Bars

Optical Parameter	Tolerance	Impacts	Errors from nominal tolerance			
			photon loss	dt(ps)	dx(mm)	dy(mm)
Thickness	0.10 mm	photon production; photon loss at ends	0.50%			
Width	0.15 mm	photon loss at ends (size mismatches)	0.03%			
Length	0.50 mm	fiducial volume only				
S1-S2 paralellism	4 arcsec					
S1 flatness	6.3 microns					
S2 flatness	6.3 microns					
S1 (S2) local flatness (20cm x 20cm area)	1.8 microns					
S1, S2 surface roughness	5 angstrom RMS					
S3-S4 paralellism	60 microns					
S3 flatness	6.3 microns					
S4 flatness	6.3 microns					
S1-S3 perpendicularity	20 arcsec					
S1-S4 perpendicularity	20 arcsec					
S3, S4 surface roughness	5 angstrom RMS					
S1-S5 perpendicularity	1 arcmin					
S1-S6 perpendicularity	1 arcmin					
S3-S5 perpendicularity	20 arcsec					
S3-S6 perpendicularity	20 arcsec					
S5-S6 paralellism	20 arcsec					
S5 flatness	25 microns	position dependent angle changes due to index mismatch of glue				
S6 flatness	25 microns	position dependent angle changes due to index mismatch of glue				
S5,S6 surface roughness	25 angstrom RMS	negligible?				
Scratches and digs	<75 mm^2	photons lost? Scattered to bad time/position?				
Scratches and digs on S5, S6	<5 mm^2	photons lost? Scattered to bad time/position?				
Chamfers	<0.2 mm	photons lost? Scattered to bad time/position?				
Chips	<25 mm^2	photons lost? Scattered to bad time/position?				
Chips on S5, S6	< 10 mm^2	photons lost? Scattered to bad time/position?				
Thickness	0.10 mm	photon production; photon loss at ends	0.50%			
Width	0.10 mm	photon loss at ends (size mismatches)	0.02%			
Length	0.10 mm	fiducial volume only				
Mirror (S6) radius	5%					
Mirror center vertical	1 mm at 2.6 m					
Mirror center horizontal	1 mm at 2.6 m					
S1-S2 paralellism	30 microns					
S1 flatness	6.3 microns					
S2 flatness	6.3 microns					
S1, S2 surface roughness	5 angstrom RMS					
S3-Datum B paralellism	1.3 arcmin					
S4-Datum B paralellism	1.3 arcmin					
S3-S4 paralellism	2 arcmin					

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S3 flatness	6.3 microns		
S4 flatness	6.3 microns		
S1-S3 perpendicularity	25 microns		
S1-S4 perpendicularity	25 microns		
S3, S4 surface roughness	5 angstrom RMS		
S5-Datum B perpendicularity	20 arcsec		
S5 flatness	25 microns	position dependent angle changes due to index mismatch of glue	
S6 surface roughness	5 angstrom RMS		
S5 surface roughness	25 angstrom RMS	negligible?	
Scratches and digs	<10 mm^2	photons lost? Scattered to bad time/position?	
Scratches and digs per 100 mm^2	<3 mm^2	photons lost? Scattered to bad time/position?	
Chamfers	<0.2 mm	photons lost? Scattered to bad time/position?	
Chips	<10/m length<3mm	photons lost? Scattered to bad time/position?	
Total chip area	< 5 mm^2	photons lost? Scattered to bad time/position?	
Thickness	0.10 mm	photon production; photon loss at ends	0.50%
Width	0.15 mm	photon loss at ends (size mismatches)	0.03%
Length	0.50 mm	fiducial volume only	
S1-S2 angle	60 microns		
S1 flatness	6.3 microns		
S2 flatness	6.3 microns		
S1, S2 surface roughness	5 angstrom RMS		
S3-S4 paralellism	60 microns		
S3 flatness	25 microns		
S4 flatness	25 microns		
S1-S3 perpendicularity	25 microns		
S1-S4 perpendicularity	25 microns		
S3, S4 surface roughness	25 angstrom RMS		
S1-S5 perpendicularity	100 microns		
S1-S6 perpendicularity	100 microns		
S3-S5 perpendicularity	200 microns		
S3-S6 perpendicularity	200 microns		
S5-S6 paralellism	200 microns		
S5 flatness	6.3 microns	position dependent angle changes due to index mismatch of glue	
S6 flatness	6.3 microns	position dependent angle changes due to index mismatch of glue	
S5,S6 surface roughness	5 angstrom RMS	negligible?	
Scratches and digs	<10 mm^2	photons lost? Scattered to bad time/position?	
Scratches and digs per 100 mm^2	<3 mm^2	photons lost? Scattered to bad time/position?	
Chamfers	<0.2 mm	photons lost? Scattered to bad time/position?	
Chips	<10/m length<3mm	photons lost? Scattered to bad time/position?	
Total chip area	< 5 mm^2	photons lost? Scattered to bad time/position?	

Prisms

Errors from 5X tolerance				Errors from 10X tolerance			
photon loss	dt(ps)	dx(mm)	dy(mm)	photon loss	dt(ps)	dx(mm)	dy(mm)
