ORIGINS TECHNOLOGY SUMMARY

REQUIRED CAPABILITY		PERFORMANCE GOALS					TECHNOLOGY OPTIONS			
DESCRIPTION	PRIORITY	METRICS	UNITS	SIM	NGST	PF	DESCRIPTION	SOA	LIMIT	DEMO?
IR Detectors							**InSb (1 - 5 um) (I)**			
Near Infrared (1-5um)	High	DQE	%		~80		DQE	~80		
		Read Noise	e-		3		Read Noise	~7		
		Dark Current	e-/sec		0.01 - 0.1		Dark Current	0.1 (27 K)		
		Operating Temp	K		30-40?		Operating Temp	5 to 30		
		Format	nxm		1k x 1k		Format	1k x 1k (high bkgrnd)		
					4k Mosaic					
		Pixel Size	um		TBD		Pixel Size	~20		
							HgCdTe (5um cutoff) (II+)			
							DQE	~80		
							Read Noise	~30?		
							Dark Current	~80		
							Operating Temp	20-30?		
							Format	6 x 256; 1 k x 1 k in 2.5 um HgCdTe		
							Pixel Size	~20		
Thermal IR (5-20um)	High						**Si:As IBC (NGST & PF) (I)**			
		DQE	%		~50	~50?	DQE	40-50		
		Read Noise	e-		~3	<8	Read Noise	30		
		Dark Current	e-/sec		0.05, R=1E3	<2	Dark Current	1 to 2		
					<10, R=3		Operating Temp	4 to 6		
		Operating Temp	K		~6, or 30-40	~10 (6?)	Format	256 x 256		
		Format	nxm		512x512	18x50	Pixel Size	30		
					1K Mosaic		Wavelength	5 to 27		
		Pixel Size	um		TBD	TBD				
		Wavelength	um		5-20	7 to 17	**Si:Ga IBC (NGST & PF) (II)**			
							Operating Temp	10?		
							Wavelength	5 to 18		
							HgCdTe (17um Cutoff) (III)			
							DQE	60 - 70?		
							Read Noise	<100		
							Dark Current	~1E6		
							Operating Temp	20-40		
							Format	256 x 256		
							Pixel Size	50		
							Wavelength	5-~14		
							QWIP (NGST & PF) (III)			
							DQE	10 to 15		
							Read Noise	?		
							Dark Current	100000		
							Operating Temp	25		
							Format	256 x 256		
							Pixel Size	38		
							Wavelength	9, 15		

Infrared Detectors and Focal Plane Arrays