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# CTH:YAG Rods

Laser Crystal



高增益

高效率

高光学质量

良好的机械/热性能

室温操作

## Standard Rod Specifications

### Material Parameters

Host: Yttrium Aluminum Garnet ( $Y_3Al_5O_{12}$ )  
 Standard Melt Concentrations:  
 Chromium ( $Cr^{3+}$ ): 0.85 at %  
 Thulium ( $Tm^{3+}$ ): 5.90 at %  
 Holmium ( $Ho^{3+}$ ): 0.36 at %  
 (Other Compositions Available)

Orientation: [111] within 5 degrees  
 Wavefront Distortion: less than 1/2 wave per  
 inch of length  
 (measured at 1064nm)

### Dimensional Tolerances

Diameter: +0.000" / -0.002"  
 Length: +0.040" / -0.000"  
 Barrel Finish: 55±5µinch (RMS)  
 Chamfer: 0.005"±0.0003" at 45°±5°

### End Configuration

Flatness: less than  $\lambda / 10$  wave  
 (measured at 632.8 nm)  
 Parallelism: less than 30 seconds of arc  
 Perpendicularity: less than 5 minutes of arc  
 Scratch-Dig: 10 - 5 per MIL-O-13830A

### Anti-Reflection Coatings

Reflectivity: less than 0.25% at 2080nm  
 Adhesion and  
 Durability: meets MIL-C-48497A standards  
 Pulsed Damage  
 Threshold: greater than 10 J/cm<sup>2</sup>

## Properties of Cr, Tm, Ho:YAG

### Lasing Properties

Lasing Transition:  $^5I_7 - ^5I_8$   
 Lasing Wavelength: 2080 nm  
 Fluorescence Lifetime: 8.5 ms  
 Emission Cross Section:  $7 \times 10^{-21}$  cm<sup>2</sup>

### Special Properties

Index of Refraction: 1.80 (at 2080nm)  
 Diode Pump Band: 781 nm  
 Absorption Linewidth: 4 nm  
 Major Pump Bands: 400-8010 nm

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