STEREO IDPU FM2 MASS PROPERTIES REPORT

IMP-626-DOC Rev. --

STEREO IMPACT IDPU FM2 Mass Properties Report Document # IMP-626-DOC Revision: --

Written By: Jeremy McCauley Reviewed By: Dave Curtis Date: May 20, 2005

On May 19, 2005, the mass properties of the STEREO IMPACT IDPU FM2 were measured. Mass properties were determined for the IDPU without any connector savers or blankets or bagging material attached. The Kapton tape on the top (+Z) surface of the IDPU was in place.

Mass Measurements were made upon a scale with one gram resolution. CG measurements were made with a scale having a 1 mm resolution, though uncertainties in the method are probably closer to 2 mm. MOI calculations are determined from three subsequent measurements of the period of oscillation of a torsional pendulum; all repeated measurements were within .01 seconds per oscillation.

The following results were determined from the measurements.

Mass: 1.858 kg

CG: X, Y, Z = 95 mm, 78 mm, 31 mm

MOI: Ixx = 0.011 kg m^2 Iyy = 0.005 kg m^2 Izz = 0.008 kg m^2

		# osc.			Tors Sprg		Mass	Radius	Ι
Item	Axis	cyc	time(s)	Tau	K (kg/m)	I/K	(kg)	(m)	(kg-m^2)
Calibration Mass (assumed to be Cylinder)	(Izz)						3.516	0.0508	0.00453
Calibration Mass +Table Mass Inertia	(Izz)	10	19.60						
Measurements		10	19.6	1.960	0.7	0.09731			
Bare Table Inertia	(Izz)	10	18.95						
Measurements		10	18.945	1.895		0.0909			0.064
Unit number	Ixx	30	61.34	2.045		Mass =	1.863		0.011
	Iyy	30	59.09	1.970			1.863		0.005
	Izz	30	60.4	2.013			1.863		0.008

Table 1: MOI Spreadsheet

TEST REPORT

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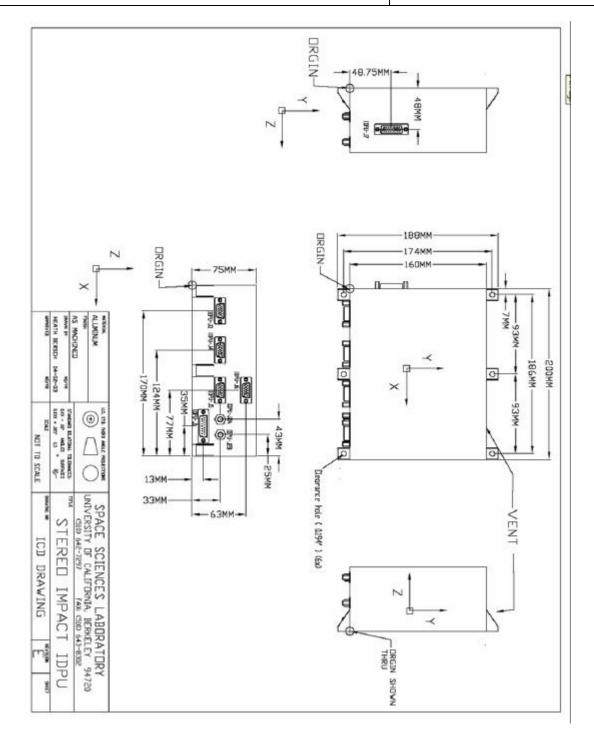


Figure 1: ICD Drawing