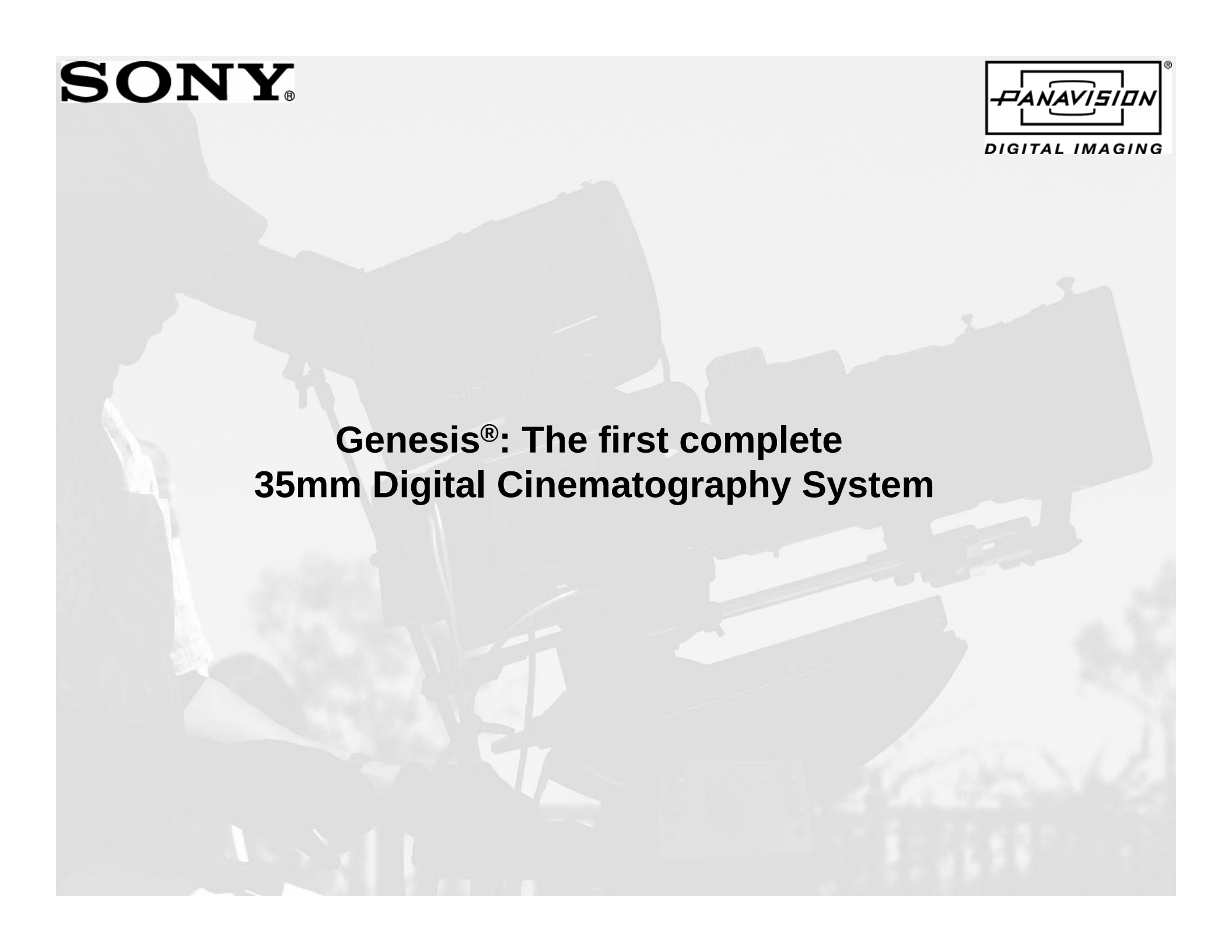




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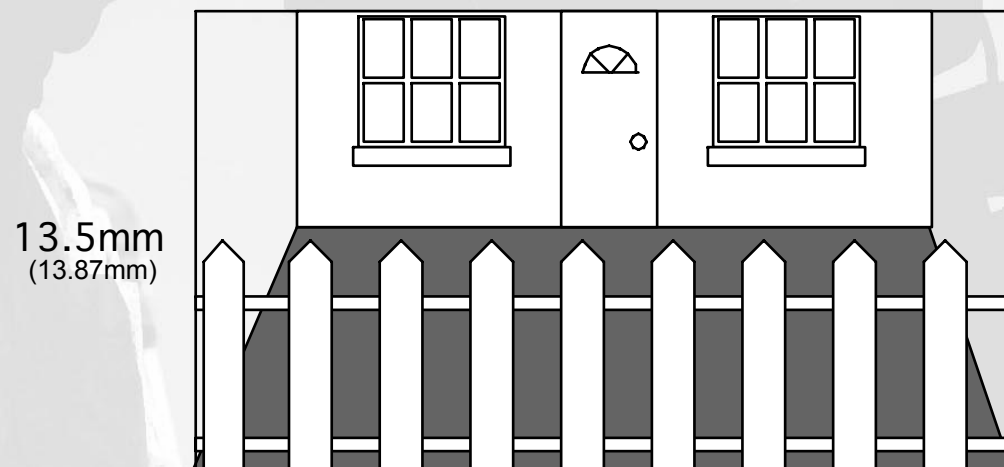
**Genesis®: The first complete
35mm Digital Cinematography System**

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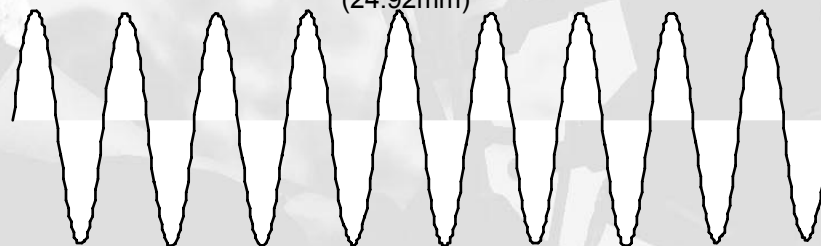


GENESIS & Super35 16:9 film image size compared to 2/3" CCD image size

3 perf. 16:9 35 mm film camera aperture

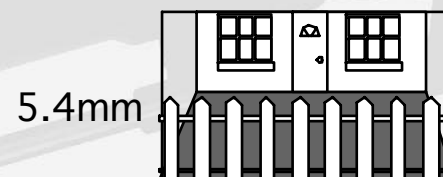


24 mm
(24.92mm)

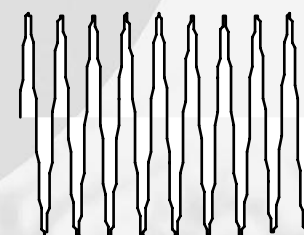


20 cycles/mm

2/3" CCD



9.6mm



50 cycles/mm

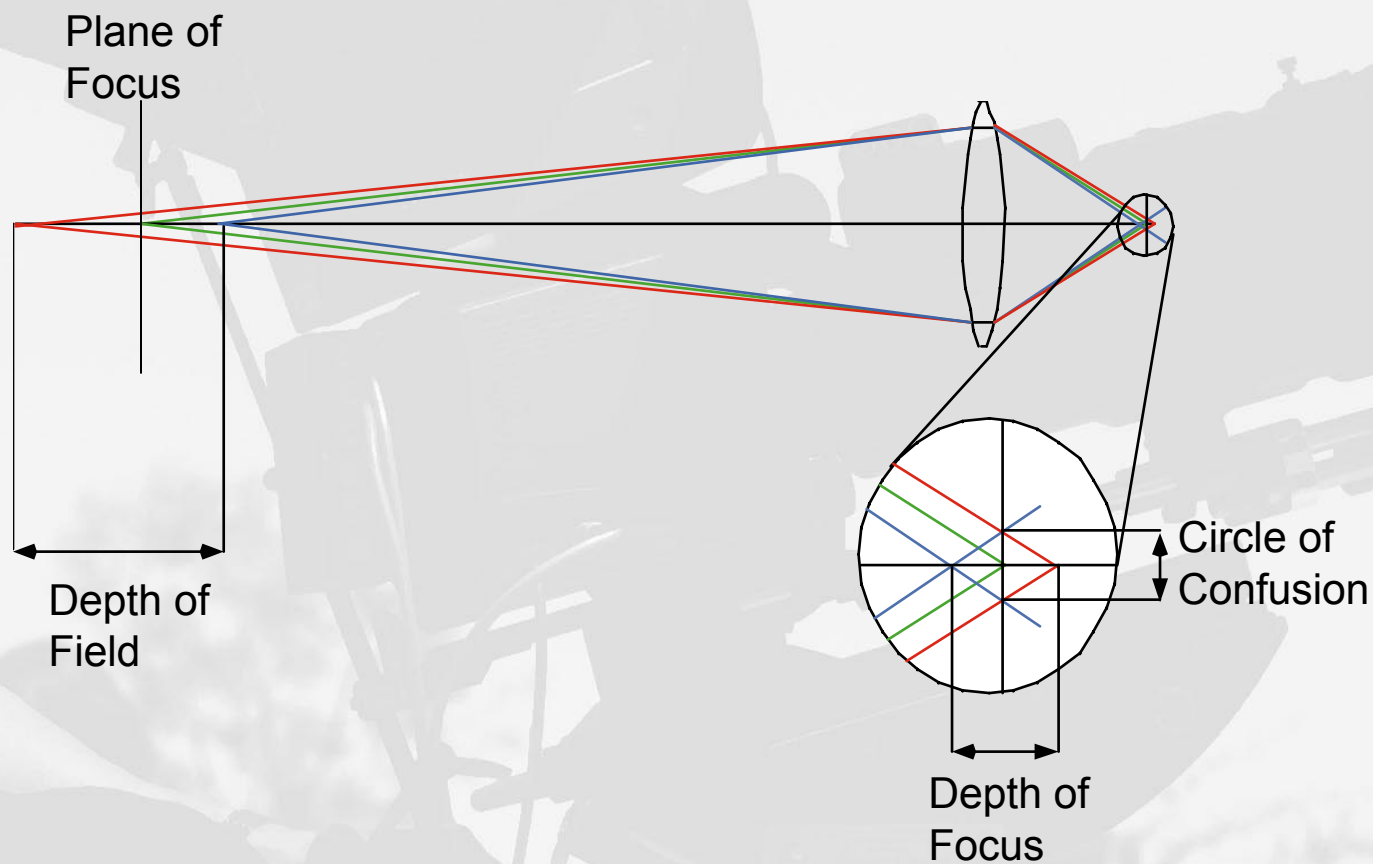
Depth of Field Comparison

Cine Super35 1.78:1	Video 2/3inch 1.78:1
F no.	F no.
2	0.8
2.8	1.1
4	1.6
5.6	2.2
8	3.2
11	4.4

Focal Length Comparison

Cine Super35 1.78:1	Video 2/3inch 1.78:1
12.5mm	5mm
17.5mm	7mm
25mm	10mm
35mm	14mm
50mm	20mm
85mm	35mm
125mm	50mm

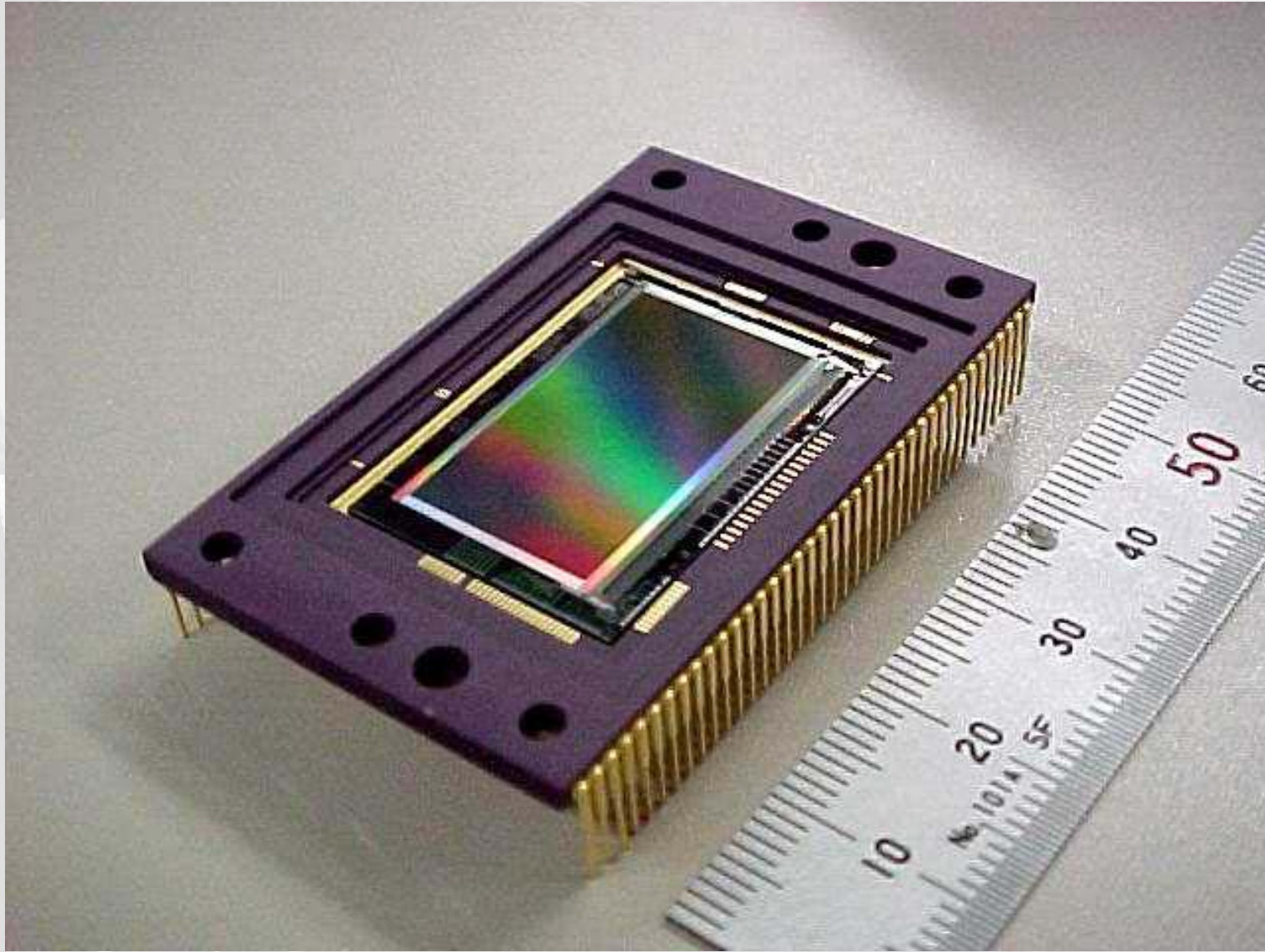
Depth Of Field



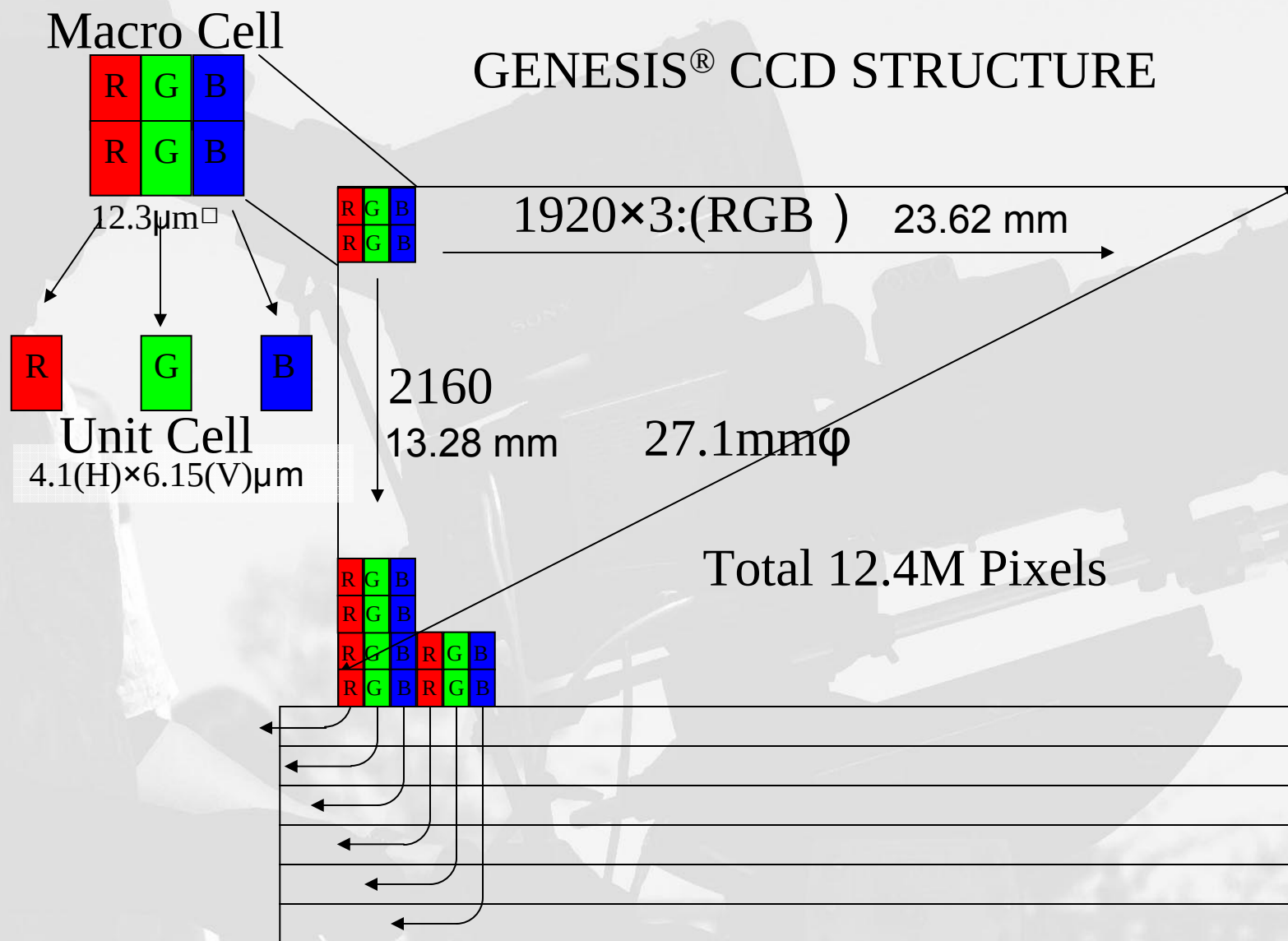
Genesis® Image Format Rationale

- This is already a SMPTE standard camera aperture for 35mm film (SMPTE59-1998, style D)
- Film and digital using this format, would use the same cine optics and could have the same field of view and depth of field.
- The format aspect ratio of 1.78:1 is already supported by an existing High Definition Video infrastructure.
- The nominal 27.5mm image diagonal is the largest image diagonal covered by all Panavision 35mm cine Primo™ series lenses, both fixed focal length and zoom optics.
- The image area is twice that of a 3 sensor 2/3" format camera and >30% larger than the academy 1.85:1 film format.

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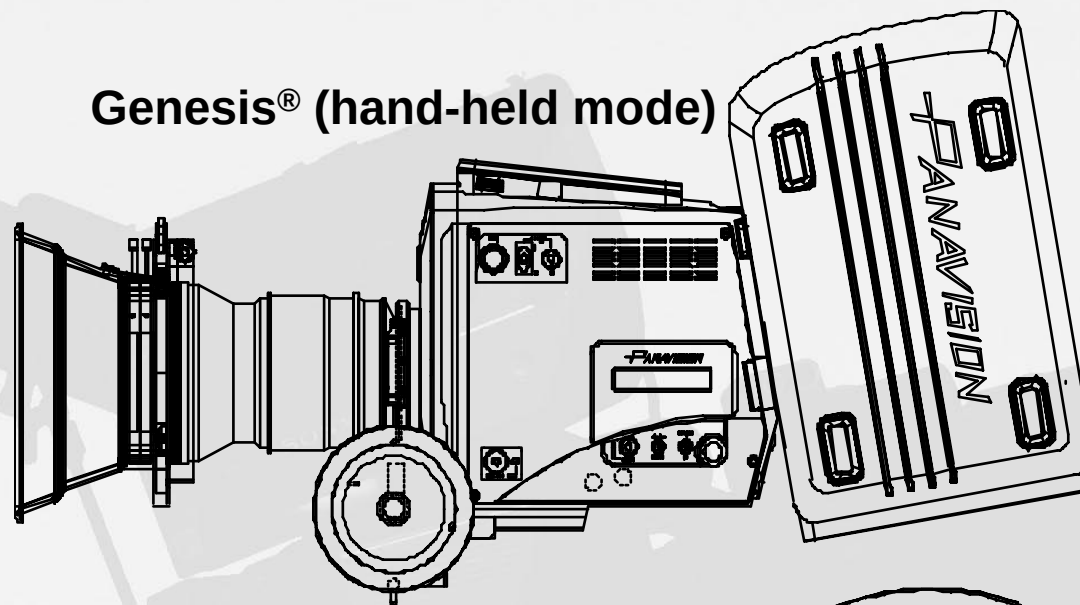
GENESIS® CCD STRUCTURE



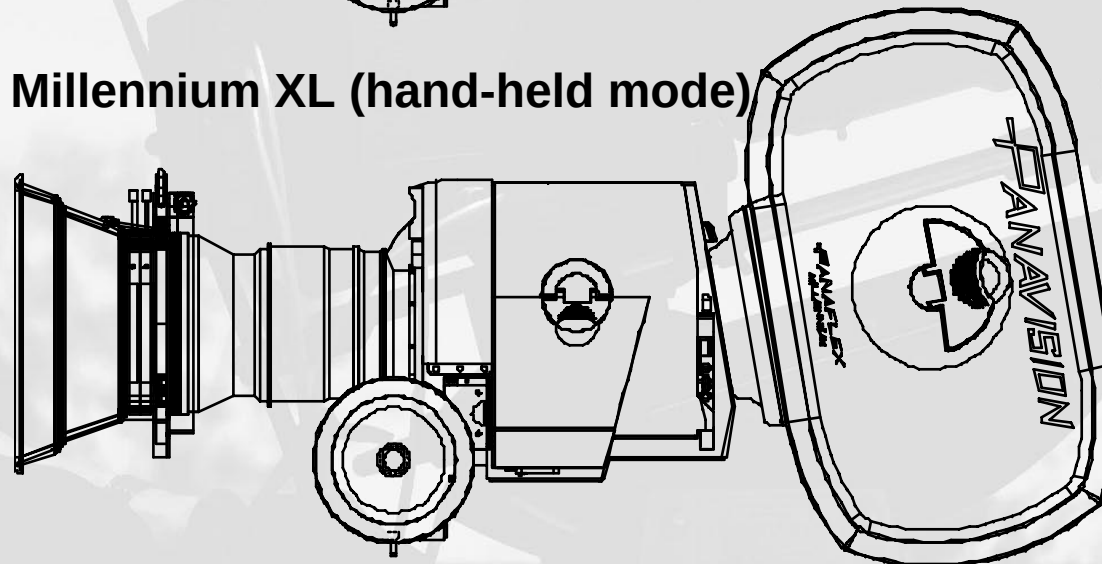
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Genesis® (hand-held mode)



Millennium XL (hand-held mode)



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PANAVISION®
DIGITAL IMAGING



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Key Functional Requirements

- Sensitivity equivalent to a high-speed film emulsion with an equivalent (preferably higher) signal to noise performance
- Dynamic range equivalent to modern film emulsions
- Sharpness equivalent to modern film emulsions without image enhancement.
- Colorimetry capable of matching film emulsion color gamut

Genesis[®] Feature Set

- Super 35mm sized sensor
- 12 megapixel, true RGB sensor (not Bayer pattern)
- 1 to 50 frames per second frame rate
- Nominal exposure index of 400
- 14 bit A/D convertor
- Full bandwidth, dual link 4:4:4 HDSDI outputs
- Fiber optic camera adaptor
- Dockable VTR (no cables)
- Records 10 Bit Log per color
- Wide color gamut for film intercut applications
- Dual viewfinder outputs
- Lens Lateral color compensation
(for improved blue/green screen photography)

Genesis[®] Feature Set (continued)

- Single 4:2:2 HDSDI monitor output
- Size, weight and ergonomics similar to existing Panavision 35mm camera systems
- 35mm depth of field equivalent
- Utilizes all existing spherical 35mm lens inventory including Primo Primes and Zooms
- Utilizes many of the existing cine accessories
- Integrated lens control
- Camera control via Panavision RDC or Sony MSU, RMB series controllers
- User selectable menu terminologies (i.e. shutter angle or shutter speed)

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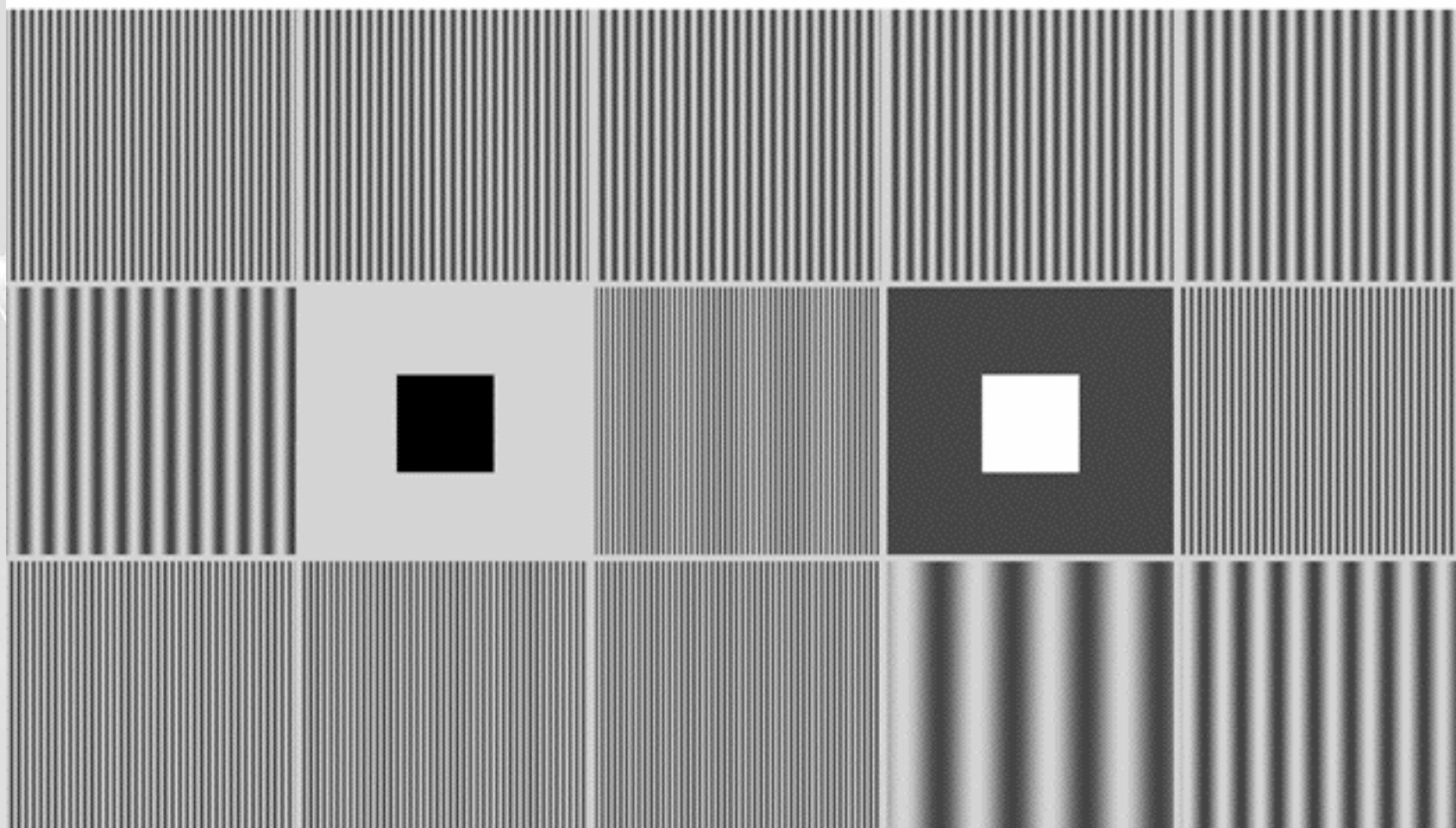
PANAVISION DIGITAL IMAGING

PANAVISION DIGITAL IMAGING

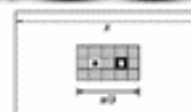
PANAVISION DIGITAL IMAGING

PANAVISION DIGITAL IMAGING

Sinusoidal MTF Chart

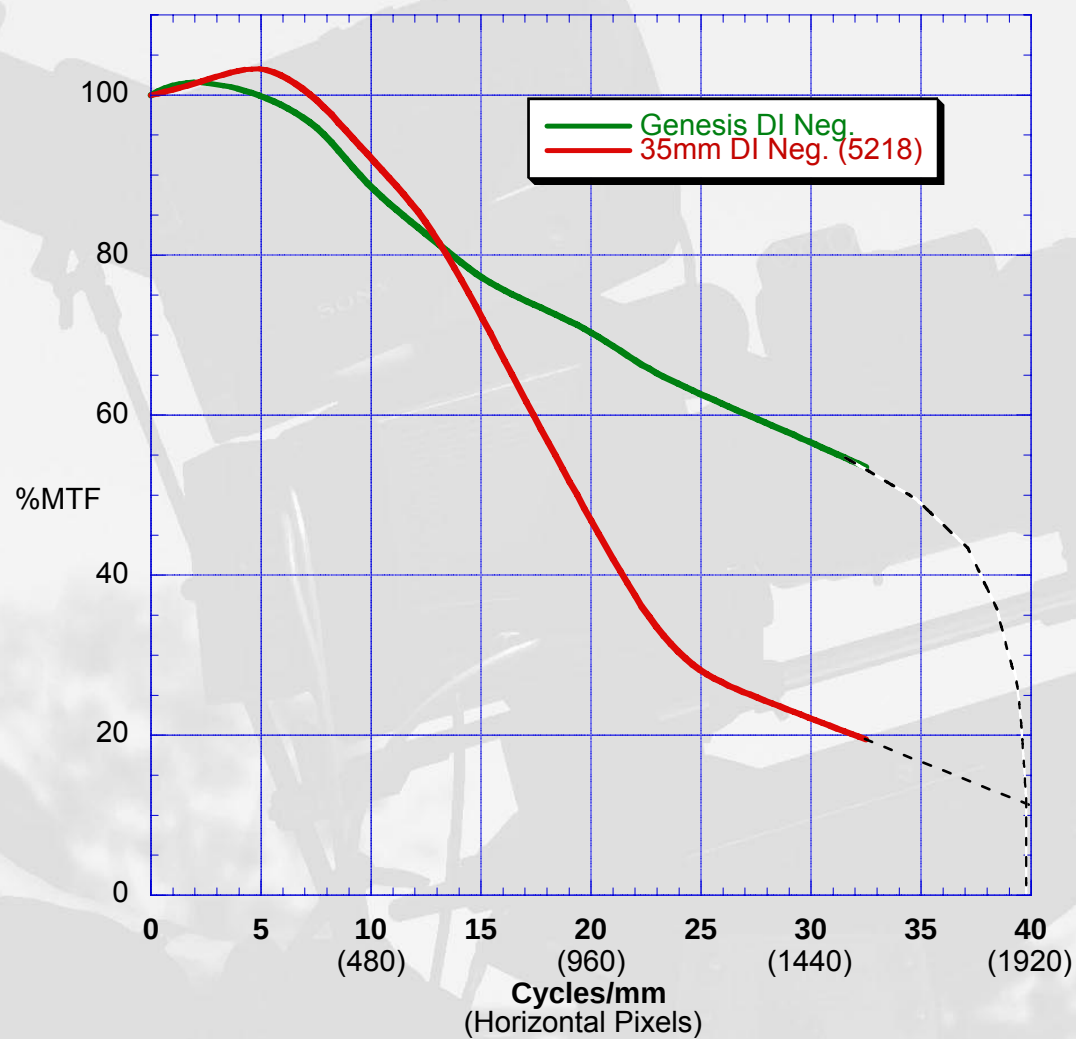


Frame Chart to be 1/3 of image width



160 140 120 100 080
060 260 180
200 220 240 020 040
Resolution Chart V1.0 5 Jan 2004

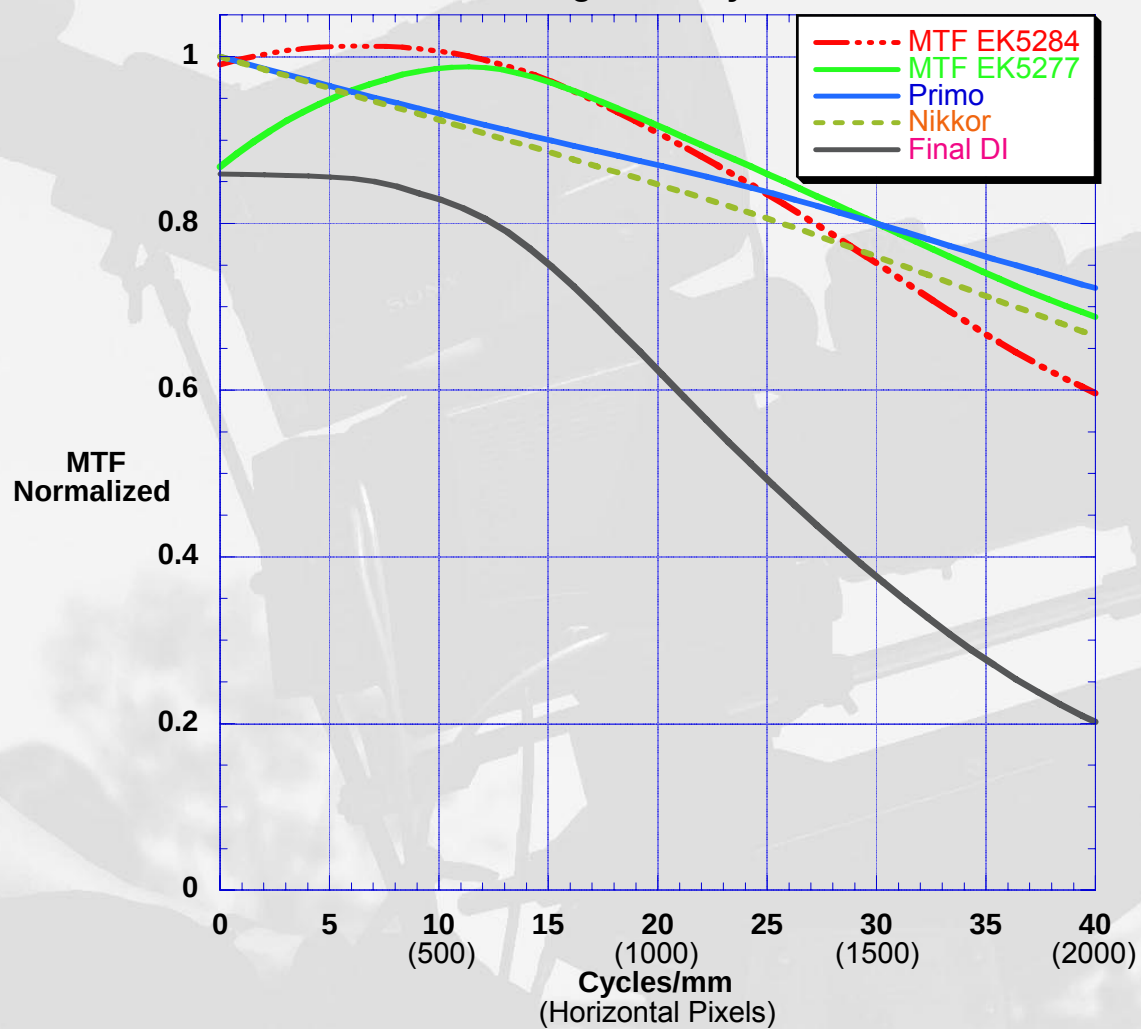
Digital Intermediate MTF Comparison



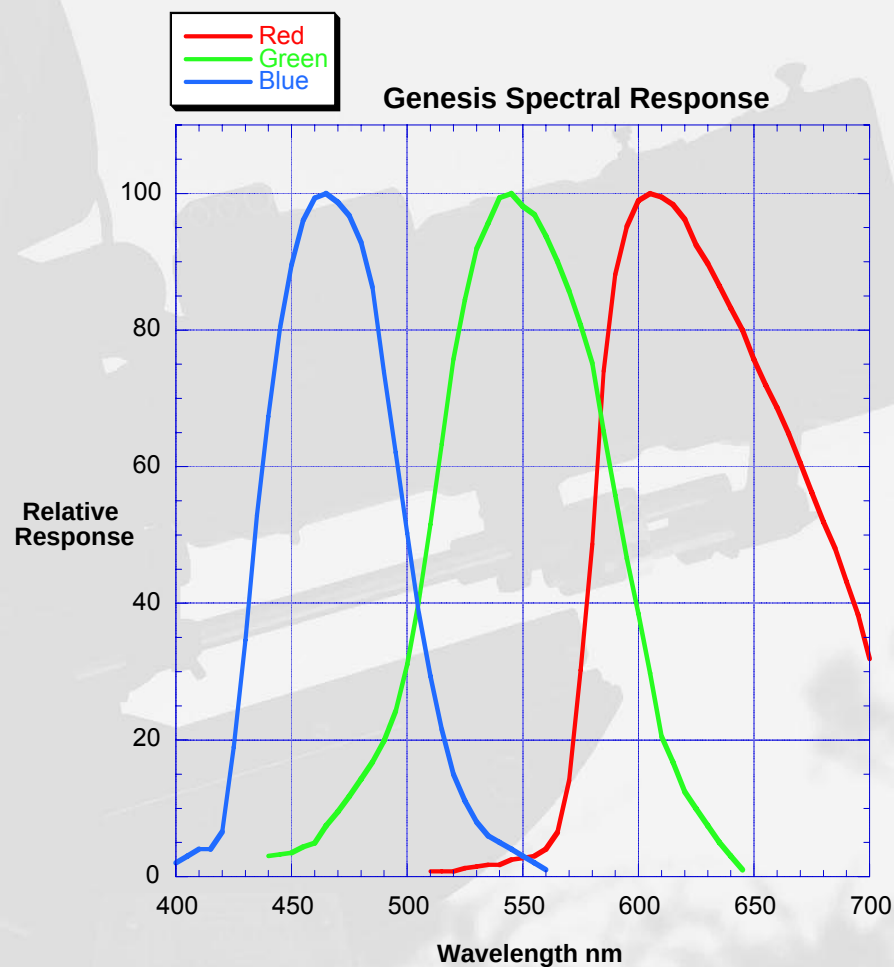
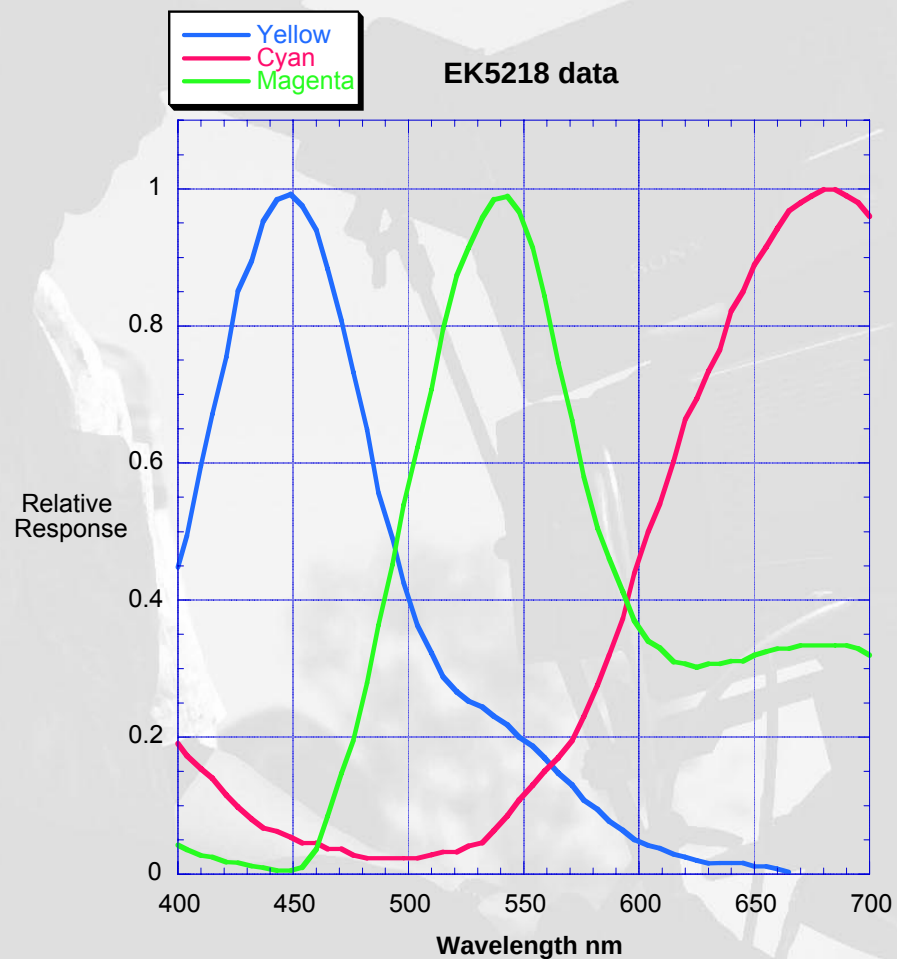
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Film Dig. Inter. Sys. Data



Film/Genesis® Spectral response



Recording Format Parameters

* SMPTE Trial publication

Model	HDW-F900	SRW-5000	SRW-1	
Recording format	HDCAM (D11)	HDCAM-SR (D16*)	HDCAM-SR (D16*)	
Product type	Camcorder	Editing VTR	Portable recorder	
Recording mode	—	—	Standard mode	Double speed
Gross data transfer rate	185Mbps	593Mbps	593Mbps	1186Mbps
Net video data rate	142Mbps	440Mbps	440Mbps	880Mbps
Audio	20bit / 48KHz x4 ch.	24bit / 48KHz x12 ch.	24bit / 48KHz x12 ch.	
Tape travel speed	96.7mm/sec	117.6mm/sec	117.6mm/sec	235.2mm/sec
Drum rotation speed	1800rpm	5400 rpm	1800rpm	3600rpm
Max. recording time/tape	50 minutes	50 (S) / 155 (L) minutes	50 minutes	25 minutes
Recording tracks / frame	12	24	24	24 / 48
Tape width	12mm	12mm	12mm	
Track pitch	20 µm	13.2 µm	13.2 µm	
Minimum recording wavelength	0.49 µm	0.29 µm	0.29 µm	
Recording drum diameter	81.4mm	81.4mm	81.4mm	
Number of recording heads	12	8	24	

SRW-1 Recording Modes

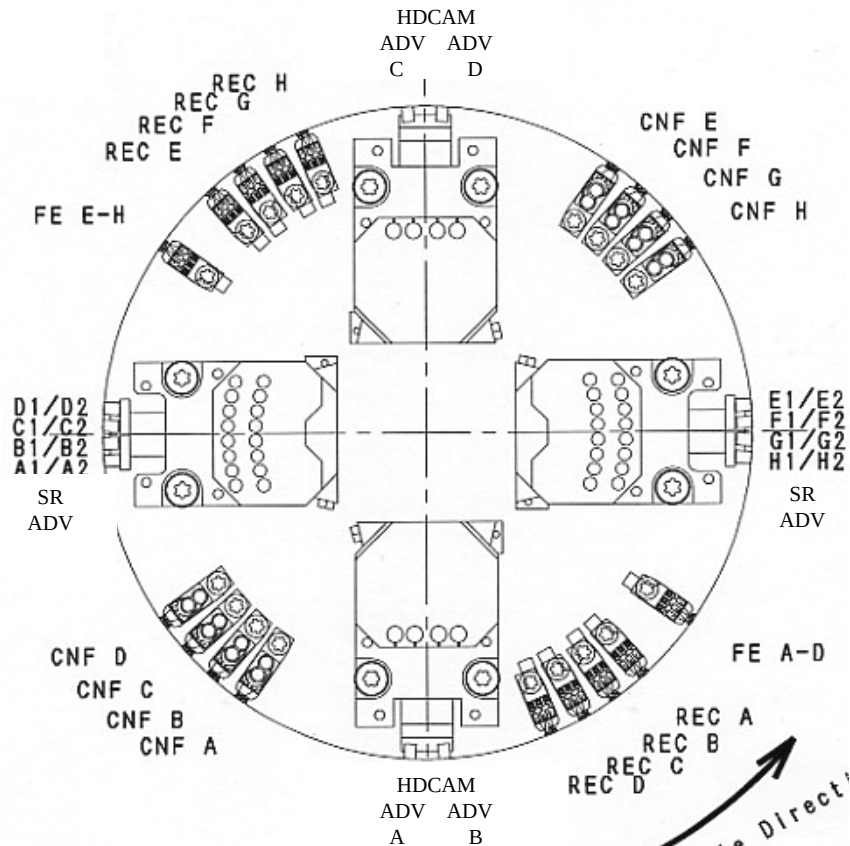
STANDARD Mode		Compression ratio		Recording time / tape	NET Video data rate	GROSS data rate
		4:2:2	RGB SQ			
1920 x 1080	23.98PsF	2.7:1	4:1	50 minutes	351.5Mbps	474.6Mbps
	24PsF	2.7:1	4:1	50 minutes	351.9Mbps	475.1Mbps
	25PsF	2.7:1	4:1	48 minutes	366.5Mbps	494.9Mbps
	29.97PsF	2.7:1	4:1	40 minutes	439.4Mbps	593.3Mbps
	50i	2.7:1	4:1	48 minutes	366.5Mbps	494.9Mbps
	59.94i	2.7:1	4:1	40 minutes	439.4Mbps	593.3Mbps
1280 x 720	59.94P	2.4:1	N.A.	40 minutes	439.4Mbps	593.3Mbps

VARIABLE Mode		Compression ratio		Recording time / tape	NET Video data rate	GROSS data rate
		4:2:2	RGB SQ			
1920 x 1080	1 - 59.94P	2.7:1	4:1	20 minutes+	878.8Mbps	1186.7Mbps

DOUBLE SPEED		Compression ratio		Recording time / tape	NET Video data rate	GROSS data rate
		4:2:2	RGB SQ			
1920 x 1080	23.98PsF	2:1	2.7:1 x2	25 minutes	703Mbps	949.3Mbps
	24PsF	2:1	2.7:1 x2	25 minutes	703.7Mbps	950.3Mbps
	25PsF	2:1	2.7:1 x2	24 minutes	733.1Mbps	989.9Mbps
	29.97PsF	2:1	2.7:1 x2	20 minutes	878.8Mbps	1186.7Mbps
	50i	2:1	2.7:1 x2	24 minutes	733.1Mbps	989.9Mbps
	59.94i	2:1	2.7:1 x2	20 minutes	878.8Mbps	1186.7Mbps

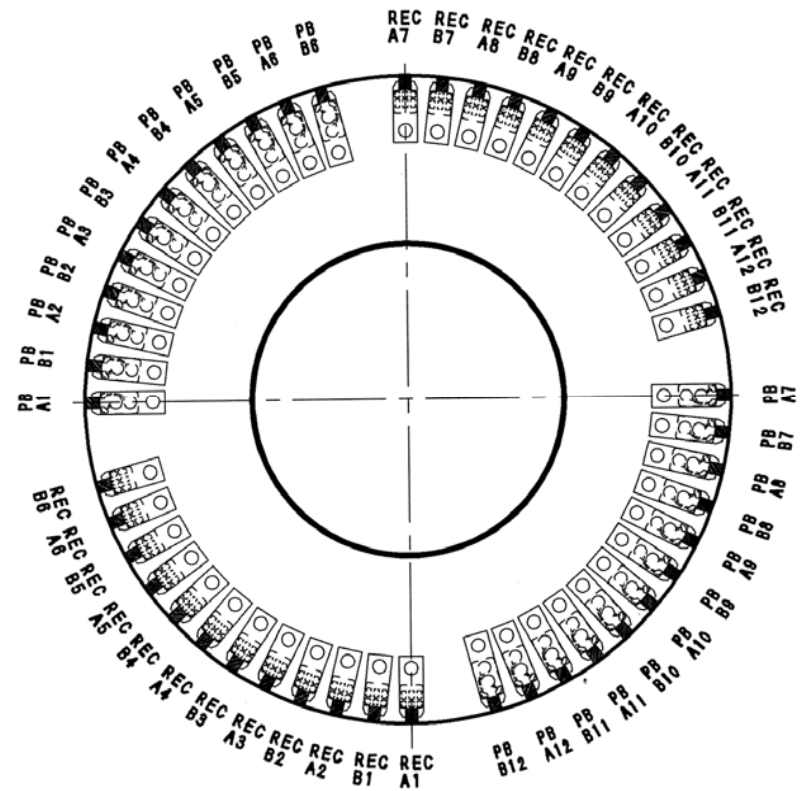
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HDCAM-SR™ Recording Drums



SRW-5000 Drum Layout

Rotate Directly



SRW-1 Drum Layout

HDCAM SR™