

7" FHD DUAL MODE (DAY & NVIS) ENHANCED LED BACKLIT DISPLAY SOLUTION

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

GENERAL DESCRIPTION

The ACD-2876 consists of the KOE/Hitachi TX18D200VM0EAA 7" FHD TFT display, modified with a high performance LED backlight capable of Day and NVIS White Operation.

Performance at given luminance levels

1000 cd/m² with 6.9 watts LED power (Day)
6.27 cd/m² with 1.04 watts LED power (NVIS)
1.71 cd/m² with 0.29 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.

LCD PANEL HIGHLIGHTS

7" TFT Active Matrix Color

155.52mm(H) x 87.48mm(V) viewable area

FHD 1920 x 1080 pixels, 16.7M colors

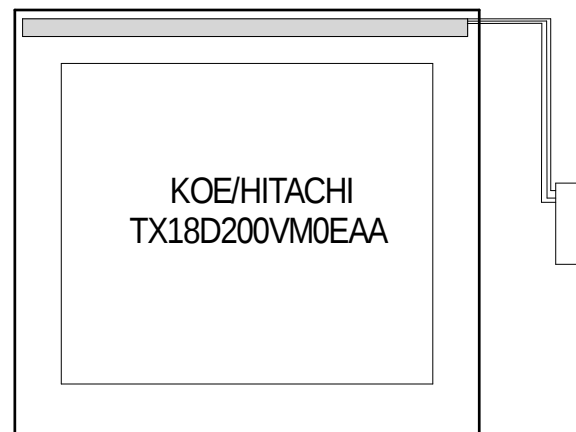
800:1 typical contrast ratio

Display Mode Normally Black

Physical Size 169.0mm(W) x 104.0mm(H) x 10.0mm(D)

For complete LCD specification (standard panel), refer to the datasheet KOE/Hitachi TX18D200VM0EAA

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LED BACKLIGHT FEATURES

Day and NVIS LED edge-light 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 one of the following LED Driver for 1.71 nits NVIS.
ACI-2875
ACI-3078 (Conformal Coated with Humiseal 1B73)

¹ For best power transfer and control, use ACI-3035 Dual Mode LED Driver for 6.27 nits NVIS.

MAXIMUM RATINGS*

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Symbol	Parameter	Value	Unit
Top ¹	Operating temperature of display (center of panel surface)	-20 to +70	Deg-C
Tled	Operating temperature of LED edge light (light rail contact)	-30 to +95	Deg-C
Tstg ¹	Display storage temperature	-30 to +80	Deg-C
IfwdD	LED forward current (Day)	108	mA
IfwdN	LED forward current (NVIS)	36	mA

*Maximum Ratings are those values beyond which damage may occur

¹Per Manufacturer's Specification

PANEL/BACKLIGHT OPTICAL CHARACTERISTICS

Ifwd(Day) = 90mA per bank, 1 bank per rail, 1 rail per display, Ifwd(NVIS) = 1 bank per rail, 1 rail per display, LED rail: ACR-2869, 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)		900	1000	1100	cd/m ²
Bpn	Panel Luminance (NVIS)	Ifwd(NVIS)= 9mA per Bank		1.71		cd/m ²
Bpn	Panel Luminance (NVIS)	Ifwd(NVIS)= 30mA per Bank		6.27		cd/m ²
u'd	White u' coordinate (DAY)			0.200		-
v'd	White v' coordinate (DAY)			0.465		-
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

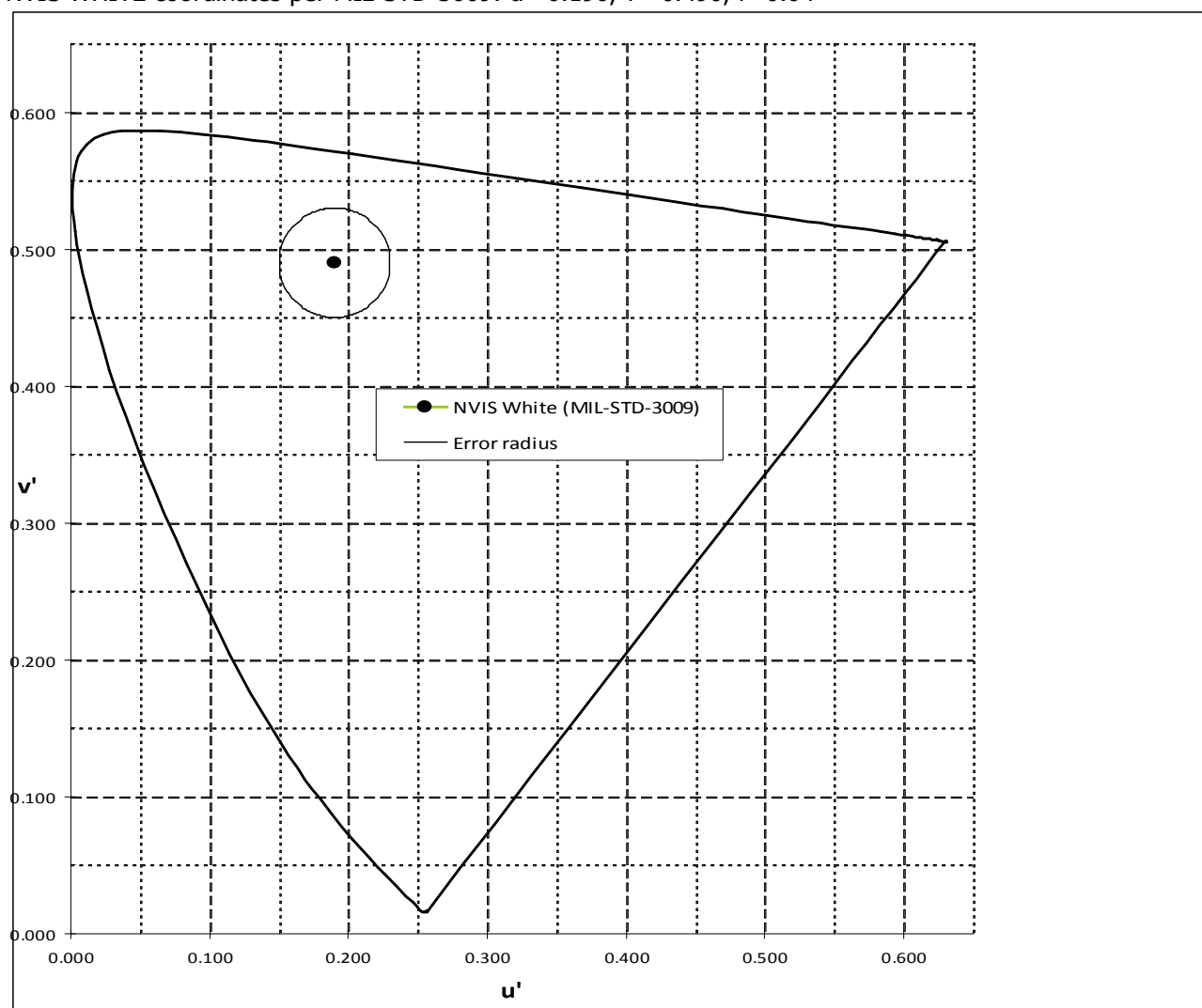
Ifwd(Day) = 90mA, Ifwd(NVIS) = 9mA-30mA, Top = +25Deg-C

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Vfwd	LED rail forward voltage drop (Day mode)		69	77	85	Vdc
Vfwd	LED rail forward voltage drop (NVIS)		30	33	36	Vdc

CIE 1976 UCS CHROMATICITY DIAGRAM

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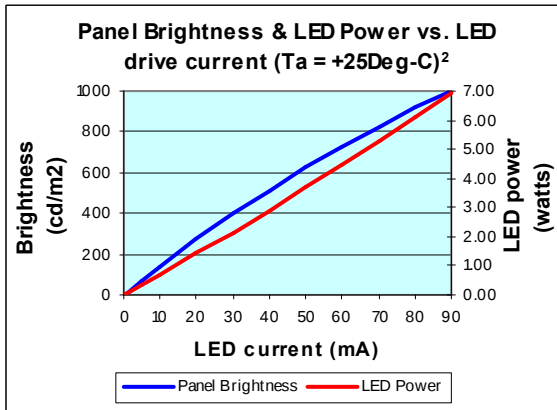
NVIS WHITE coordinates per MIL-STD-3009: $u'=0.190$, $v'=0.490$, $r=0.04$



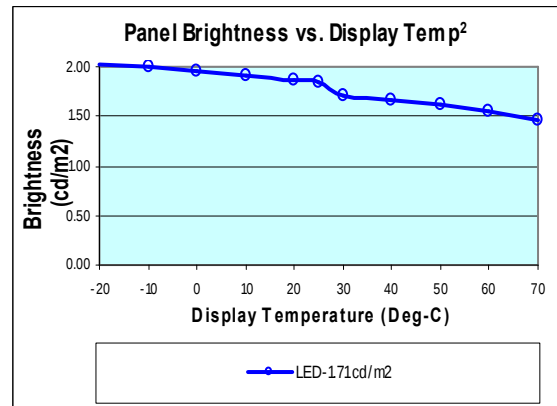
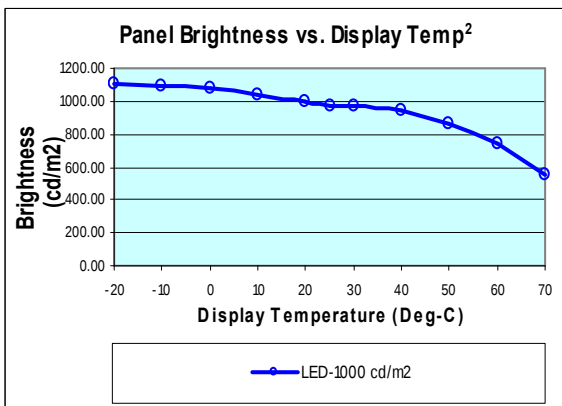
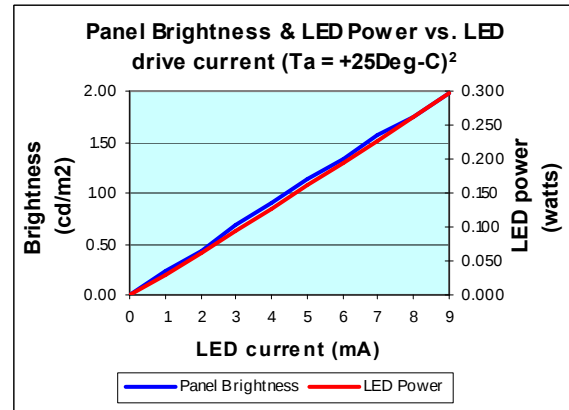
TYPICAL LCD/LED BACKLIGHT PERFORMANCE GRAPHS

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Day (1000 nits)



NVIS (1.71 nits)

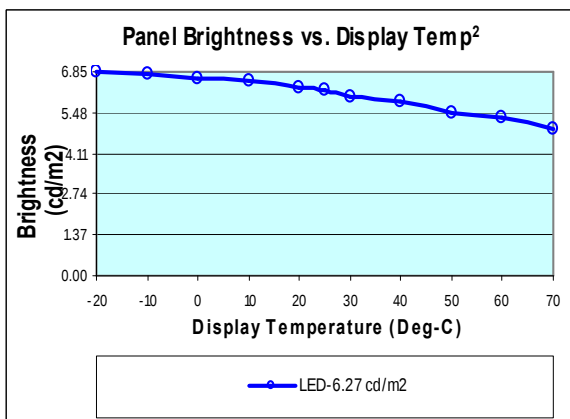
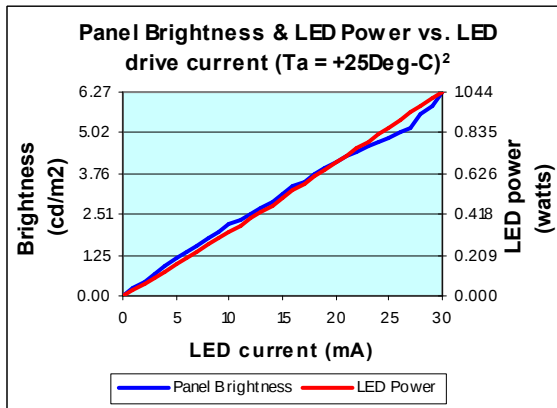


² Moving air (36.0 CFM)

TYPICAL LCD/LED BACKLIGHT PERFORMANCE GRAPHS

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NVIS (6.27 nits)



² Moving air (36.0 CFM)