

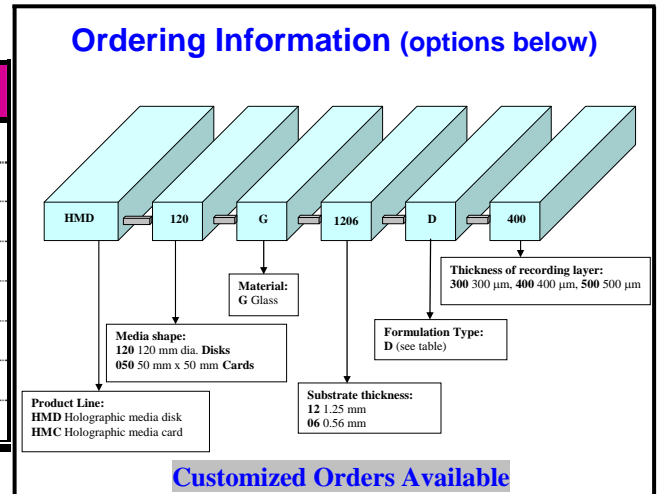
**STX Aprilis, Inc. Developmental
 Holographic Recording Media Products**

Physical Dimensions

Disk or Coupon Media	Unit	HMD-120-G-1206-D-X	HMC-050-G-1206-D-X
Substrate material		AR coated polished Glass	AR coated polished Glass
Outer diameter (OD)	mm	120 (+/- 0.25)	
Disk center hole diameter	mm	15.05	
Disk center hole tolerance	mm	+0.05/-0	
Edge dimension (l x w)	mm		50 x 50 (+/- 0.12)
Substrate thickness	mm	1.25/0.56 +/- 0.01	1.25/0.56 +/- 0.01
Refractive index (n _D)		1.52	1.52
Surface reflectivity (R _{s-pol})	%	<0.2 (@0°±17°, 50°±5°)	<0.2 (@0°±17°, 50°±5°)
Runout	µm	< 10	
Photopolymer thickness (L)	mm	0.3, 0.4, 0.5, 0.8	0.3, 0.4, 0.5, 0.8
Media Type		Disk	Card
Recordable Outer diameter	mm	116	
Recordable Inner diameter	mm	45	
Recordable diameter	mm		48

Typical Recording Properties (Type D)

Disk or Coupon Media	Unit	Disk	Card
Wavelength of Sensitivity	nm	532	532
<Average Sensitivity> #	cm/mJ	1.8	1.8
Dynamic Range * (@L=400µm)		7.3	7.3
Maximum Shrinkage	%	≤ 0.1	≤ 0.1
Absorption (OD post record)		< 0.04	< 0.04
Scatter/µm thickness	Srad ⁻¹	< 1.0 E-6	< 1.0 E-6
Pre-recording shelf life	yr	> 1	> 1
Post-recording data lifetime	yr	> 50	> 50



* Cumulative Grating Strength, ν_M , attained for ≤ 0.1% shrinkage for M multiplexed holograms recorded in one location, where $M \geq 100$, diffraction efficiency (η_i) for each hologram $\sim \leq 1E-3$, and $L = 0.4$ mm thickness.

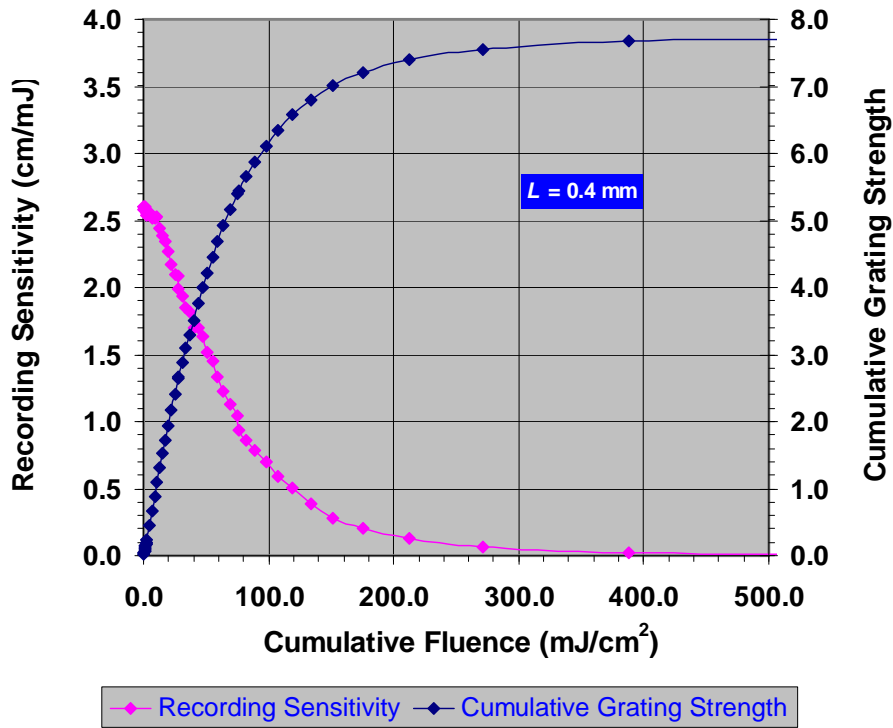
$$\nu_M = \sum_{i=1}^M \sqrt{\eta_i} \text{ for } M \text{ multiplexed holograms in same location}$$

Average of Recording Sensitivity, $\langle S \rangle$, normalized to thickness of photopolymer, over typical cumulative recording fluence used for multiplexing M holograms (i.e. $S_{\text{peak}} \geq S \geq 0.1$) for $L = 0.4$ mm thickness;

$S = (\eta_i^{0.5} / I_i t_i) / L$ in cm/mJ, where L is thickness of the photopolymer material, t_i is the length of the recording time for the i^{th} recording event for M multiplexed holograms, and I_i is the intensity for the i^{th} recording event in mJ/cm² for the multiplexed holograms.

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Recording Sensitivity in cm/mJ and Growth in Cumulative Grating Strength versus Cumulative Recording Fluence for Co-locationally Multiplexed Plane-wave Holograms



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