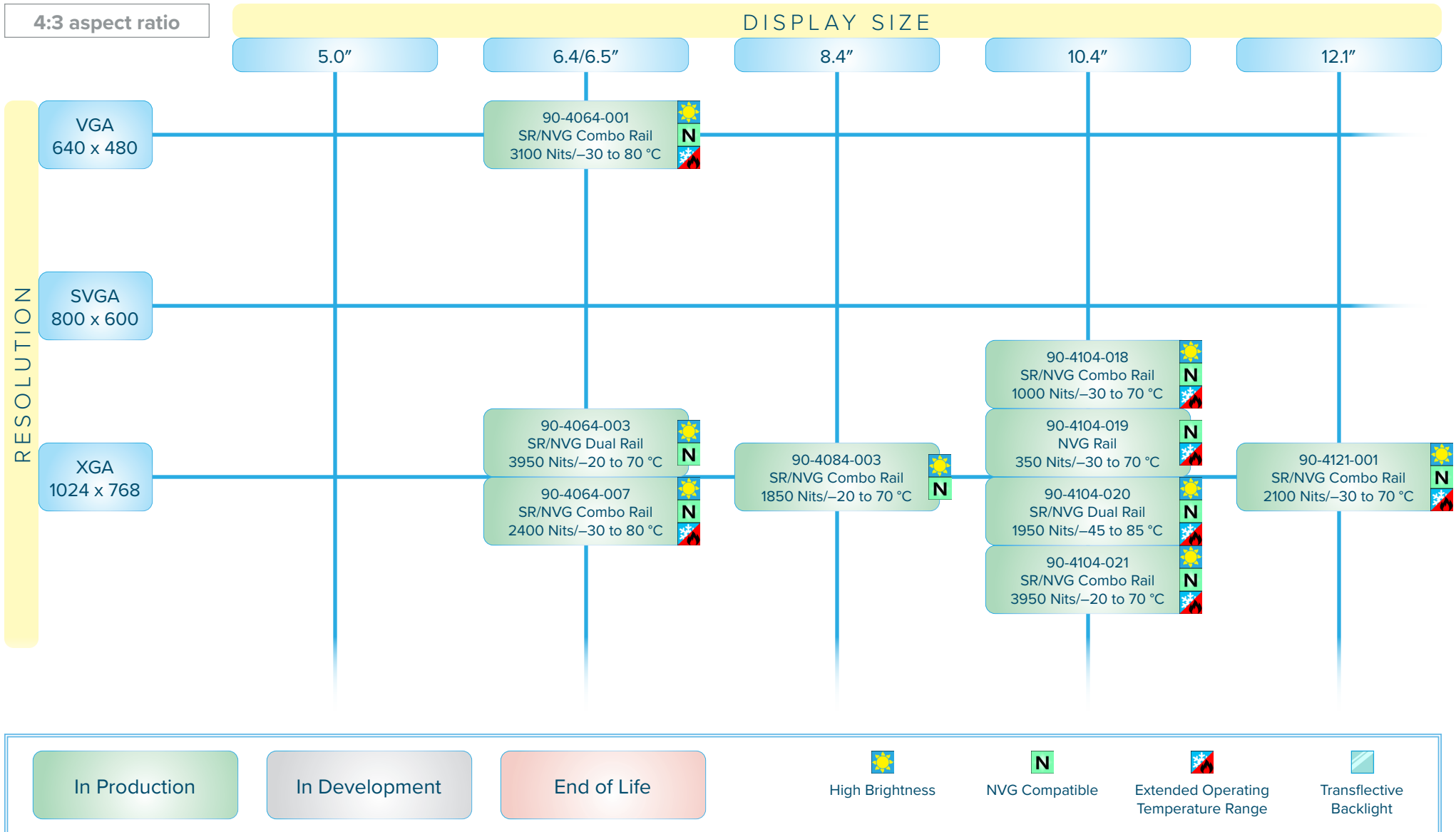


# ENHANCED DISPLAYS LINE-UP

Last Update: 1 Jun 2021

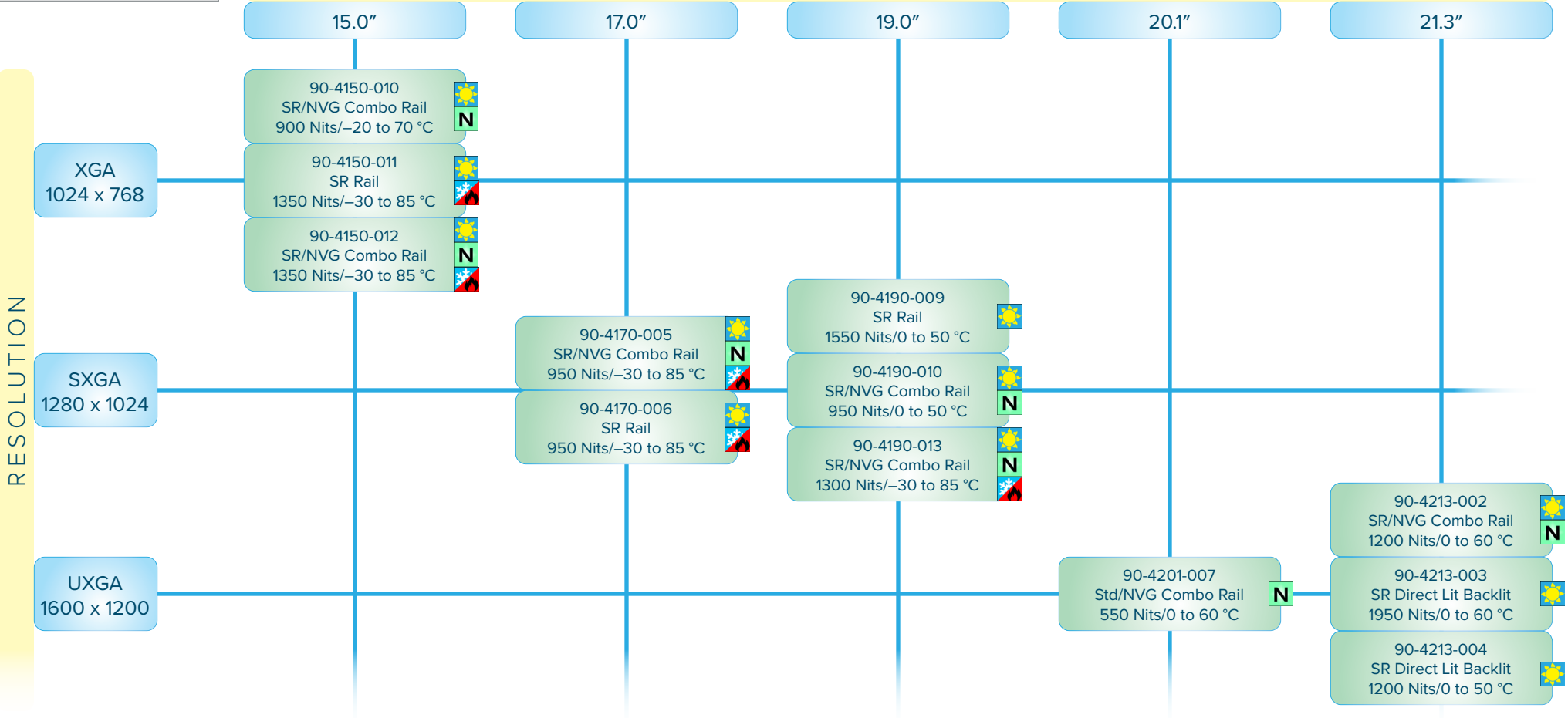


# ENHANCED DISPLAYS LINE-UP

Last Update: 1 Jun 2021

4:3/5:4 aspect ratio















DISPLAY SIZE



In Production	In Development	End of Life	High Brightness	NVG Compatible	Extended Operating Temperature Range	Transflective Backlight
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# ENHANCED DISPLAYS LINE-UP

Last Update: 1 Jun 2021











16:9 aspect ratio		DISPLAY SIZE				
		15.6"	17.3"	18.5"	21.5"	24.0"
RESOLUTION	FHD 1920 x 1080	90-4156-002 SR Edge Lit Backlight 1350 Nits/-10 to 70 °C 	90-4173-001 SR/NVG Combo Rail 950 Nits/0 to 70 °C  	90-4185-001 SR/NVG Combo Rail xxx Nits/xx to xx °C  	90-4215-003 SR/NVG Combo Rail 850 Nits/0 to 50 °C  	90-4240-002 SR/NVG Combo Rail 750 Nits/-20 to 70 °C  
	WQHD 2560 x 1440	90-4156-003 SR/NVG Combo Rail 1300 Nits/-10 to 70 °C  			90-4215-006 SR Direct Lit Backlight 1050 Nits/0 to 50 °C 	90-4240-003 SR/NVG Combo Rail 900 Nits/0 to 50 °C  
	4K 4096 x 2160					

In Production	In Development	End of Life	 High Brightness	 NVG Compatible	 Extended Operating Temperature Range	 Transflective Backlight
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# ENHANCED DISPLAYS LINE-UP

Last Update: 1 Jun 2021

## SPECIFICATIONS















	6.4"/6.5"			8.4"
<b>Part Number</b>	90-4064-001	90-4064-003	90-4064-007	90-4084-003
<b>Status</b>	In Production	In Production	In Production	In Production
<b>Resolution</b>	640 x 480	1024 x 768	1024 x 768	1024 x 768
<b>Brightness @ Rail Temp.</b>	3100 nits @ 50 °C	3950 nits @ 50 °C	2400 nits @ 65 °C	1850 nits @ 47 °C
<b>Contrast Ratio</b>	650:1	850:1	650:1	700:1
<b>Weber Class</b>	6	5	6	6
<b>Display Mode</b>	SR/NVIS	SR/NVIS	SR/NVIS	SR/NVIS
<b>Colors</b>	6-bit/6-bit + FRC	6-bit/6-bit + FRC	8-bit	6-bit/8-bit + Hi-FRC
<b>Response Time</b>	3/15 ms	6/19 ms	30 ms	13/12 ms
<b>Viewing Angle</b>	±80° H/±80° V	±80° H/+80, -60° V	±85° H/±85° V	±88° H/±88° V
<b>NTSC</b>	40%	36%	60%	71%
<b>Technology</b>	TN	TN	LTPS TFT	a-Si TFT
<b>Operating Temperature</b>	-30 to 80 °C	-20 to 70 °C	-30 to 80 °C	-20 to 70 °C
<b>Storage Temperature</b>	-30 to 80 °C	-30 to 80 °C	-30 to 80 °C	-30 to 80 °C
<b>Backlight Power</b>	8 W	16.5 W	8.9 W	10.5 W
<b>Enhancements</b>	  	 	  	 

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# ENHANCED DISPLAYS LINE-UP

Last Update: 1 Jun 2021

## SPECIFICATIONS
















	10.4"				12.1"
<b>Part Number</b>	90-4104-018	90-4104-019	90-4104-020	90-4104-021	90-4121-001
<b>Status</b>	In Production	In Production	In Production	In Production	In Production
<b>Resolution</b>	1024 x 768	1024 x 768	1024 x 768	1024 x 768	1024 x 768
<b>Brightness @ Rail Temp.</b>	1000 nits @ 60°C	350 nits @ 50°C	1950 nits @ 70°C	3950 nits @ 60°C	2100 Nits @ 50°C
<b>Contrast Ratio</b>	1100:1	N/A	1250:1	850:1	950:1
<b>Weber Class</b>	5	N/A	6	6	5
<b>Display Mode</b>	SR/NVIS	NVIS	SR/NVIS	SR/NVIS	SR
<b>Colors</b>	6-bit/6-bit + FRC	6-bit/6-bit + FRC	6-bit/6-bit + FRC	6-bit/8-bit	6-bit/6-bit + FRC
<b>Response Time</b>	14/11 ms	14/11 ms	25 ms	16 ms	5/11 ms
<b>Viewing Angle</b>	±88° H/±88° V	±88° H/±85° V	±88° H/±85° V	±75° H/+60, -70° V	±80° H/±70° V
<b>NTSC</b>	55%	55%	70%	50%	63%
<b>Technology</b>	Super MVA	Super MVA	ADS	TN	a-Si TFT
<b>Operating Temperature</b>	-30 to 70 °C	-30 to 70 °C	-45 to 85 °C	-20 to 70 °C	-30 to 70 °C
<b>Storage Temperature</b>	-30 to 80 °C	-30 to 80 °C	-55 to 85 °C	-30 to 80 °C	-40 to 80 °C
<b>Backlight Power</b>	17 W	13 W	17 W	11 W	12 W
<b>Enhancements</b>	  	 	  	  	  

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# ENHANCED DISPLAYS LINE-UP

Last Update: 1 Jun 2021

## SPECIFICATIONS












	15.0"			15.6"		17.0"	
<b>Part Number</b>	90-4150-010	90-4150-011	90-4150-012	90-4156-002	90-4156-003	90-4170-005	90-4170-006
<b>Status</b>	In Production	In Production	In Production	In Production	In Production	In Production	In Production
<b>Resolution</b>	1024 x 768	1024 x 768	1024 x 768	1920 x 1080	1920 x 1080	1280 x 1024	1280 x 1024
<b>Brightness @ Rail Temp.</b>	900 nits @ 50 °C	1350 nits @ 50 °C	1350 nits @ 50 °C	1350 nits @ 55 °C	1300 nits @ 55 °C	950 nits @ 50 °C	950 nits @ 50 °C
<b>Contrast Ratio</b>	1150:1	1100:1	1100:1	650:1	500:1	800:1	800:1
<b>Weber Class</b>	5	4	4	5	5	5	5
<b>Display Mode</b>	SR/NVIS	SR	SR/NVIS	SR	SR/NVIS	SR/NVIS	SR
<b>Colors</b>	6-bit/8-bit	6-bit/6-bit + FRC	6-bit/6-bit + FRC	8-bit	6-bit/6-bit + FRC	6-bit/6-bit + FRC	6-bit/6-bit + FRC
<b>Response Time</b>	3/5 ms	5.7/2.3 ms	5.7/2.3 ms	8 ms	8 ms	20/10 ms	20/10 ms
<b>Viewing Angle</b>	±80° H/±80° V	±80° H/+60°, -80° V	±80° H/+60°, -80° V	±80° H/±70° V	±70° H/±60° V	±80° H/+60°, -80° V	±80° H/+60°, -80° V
<b>NTSC</b>	60%	60%	60%	74%	75%	60%	60%
<b>Technology</b>	TN	TN	ADS	Si TFT	Si TFT	TN	TN
<b>Operating Temperature</b>	-20 to 70 °C	-30 to 85 °C	-30 to 85 °C	-10 to 70 °C	-10 to 70 °C	-30 to 85 °C	-30 to 85 °C
<b>Storage Temperature</b>	-30 to 80 °C	-30 to 85 °C	-30 to 85 °C	-20 to 70 °C	-20 to 70 °C	-30 to 85 °C	-30 to 85 °C
<b>Backlight Power</b>	13 W	13 W	13 W	18 W	18 W	22 W	22 W
<b>Enhancements</b>	 	 	  		 	  	 

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# ENHANCED DISPLAYS LINE-UP

Last Update: 1 Jun 2021

## SPECIFICATIONS












	17.3"	18.5"	19.0"			20.1"
<b>Part Number</b>	90-4173-001	90-4185-001	90-4190-009	90-4190-010	90-4190-013	90-4201-007
<b>Status</b>	In Production	In Development	In Production	In Production	In Production	In Production
<b>Resolution</b>	1920 x 1080	1920 x 1080	1280 x 1024	1280 x 1024	1280 x 1024	1600 x 1200
<b>Brightness @ Rail Temp.</b>	950 nits @ 55 °C	N/A	1550 nits @ 50 °C	950 nits @ 50 °C	1300 nits @ 60 °C	550 nits @ 50 °C
<b>Contrast Ratio</b>	900:1	N/A	1000:1	N/A	1150:1	1200:1
<b>Weber Class</b>	5	N/A	5	5	6	4
<b>Display Mode</b>	SR/NVIS	SR/NVIS	SR	SR/NVIS	SR/NVIS	STD/NVIS
<b>Colors</b>	8-bit	N/A	6-bit + FRC	6-bit + FRC	6-bit + FRC	8-bit
<b>Response Time</b>	37/3 ms	N/A	3.6/1.4 ms	3.6/1.4 ms	7/3 ms	30 ms
<b>Viewing Angle</b>	±80° H/+60, -80° V	N/A	±85° H/±80° V	±85° H/±80° V	±85° H/±80° V	±85° H/±85° V
<b>NTSC</b>	78%	N/A	72%	72%	75%	71%
<b>Technology</b>	a-Si LCM	N/A	TN	TN	Si TFT	VA
<b>Operating Temperature</b>	0 to 70 °C	N/A	0°C to 50 °C	0 to 50 °C	-30 to 85 °C	0 to 60 °C
<b>Storage Temperature</b>	-30 to 75 °C	N/A	-20 to 60 °C	-20 to 60 °C	-30 to 85 °C	-25 to 60 °C
<b>Backlight Power</b>	22 W	N/A	22 W	17 W	29 W	23 W
<b>Enhancements</b>	 	 		 	  	

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# ENHANCED DISPLAYS LINE-UP

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## SPECIFICATIONS

	21.3"			21.5"		24.0"	
<b>Part Number</b>	90-4213-002	90-4213-003	90-4213-004	90-4215-003	90-4215-006	90-4240-002	90-4240-003
<b>Status</b>	In Production	In Production	In Production	In Production	In Production	In Production	In Production
<b>Resolution</b>	1600 x 1200	1600 x 1200	1600 x 1200	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080
<b>Brightness @ Rail Temp.</b>	1200 nits @ 50 °C	1950 nits @ 50 °C	1200 nits @ 50 °C	850 nits @ 50 °C	1050 nits @ 50 °C	750 nits @ 45 °C	900 nits @ 50 °C
<b>Contrast Ratio</b>	1300:1	1200:1	1300:1	3450:1	7450:1	4200:1	3350:1
<b>Weber Class</b>	5	6	6	5	6	6	2
<b>Display Mode</b>	SR/NVIS	SR	SR	SR/NVIS	SR	SR/NVIS	SR/NVIS
<b>Colors</b>	8-bit	8-bit	8-bit	8-bit	8-bit	8-bit	8-bit
<b>Response Time</b>	40 ms	40 ms	15/15 ms	20/5 ms	20/5 ms	16/9 ms	16/9 ms
<b>Viewing Angle</b>	±88° H/±88° V	±88° H/±88° V	±89° H/±89° V	±89° H/±89° V	±89° H/±89° V	±89° H/±89° V	±88° H/±88° V
<b>NTSC</b>	72%	72%	N/A	75%	75%	77%	72%
<b>Technology</b>	UA-SFT	UA-SFT	a-Si TFT	AMVA3	AMVA3	a-Si LCM	AMVA3
<b>Operating Temperature</b>	0 to 60 °C	0 to 60 °C	0 to 50 °C	0 to 50 °C	0 to 50 °C	-20 to 70 °C	0 to 50 °C
<b>Storage Temperature</b>	-20 to 60 °C	-20 to 60 °C	-20 to 60 °C	-20 to 60 °C	-20 to 60 °C	-30 to 80 °C	-20 to 60 °C
<b>Backlight Power</b>	63 W	80 W	25 W	29 W	29 W	28 W	32 W
<b>Enhancements</b>	 			 		 	 

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# ENHANCED DISPLAYS LINE-UP

Last Update: 1 Jun 2021

## What is Weber Contrast?

Weber contrast is an important attribute to consider when selecting a display for use in high ambient brightness environments. Unlike the standard contrast value, which is measured in ideal conditions (dark room), the Weber contrast is measured under the simulated effects of direct sunlight (10,000 fc direct and 2,000 fL Lambertian light sources). General Digital determines and records the Weber contrast using the test procedure described in MIL-L-85762A.

To simplify and quantify the engineering challenge of qualifying a panel for use in high ambient brightness conditions, we created our own unique metric (Weber Class), which is derived directly from Table II of MIL-L-85762A. This data establishes that the larger the Weber Class number, the better the display will perform in high ambient brightness conditions.

## WEBER CONTRAST LOOKUP CHART

Display Class	Contrast Range	Short Description	Ideal Applications
Class 1	0.00 to 1.49	Not sunlight readable	Not suitable for direct sunlight use
Class 2	1.50 to 1.99	Numeric ONLY	Useful for numerics only in direct sunlight
Class 3	2.00 to 2.99	Alphanumeric	Useful for characters and numerical data
Class 4	3.00 to 4.659	Graphic symbols and alphanumerics	Useful for characters, numerical data and static images
Class 5	4.66 to 10.29	Acceptable video performance	Useful for characters, numerical data, static images and low quality video (6 $\sqrt{2}$ shades of gray with counting off as 1)
Class 6	10.3 and higher	Best case video performance	Useful for characters, numerical data, static images and high quality video (8 or more $\sqrt{2}$ shades of gray with counting off as 1)



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