

	Parameter	Symbol	Units	Design Spec	Minimum Spec	Stretch Goal	SRD ref.
Filter Set	Filter complement	—	—	ugrizY	ugrizY	ubgrizY	§3.3.1 Table 1
	No. filters in camera	Nfilters	—	5	3	6	§3.3.1 Table 2
	Time to exchange a filter	TDFCmax	hr	8	72	—	§3.3.1 Table 2
	Filter change interval ¹	TFmax	min	2	10	1	§3.3.1 Table 3
	Out-of-band leakage per 10 nm bandwidth	Fleak	%	0.01	0.02	0.003	§3.3.1 Table 4
	Out-of-band leakage, total	FleakTot	%	0.05	0.1	0.02	§3.3.1 Table 4
Camera Rotation			deg	±90			§3.3.6
Single Visit² Depth	Ensemble distribution:						
	Median 5 σ depth (min) ³	D1	mag	24.5	24.2	24.7	§3.3.2 Table 5
	Fraction of images for which 5 σ depth exceeds Z1 (max)	DF1	%	10	20	5	§3.3.2 Table 5
		Z1	mag	24.2	23.8	24.5	
	Spatial variation:						
Fraction of field for which 5 σ depth is brighter than median by Z2 (max)	DF2	%	15	20	10	§3.3.2 Table 6	
	Z2	mag	0.2	0.4	0.2		
Minimum Exposure Time		ETmin	sec	5	10	1	§3.3.2 Table 7

¹ Maximum elapsed time between two visits in different filters

² Co-added pair of 15 sec back-to-back exposures

³ *r* band, AB magnitude scale, A0V spectrum point source; see SRD Table 5 caption for specifications in other filter bands

Single Image Specifications

	Parameter	Symbol	Units	Design Spec	Minimum Spec	Stretch Goal	SRD ref.	
Image Quality	PSF size distribution: ⁴							
	Median delivered seeing for atmospheric seeing of 0.44, 0.6 and 0.8 arcsec	S1(0.44)	FWHM	arcsec	0.53	0.59	0.51	§3.3.3 Table 8
		S1(0.60)			0.67	0.72	0.65	
		S1(0.80)			0.85	0.89	0.84	
	Fraction of images with PSF exceeding SX times S1	SF1	%	10	10	5	§3.3.3 Table 8	
		SX	—	1.1	1.2	1.1		
	PSF profile:							
	Max ratio of encircled energy diam to FWHM for encircled energy of:	80%	—	2.1	2.3	2.0	§3.3.3 Table 9	
		95%	—	3.5	3.8	3.3		
		99%	—	4.8	5.3	4.6		
	<i>e.g.</i> , for fiducial delivered seeing of 0.67 arcsec, diameter for encircled energy of (max):	80%	SR1	arcsec	1.44	1.6	1.36	§3.3.3 Table 9
		95%	SR2	arcsec	2.3	2.5	2.2	
		99%	SR3	arcsec	3.2	3.5	3.1	
	Point source ellipticity distribution: ⁴							
	Median ellipticity (max)	SE1	—	0.04	0.05	0.03	§3.3.3 Table 10	
	Fraction of images exceeding SE2 (max)	EF1	%	5	10	5	§3.3.3 Table 10	
		SE2	—	0.07	0.1	0.05		
	Median of residuals after smoothing over field of view (max)	SE3	—	0.002	0.003	0.001	§3.3.3 Table 10	
Fraction of residuals exceeding SE4 (max)	EF2	%	10	15	10	§3.3.3 Table 10		
	SE4	—	0.003	0.005	0.002			

⁴ *r* and *i* bands only; other bands not specified

Single Image Specifications (con'd)

	Parameter	Symbol	Units	Design Spec	Minimum Spec	Stretch Goal	SRD ref.
Photometric Quality	Relative photometric errors: ⁵						
	Point source magnitude repeatability (rms, max)	PA1	millimag	5	8	3	§3.3.4 Table 11
	Fraction of measurements deviating by more than PA2 from the mean	PF1	%	10	20	5	§3.3.4 Table 11
		PA2	millimag	15	15	10	
	Effects of ghosts: ⁶						
	Excess noise in multi-observation magnitude distribution	EPErr	%	10	20	5	§3.3.4 Table 12
	Fraction of image area with ghosts with gradients (1 arcsec scale) exceeding 1/3 sky noise	GhostAF	%	1	5	0.5	§3.3.4 Table 12
	Absolute photometric errors:						
	Width of photometric zero point error distribution (rms, max) ⁶	PA3	millimag	10	15	5	§3.3.4 Table 13
	Fraction of zero point error distribution exceeding PA4 ⁷	PF2	%	10	20	5	§3.3.4 Table 13
		PA4	millimag	15	15	15	
	Knowledge of band-to-band zero point correlations	PA5 (g-r)		5	10	3	§3.3.4 Table 14
		PA5 (r-i)	millimag	5	10	3	
		PA5 (all other)		10	15	5	
	Knowledge of correlation of photometric magnitudes to external physical scale	PS6	millimag	20	50	10	§3.3.4 Table 15

⁵ *g*, *r* and *i* bands; PA1 and PA2 in *u*, *z* and *Y* may be 50% larger

⁶ *r* and *i* bands only; other bands not specified

⁷ *g*, *r* and *i* bands; PA3 and PA4 in *u*, *z* and *Y* may be factor of 2 larger

Single Image Specifications (con'd)

	Parameter	Symbol	Units	Design Spec	Minimum Spec	Stretch Goal	SRD ref.
Astrometric Quality	5 arcmin scales (4Kx4K sensor): ⁸						
	Point source distance repeatability (rms, max)	AM1	milli-arcsec	10	20	5	§3.3.5 Table 16
	Fraction of above distribution deviating by more than AD1 from the median	AF1 AD1	% milli-arcsec	10 20	20 40	5 10	§3.3.5 Table 16
	20 arcmin scales (raft): ⁸						
	Point source distance repeatability (rms, max)	AM2	milli-arcsec	10	20	5	§3.3.5 Table 16
	Fraction of above distribution deviating by more than AD2 from the median	AF2 AD2	% milli-arcsec	10 20	20 40	5 10	§3.3.5 Table 16
	200 arcmin scales (camera): ⁸						
	Point source distance repeatability (rms, max)	AM3	milli-arcsec	15	30	10	§3.3.5 Table 16
	Fraction of above distribution deviating by more than AD3 from the median	AF3 AD3	% milli-arcsec	10 30	20 50	5 20	§3.3.5 Table 16
	Color differences in astrometric mapping:						
	Difference in distances measured in r and other bands (rms, max)	AB1	milli-arcsec	10	20	5	§3.3.5 Table 17
	Fraction of above distribution deviating by more than AB2 from the mean	ABF1 AB2	% milli-arcsec	10 20	20 40	5 10	§3.3.5 Table 17
	Absolute accuracy: knowledge of median error in absolute astrometric positions	AA1	milli-arcsec	50	100	20	§3.3.5 Table 18

⁸ *r* and *i* bands; other bands not specified

Full Survey Specifications

	Parameter	Symbol	Units	Design Spec	Minimum Spec	Stretch Goal	SRD ref.	
Survey Cadence	Median number of visits per sky location (min)	Design Depth (ref)						
		24.3	Nv1 (u)	—	10	8	12	§3.4 Table 19
		26.5	Nv1 (g)	—	40	32	48	
		27.8	Nv1 (r)	—	400	320	480	
		26.6	Nv1 (i)	—	300	240	360	
		25.5	Nv1 (z)	—	100	80	120	
	24.7	Nv1 (Y)	—	150	120	180		
	Observing time allocated to special programs, min & max	SPTmin	%	5	1			§3.4 Table 20
		SPTmax	%	10	20			
	Area with fast (30–1,800 sec) revisits (min)	RVA1	deg ²	2,000	1,000	3,000		§3.4 Table 21
Area with 25% of visits separated by >5 yrs (min)	RVA2	deg ²	15,000	10,000	20,000		§3.4 Table 22	
Area with 25% of visits spanning at least 4 calendar months (min)	RVA3	deg ²	15,000	10,000	20,000		§3.4 Table 22	
Image Quality	Point source ellipticity distribution after stacking:⁹							
	Median ellipticity (max)	TE1	—	0.0001	0.0002	0.00005	§3.4 Table 23	
	Fraction of images exceeding TE2 (max)	TE2	—	0.0002	0.0004	0.0001	§3.4 Table 23	
Data Processing	Certified data release interval	DRT1	year	1.0	2.0	0.5	§3.4 Table 24	
	Optical transient alert latency	OTT1	min	1.0	2.0	0.5	§3.4 Table 24	

⁹ *r* and *i* bands; other bands not specified; stacking is an euphemism for optimal reconstruction