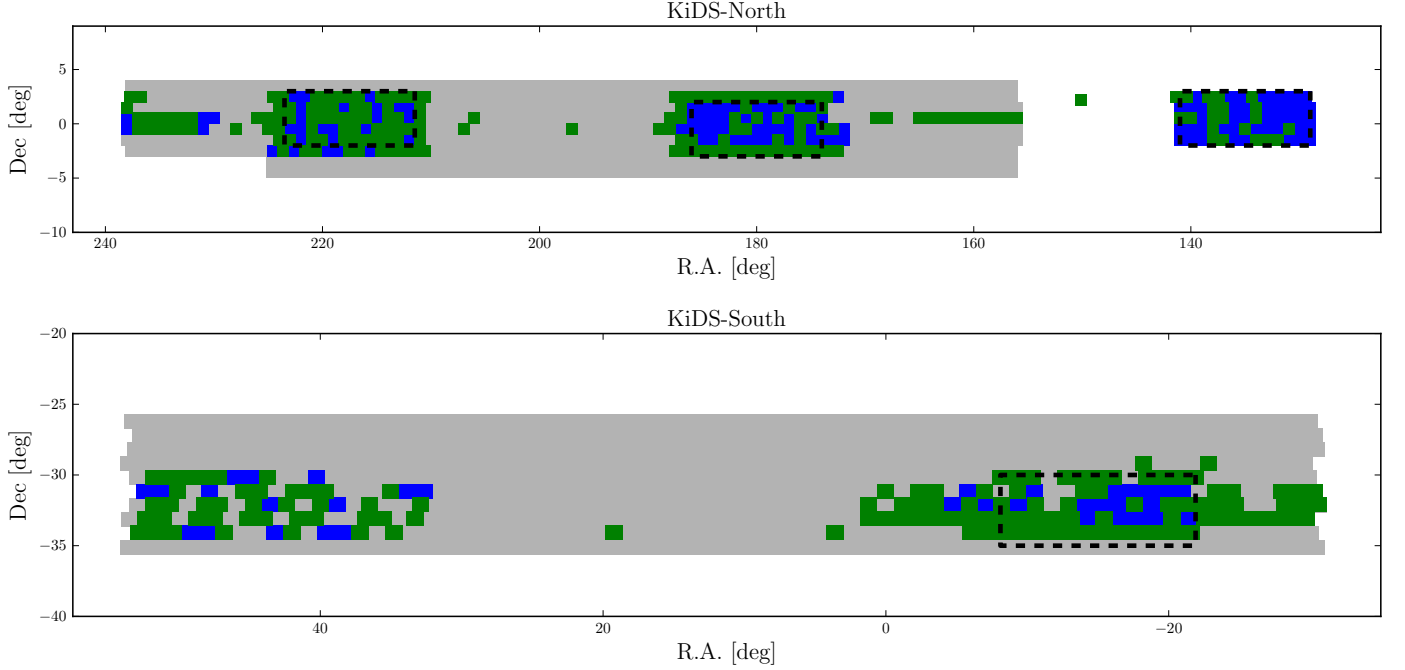**Table 1.** KiDS observing strategy: observing condition constraints and exposure times.

Filter	Max. lunar illumination	Min. moon distance (deg)	Max. seeing (arcsec)	Max. airmass	Sky transp.	Dithers	Total Exp. time (s)
u	0.4	90	1.1	1.2	CLEAR	4	1000
g	0.4	80	0.9	1.6	CLEAR	5	900
r	0.4	60	0.8	1.3	CLEAR	5	1800
i	1.0	60	1.1	2.0	CLEAR	5	1200

Fig. 1. Sky distribution of survey tiles released in KiDS-ESO-DR3 (green) and in the previous releases KiDS-ESO-DR1 and -DR2 (blue). The multi-band source catalogue covers the combined area (blue + green) and the full KiDS area is shown in grey. *Top:* KiDS-North. *Bottom:* KiDS-South. Black dashed lines delineate the locations of the GAMA fields; the single pointing at RA=150° is centered at the COSMOS/CFHTLS D2 field.

Table 2. KiDS Fields (see also Fig. 1).

Field	RA range	Dec range	Area
KiDS-S	$22^h00^m - 3^h30^m$	$-36° - -26°$	720 deg^2
KiDS-N	$10^h24^m - 15^h00^m$	$-5° - +4°$	712 deg^2
	$15^h00^m - 15^h52^m$	$-3° - +4°$	
KiDS-N-W2	$8^h30^m - 9^h30^m$	$-2° - +3°$	68 deg^2
KiDS-N-D2	$9^h58^m - 10^h02^m$	$+1.7° - +2.7°$	1 deg^2

Table 3. Data quality of all released tiles

Filter	PSF FWHM (")		PSF Ellipticity (1-b/a)		Limiting mag. (5σ in 2"ap.)	
	Mean	Scatter	Mean	Scatter	Mean	Scatter
u	1.00	0.13	0.041	0.010	24.20	0.09
g	0.86	0.14	0.047	0.008	25.09	0.11
r	0.68	0.11	0.049	0.006	24.96	0.12
i	0.81	0.16	0.050	0.008	23.62	0.30

best image quality, thus providing the most reliable measurements. The star-galaxy separation provided is the same as that in the r-band single-band source list, and is based on separating point-like from extended sources, which in some tiles yields sub-optimal results due to PSF variations. In future releases we plan to include more information, for example from colors or PSF models, to improve this classification. Magnitudes are measured in all filters using forced photometry. Seeing differences are mitigated in two ways: 1) via aperture-corrected magnitudes, and 2) via Gaussian Aperture and PSF (GAaP) photometry. The latter is new in DR3 and described in more detail in Sect. 2.4. In this release we also introduce a new photometric calibration scheme, based on the GAaP measurements, that homogenizes the pho-

tometry in the catalogue over the survey area, using a combination of stellar locus information and overlaps between tiles. The procedures used and the quality of the results are reviewed in Sect. 2.5. Also new in the multi-band catalog with respect to DR2 are photometric redshifts, see Sect. 4.1. All columns available in this catalog are listed in Table A.2.

The intrinsic data quality of the KiDS data is illustrated in Fig. 2 and summarized in Table 3. Average image quality, quantified by the size (FWHM in arcsec) of the point-spread-function (PSF), is driven by the observing constraints supplied to the scheduling system (Table 1). The aim here is to use the best dark conditions for r-band, which is used for the weak lensing shear measurements, with increasingly worse seeing during dark-time