

PRODUCT DATA SHEET

10.4" XGA DUAL MODE (DAY & NVIS) ENHANCED LED BACKLIT DISPLAY SOLUTION

Sunlight Readability/MIL-STD-3009 NVIS White Operation/Very Wide Range Dimming

04/19/2021

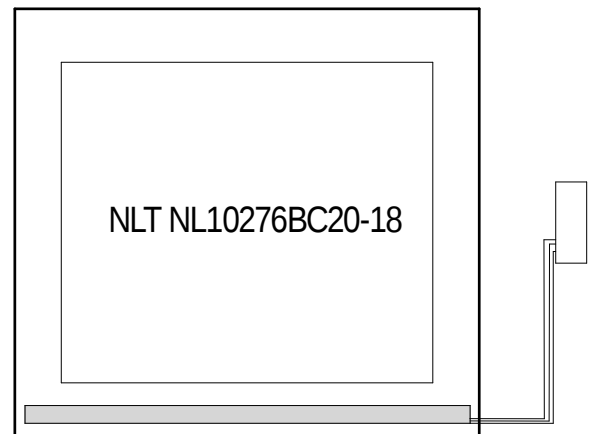
GENERAL DESCRIPTION

The ACD-NVIS104-3120 consists of the NLT NL10276BC20-18 10.4" XGA TFT display, modified with a high performance LED backlight capable of Day and NVIS White Operation.

Performance at given luminance levels

1250 cd/m² with 5.5 watts LED power (Day)
34 cd/m² with 1.65 watts LED power (NVIS)

The "NVIS White" enhancement portion of this display solution, is intended to be capable of compliance per MIL-STD-3009 for Electronic and electro-optical displays (multi-color), Type 1, Class A or Class B. Other post enhancements placed in front of the LCD glass, can have an affect on the final Luminance & Chromaticity results.



LED BACKLIGHT FEATURES

Day and NVIS LED rail

Single connector allows simple interconnect with LED driver¹

Projected lifetime > 75,000 hours

Designed to be driven by constant current, selectable dual output LED backlight driver ¹

¹ For best power transfer and control, use ACI-2998A Dual Mode LED Driver.

LCD PANEL HIGHLIGHTS

10.4" TFT Active Matrix Color

210.432mm(H) x 157.824mm(V) viewable area

228.0mm(W) x 178.5mm(H) x 8.7mm(D) physical size

XGA 1024 x 768 pixels, 16.7M colors

900:1 typical contrast ratio

Display Mode, Normally White

Surface Treatment: Clear, 3H Hardness

For complete LCD specification (standard panel), refer to the datasheet NLT NL10276BC20-18

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MAXIMUM RATINGS*

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Symbol	Parameter	Value	Unit
Top ¹	Operating temperature of display (center of panel surface)	-30 to +80	Deg-C
Tled	Operating temperature of LED edge light (light rail contact)	-40 to +95	Deg-C
Tlstg ¹	LED storage temperature	-40 to +100	Deg-C
Tstg ¹	Display storage temperature	-30 to +80	Deg-C
IfwdD	LED forward current (Day)	96	mA
IfwdN	LED forward current (NVIS)	30	mA

*Maximum Ratings are those values beyond which damage may occur

¹Per Manufacturer's Specification

PANEL/BACKLIGHT OPTICAL CHARACTERISTICS

Ifwd(Day) = 80mA per bank, 1 bank per rail, 1 rail per display, Ifwd(NVIS) = 25mA per bank, 1 bank per rail, 1 rail per display, LED rail: ACR-3121, Ta = +25 Deg-C moving air (36 CFM), LCD displaying full-white image, minimum 2 hour soak.

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Bpd	Panel Luminance (Day)		1000	1250		cd/m ²
Bpn	Panel Luminance (NVIS)			34		cd/m ²
u'd	White u' coordinate (DAY)			0.195		-
v'd	White v' coordinate (DAY)			0.495		-
Rd	White radius error (DAY)				0.040	-
u'n	White u' coordinate (NVIS)			0.190		-
v'n	White v' coordinate (NVIS)			0.490		-
Rn	White radius error (NVIS)				0.040	-

LED EDGE-LIGHT ELECTRICAL CHARACTERISTICS

Ifwd(Day) = 80mA, Ifwd(NVIS) = 25mA, Top = +25Deg-C

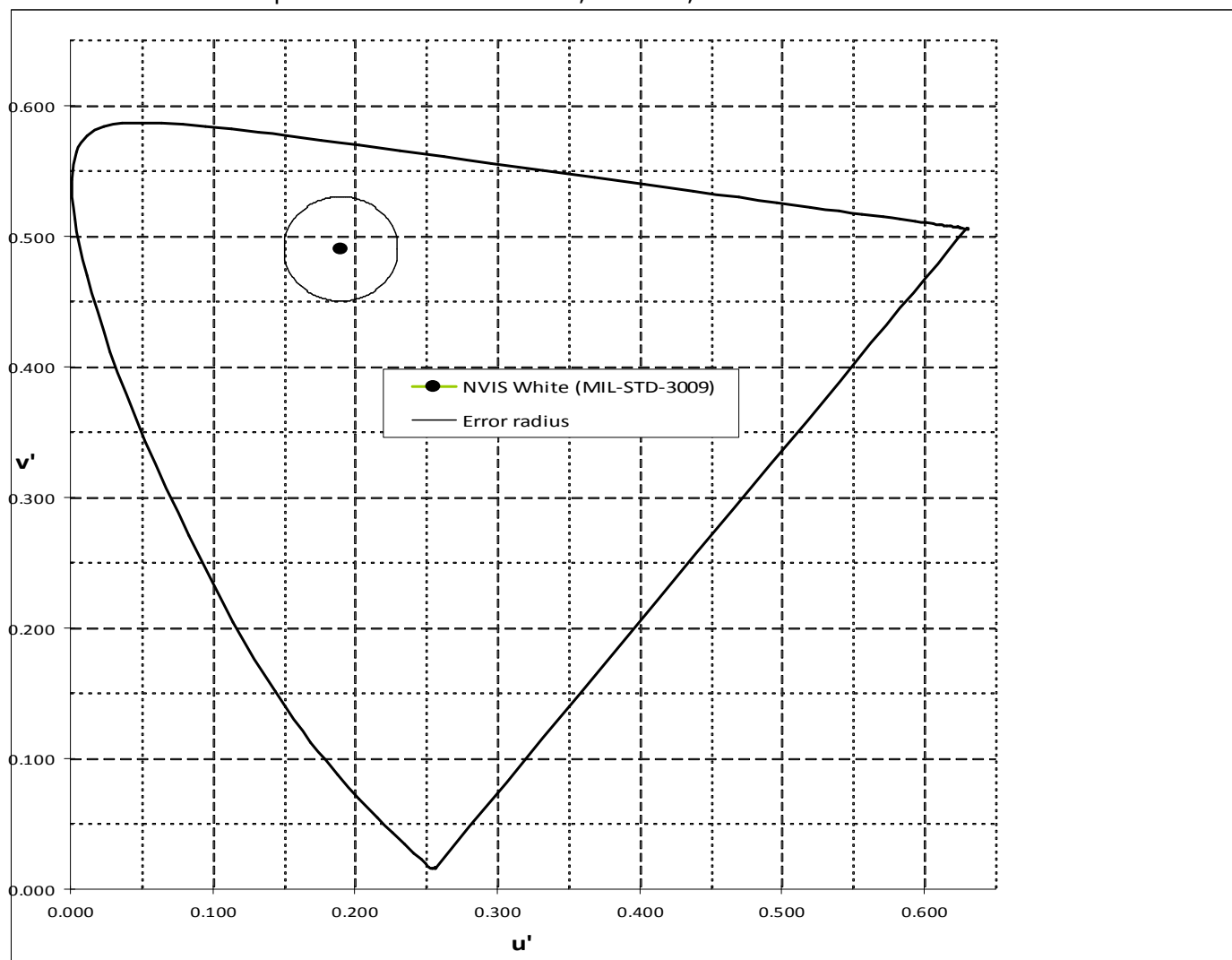
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Vfwd	LED rail forward voltage drop (Day mode)		62	69	76	Vdc
Vfwd	LED rail forward voltage drop (NVIS)		59	66	73	Vdc

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CIE 1976 UCS CHROMATICITY DIAGRAM

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NVIS WHITE coordinates per MIL-STD-3009: $u'=0.190$, $v'=0.490$, $r=0.04$

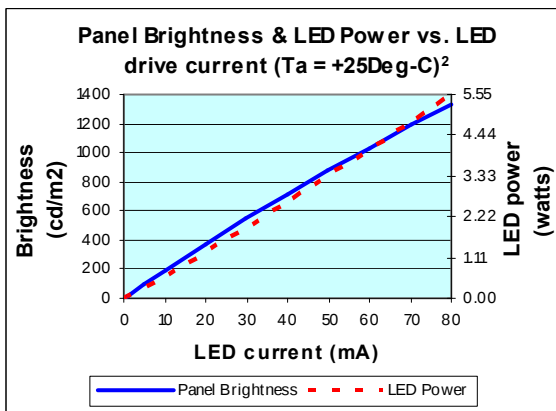


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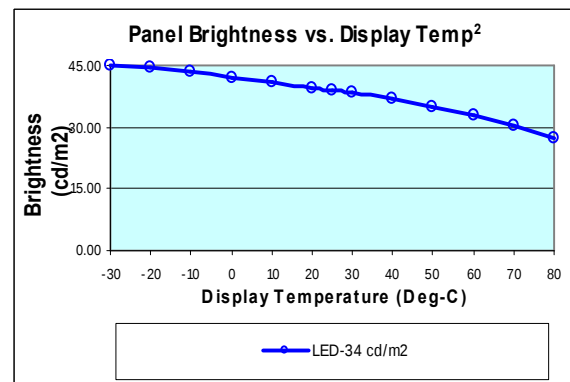
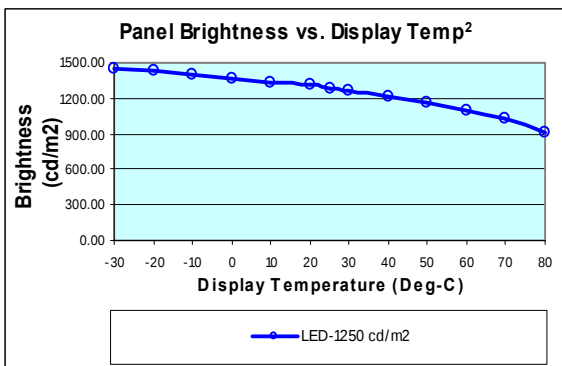
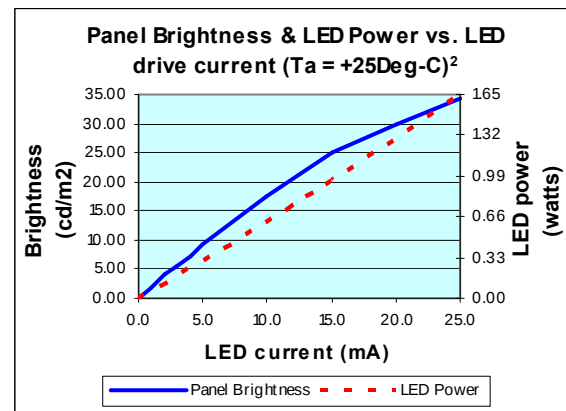
TYPICAL LCD/LED BACKLIGHT PERFORMANCE GRAPHS

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Day



NVIS



² Moving air (36.0 CFM)