) calculated as follows, with n based on the Chromaticity Coordinate:

Reference: McCamy's method for calculating CCT (1992))

$$n = (x - 0.3320) / (0.1858 - y)$$

$$CCT = 437 * n^3 + 3601 * n^2 + 6861 * n + 5517$$

- c. Blue Light Toxicity Factor:

Blue Light Toxicity Factor (BLTF)

$$BLTF = \frac{100 \times \sum_{\lambda=380}^{780} Q(\lambda)B(\lambda)\Delta\lambda}{683 \times \sum_{\lambda=380}^{780} Q(\lambda)V(\lambda)\Delta\lambda}$$

where

Q(λ): Spectral Irradiance or Radiance

B(λ): Blue Light Hazard Function (IEC 62471)

V(λ): Spectral Luminous Efficiency Function for Photopic Vision (= CIE 1931 Color Matching Function)

- d. Radiance Protection Factor:

Radiance Protection Factor (RPF)

$$RPF = 260 \times (BLTF_{D65} - BLTF_{Tested}) / BLTF_{D65}$$

where

BLTF_{Tested}: BLTF for Tested Sample

BLTF_{D65}: BLTF for D65 Illuminant = 9.8565 x 10⁻²

260: Scaling Factor

2. Measure spectral radiance of the display using red, green, and blue setting. Calculate Chromaticity Coordinate (x,y) for each mode (same general description as above Step 1)
3. Calculate Color Gamut Coverage % for sRGB, Adobe RGB, DCI-P3, and NTSC color modes based on the Chromaticity Coordinates obtained in Step 2.
4. Compare the Blue Light Toxicity Factor, Color Gamut Coverage percentages, and CCT to the Eyesafe Display 2.0 criteria.

CPF Evaluation:

- 1) Measure the spectral radiance of Sample
- 2) Calculate MEDL by a formula “(∫ spectral radiance for Sample (measured) * α-opic action spectrum for Melanopic * dλ) / (D65-based FIXED VALUE (Melanopic Efficacy of Luminous Radiation for D65))”
- 3) Calculate CPF by a formula “-0.12 x MEDL + 93”

Low Blue Light Hardware Solution:

Evaluation Item	Platinum	Gold	Silver	Bronze
The radiance ratio of light in the range 415nm-455nm to 400nm-500nm (not greater than)	46%	48%	50%	52%
Color Temperature (shall be in the specified range)	5500K to 7000K			
IEC 62471 Blue light risk group (not higher than)	Exempt or measured luminance less than $10^4 \text{ cd}\cdot\text{m}^{-2}$ (per IEC 62471:2006 Cl. 4.1)			

SECTION C: RESULTS

C.1 Photographs

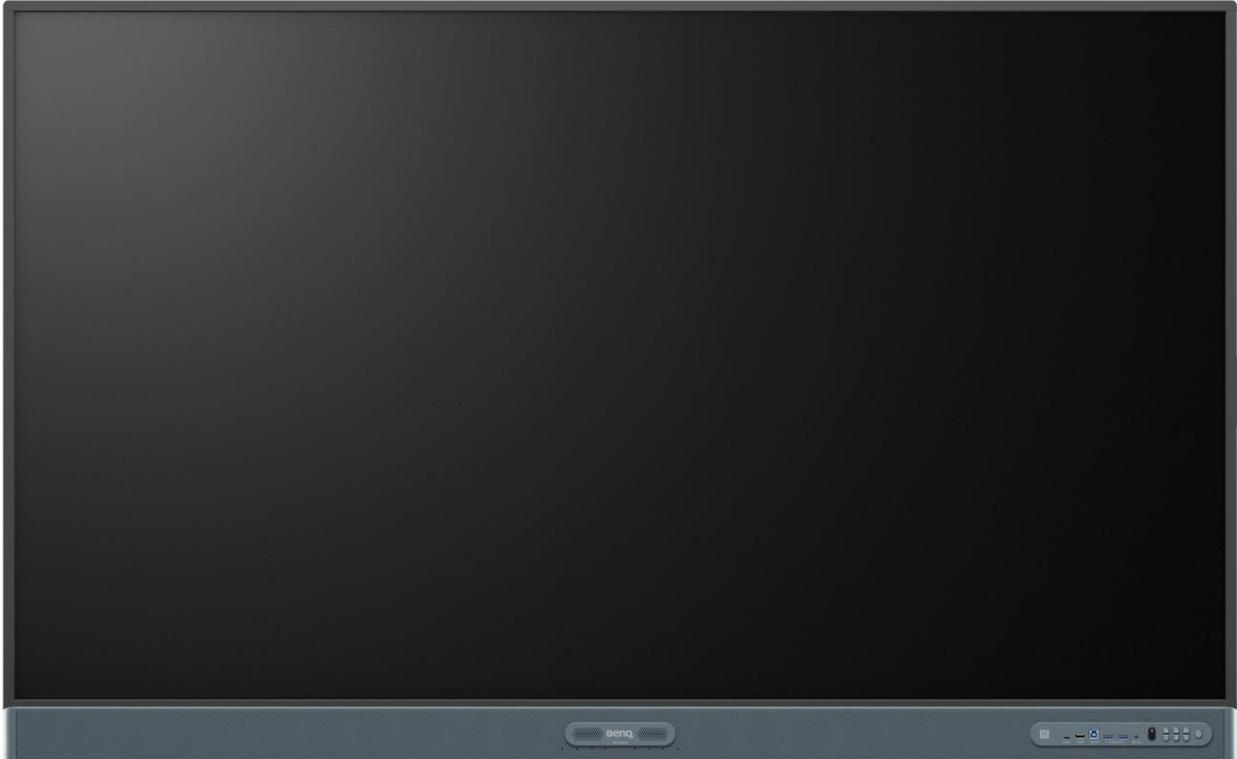


FIGURE 1 – Interactive Flat Panel

C.2 Test Results

Model RP6505 with Panel UV650QUB-T90

BLTF	Color gamut coverage	CCT	Radiance ratio (415nm-455nm to 400nm-500nm)	RPF	CPF	LBL
0.0736	100%	5584	46%	60	70	Platinum

Note :

The setting of tested displays is as follows.

- Default mode as shipped (Color mode: sRGB)
- Full screen color window (white, red, green, and blue)
- Other setting: Eyesafe (Turn on)

Model RP7505 With Panel UV750QUB-T90

BLTF	Color gamut coverage	CCT	Radiance ratio (415nm-455nm to 400nm-500nm)	RPF	CPF	LBL
0.0749	99.94%	5543	38%	60	60	Platinum

Note :

The setting of tested displays is as follows.

- Default mode as shipped (Color mode: sRGB)
- Full screen color window (white, red, green, and blue)
- Other setting: Eyesafe (Turn on)

Model RP8605 With Panel UV860QUB-N11

BLTF	Color gamut coverage	CCT	Radiance ratio (415nm-455nm to 400nm-500nm)	RPF	CPF	LBL
0.0731	95.36%	5715	40%	60	70	Platinum

Note :

The setting of tested displays is as follows.

- Default mode as shipped (Color mode: sRGB)
- Full screen color window (white, red, green, and blue)
- Other setting: Eyesafe (Turn on)

Environmental Conditions during testing:

Date:	2025-10-14
Temperature:	21.4 degree C
Humidity:	69.2%
Barometric Pressure:	N/A
Elevation:	--

SECTION D: DETERMINATION OF VERIFICATION MARK CLAIM

Verified Claim:

Verified for reduced blue light eyesafe® RPF60
Verified for reduced circadian stimulating blue light (CIE S 026) eyesafe® CPF50
Verified for low blue light hardware solution Platinum

<end of report>