

FPRD Req #	Description	Specification	Pre-Delivery Measurement	Post-Delivery Measurement	On-telescope Measurement	#	Comments
2.1.1	Imaging Field Size	8 arcminute diameter	PASS; 8.12 arcminutes	-----		1	Set by machined aperture in slitmask frame.
2.1.2	Slit Mask Capability	Arbitrary features down to 0.45 arcsec	PASS	-----		2	
2.1.3	Collimation	<60 micron defocus at detector	CONCEDE	-----		3	
2.1.4	Image Quality	See FPRD Table 1	PASS	-----		4	Image quality tested only between 434 and 784 nm.
2.1.5	Focus Range	+/- 400 microns	PASS; +/- 500 microns	PASS: 1.5 mm full range		5	Will be extended to +/-1 mm. See notes below. New focus motor added to enhance full range – see notes below.
2.1.6	Detector Pixel Scale	0.128 arcsec/pixel	PASS	-----		6	
2.1.7	Flexure	Dispersion direction: <0.1 arcsec/track Perp. to dispersion: <0.15 arcsec/track	FAIL	CONCEDE: Dispersion direction: ~0.2 arcsec/track Perp. To dispersion: ~0.3 arcsec/track		7	
2.1.8	Transmission	See FPRD Table 2	PASS	-----		8	
2.1.9	Stray Light	Collimator/Camera ghost brightness < 10 <sup>-4</sup>	PASS: 434 nm: 1.6x10 <sup>-5</sup> 629 nm: 2.9x10 <sup>-5</sup>	-----		9	
		Disperser (focused) ghost brightness < 10 <sup>-3</sup>	CONCEDE	-----			
2.2.1	Spectroscopy FOV	8 arcmin diameter	PASS	-----		10	
2.2.2	Max Resolution	1.25 arcsec slit R=5300 0.6 arcsec slit R=10000	PASS	-----		11	
2.2.3	Grating efficiency	See FPRD Tables 3 and 4	PASS	-----		12	No values <350nm
2.2.4	Central Wavelength Precision	$\Delta\lambda < 1 \text{ nm} \times (300/\sigma)$	PASS	PASS		13	Repeatability retested after modifications to grating mechanism
2.3.1	Etalon Resolution	Low Res: R=500-1000	CONCEDE: TF: 250-370 LR: 600-780	-----		14	
		Mid Res: R=2500	CONCEDE: 1300-1750	-----			

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		<i>High Res: R=12500</i>	<b>CONCEDE: 5500-9500</b>	-----			
2.3.2	FP Spectral Range	<i>430 – 860 nm</i>	<b>PASS</b>	-----		15	
2.3.3	FP Field of View	<i>8 arcminute diameter</i>	<b>PASS</b>	-----		16	
2.3.4	FP Wavelength Gradient	$\lambda_r = \lambda_c \cos(4.877^\circ \times r/4')$	<b>PASS</b>	-----		17	
2.3.5	FP Wavelength Precision	<i>FWHM/50</i>	<b>PASS TF: /120 LR: /220 MR: /170 HR: /48</b>	-----		18	
2.3.6	FP Wavelength Stability	<i>FWHM/3 per hour</i>	<b>LR: PASS MR: PASS HR: NO TEST</b>	<b>HR: PASS</b>		19	
2.3.7	FP Wavelength Set Time	<i>2 msec</i>	<b>CONCEDE 2 msec in controller, 100 msec practical in Labview</b>	-----		20	
2.3.8	FP Efficiency	<i>75% minimum (approximately achromatic); 80% expected (approximately achromatic).</i>	<b>CONCEDE 60% Blue 85% Red</b>	-----		21	
2.3.9	Parasitic Light	<i>Low Res: &lt;1.5%</i>	<b>NO TEST</b>	<b>PASS</b>		22	
		<i>Mid Res: &lt;1.0%</i>	<b>NO TEST</b>	<b>NO TEST</b>			
		<i>High Res: &lt;6.0%</i>	<b>NO TEST</b>	<b>NO TEST</b>			
2.4.1	Polarimetric FOV	Linear: 4x7.2 arcmin	<b>NO TEST</b>	<b>PASS: Unvignetted to 7.3 arcmin diam</b>		23	
		Circular: 3 arcmin diam	<b>NO TEST</b>	<b>CONCEDE: Unvignetted to 2.8 arcmin diam</b>			
2.4.2	Polarimetric Efficiency	Linear: >95%, calibrated to better than $\pm 0.5\%$ . Circular: >92%, calibrated to better than	<b>NO TEST</b>	<b>PASS: Linear: &gt;95% Circular: &gt;94%</b>		24	

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		±0.5%.					
2.4.3	Instrumental Polarization	Linear: <0.4%, calibrated to <0.04%. Linear to circular:<3x10 <sup>-3</sup> , calibrated to <3x10 <sup>-4</sup>	-----	-----		25	
2.4.4	Position Angle Repeatability	Repeatability <6 arcminutes	<b>NO TEST</b>	<b>PASS: &lt;1.8 arcminutes</b>		26	
2.4.5	Transmission	70% of spectroscopic/imaging modes at 650 nm	<b>NO TEST</b>	<b>PASS: &gt;70%</b>		27	
2.5.1	CTE	<i>CTE=99.9995% (typical), 99.999% (guaranteed).</i>	<b>NO TEST</b>	<b>PASS: &gt;99.9995%</b>		28	
2.5.2	Full Well	<i>200 k e<sup>-</sup>/pix (typical) 150 k e<sup>-</sup>/pix (guaranteed).</i>	<b>NO TEST</b>	<b>PASS: &gt;153 ke<sup>-</sup></b>		29	
2.5.3	Sensitivity	<i>see FPRD Table 5.</i>	<b>PASS. See Table below</b>	-----		30	
2.5.4	Dark Current	<i>Dark current of 1 e<sup>-</sup>/pix/hr (typical) at 163 K</i>	<b>NO TEST</b>	<b>LATER: &lt;1.5e<sup>-</sup>/pix/hr</b>		31	Final dark current numbers will occur after the instrument is fully baffled.
2.5.5	Readout Noise	<i>3.0 e<sup>-</sup>/pix at 100kHz (10.0 μsec/pix) TBC4; 5.0 e<sup>-</sup>/pix at 345 kHz (2.9 μsec/pix) TBC4</i>	<b>See table below</b>	<b>See table below</b>		32	
2.5.6	Gain	<i>Software selectable from : x1; x2; x4.75; x9.5</i>	<b>See table below</b>	<b>PASS: see table below</b>		32	
2.5.7	Prebinning	<i>1x1 to 9x9, independently in each direction</i>	<b>PASS</b>	-----		33	
2.5.8	Readout Speed	<i>Frame transfer architecture: 0.103 sec frame transfer time 100—345 kHz (10-2.9 μsec/pix) See FPRD Table 6 for detector readout times.</i>	<b>4microsec/pix FAST; 10microsec/pix SLOW</b>	-----		34	