

Project Phase		Pre-PRR		Subsystem :		ACD		Date of latest Update :		23-Feb-04				
List No	Part or Dwg No.	Component Name/Desc.	Quantity	Mass	(Kg)	Mass Estimation Method (PARA, CALC, or MEAS)	Total	(Kg)	Development Class (1, 2 or 3)	Calculated Contingency Recommendation (ANSI/AIAA-G-020-1992)	X-Axis Center of Mass (mm)	Y-Axis Center of Mass (mm)	Z-Axis Center of Mass (mm)	
1		Mechanical Hardware								-				
2	2054514	Shell	1	30.183	MEAS		30.183		2	12%	0.00	0.00	465.00	
3	2054515	Tile Tiedowns	340	0.018	MEAS		6.052		2	12%	0.00	0.00	499.00	
4		Bottom Tile Tiedowns	32	0.100	PARA		3.200		1	15%				
5	2054531	Shell/Base Corner Flexures	4	0.798	MEAS		3.192		2	12%	0.00	0.00	-11.70	
6	2054532	Shell/Base Middle Flexures	4	0.727	CALC		2.908		2	12%	0.00	0.00	-11.70	
7		Shell/Base Flexure Hardware	4	0.400	PARA		1.600		2	12%	0.00	0.00	-11.70	
8	2054535	Base Frame(BFA) with closeouts	1	28.228	CALC		28.228		2	12%	0.00	0.00	-126.70	
9		ACD/LAT interface hardware	1	0.600	PARA		0.600		3	1%	0.00	0.00	-166.00	
10										-				
11		Tile Detector Assemblies								-				
12	2054509	Tiles	1	93.546	CALC		93.546		3	1%	0.00	0.00	499.00	
13		Fiber	1	4.037	PARA		4.037		3	1%	0.00	0.00	499.00	
14		Fiber Ribbons (850 mm)-(X side)	4	0.177	PARA		0.707		3	1%	0.00	0.00	499.00	
15		Fiber Ribbons (3370 mm)-(Y side)	4	0.171	PARA		0.686		3	1%	0.00	0.00	499.00	
16		Fiber connectors	65	0.029	MEAS		1.885		2	12%	0.00	0.00	499.00	
17		Fiber/PMT connectors	194	0.018	MEAS		3.531		2	12%	0.00	0.00	-25.00	
18	2054505	Tile wrapping	1	7.770	CALC		7.770		3	1%	0.00	0.00	499.00	
19		Clear fiber Cable wrapping	1	3.638	CALC		3.638		3	1%	0.00	0.00	499.00	
20		Fiber to Tile adhesive	1	0.000	PARA				3	1%	0.00	0.00	499.00	
21		Wrapping adhesive	1	0.000	PARA				3	1%	0.00	0.00	499.00	
22		Fiber tiedowns	1	3.062	PARA		3.062		3	1%	0.00	0.00	499.00	
23										-				
24		Electronic Hardware								-				
25	2054536	FREE Board with 2x FREE PCB	12	0.333	MEAS		3.996		1	15%	0.00	0.00	126.70	
26	2054542	High Voltage Bias Supply	24	0.165	MEAS		3.960		1	15%	0.00	0.00	-100.00	
27		Power Distribution board	12	0.165	MEAS		1.980		2	12%				
28		Chassis Structure(1 ea single&double)/w/cc	4	3.692	MEAS		14.768		2	12%				
29		Bulkhead connector (with wiring)+4 therm.	28	0.050	PARA		1.400		3	1%	0.00	0.00	-126.70	
30		PMT's (PMT, housings, dynode),RTV	194	0.077	MEAS		14.841		1	15%	0.00	0.00	-85.00	
31		Thermistor plug conn. & backshell & bulkhead	1	2.142	PARA		2.142		3	1%				
32		Cable tiedowns	24	0.001	PARA		0.024		3	1%	0.00	0.00	-126.70	
33		Fasteners, Safety Cable & Staking	1	1.670	PARA		1.670		3	1%	0.00	0.00	126.70	
34										-				
35		Thermal Hardware								-				
36		Thermal Heaters and Thermostats	0	0.000	PARA				3	1%				
37		Thermistors, wiring and tiedowns	1	2.380	PARA		2.380		3	1%				
38	2054530	Micrometerite/Thermal Blanket	1	38.800	CALC		38.800		2	12%	0.00	0.00	438.00	
39	2054533	Micro/Thermal blanket hardware	1	2.984	PARA		2.984		2	12%	0.00	0.00	438.00	
40										-				
				Total Mass			283.770		7.6% Total Mass Contingency		0.00	0.00	309.87	
				Total PARA Mass			24.492	8.6%			Center of Mass(x,y,z)			
				Total CALC Mass			174.890	61.6%						
				Total MEAS Mass			84.388	29.7%						
							283.770	100.0%						

Pre-PDR	1	2	3	Pre-PDR	PARA
0	0.35	0.25	0.03	Pre-CDR	CALC
50	0.3	0.2	0.03	Pre-PRR	MEAS
500	0.25	0.15	0.01		
2500	0.22	0.12	0.005		
Pre-CDR					
0	0.25	0.2	0.02		
50	0.2	0.15	0.02		
500	0.2	0.1	0.008		
2500	0.15	0.1	0.006		
Pre-PRR					
0	0.15	0.12	0.01		
50	0.1	0.1	0.01		
500	0.1	0.05	0.005		
2500	0.1	0.05	0.005		
Mass Estimation Method (PARA, CALC, or MEAS)					
para	calc	meas			

Development Class		Method of Mass Determination	
1	A new design which is one-of-a-kind or a first generation device.	WAG	Best Estimate based on component parameters.
2	A generational design that follows a previously developed concept and expands complexity of capability within an established design envelope, including new hardware applications to meet new requirements.	CALC	Estimate based on calculated mass from detailed design documentation.
		MEAS	Actual mass measurements of component
3	A production level development based on an existing design for which multiple units are planned, and a significant amount of standardization exists.		