

STEREO IMPACT Boom FM1 Mass Properties Report

Document # IMP-617-DOC

Revision: --

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On March 24, 2005, the mass properties of the STEREO IMPACT Boom FM1 were measured. Mass properties were determined for the Boom without any connector savers or blankets or bagging material attached. The mounting screws and ground straps for the Boom to Spacecraft interface were in place, as well as the Magnetometer ETU blanket.

Mass Measurements were made upon a scale with a five 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 .02 seconds per oscillation.

The following results were determined from the measurements. All coordinates are with reference to the Boom Coordinate frame as specified in the ICD.

Mass: 14.04 kg

CG: X, Y, Z = -462 mm, -135 mm, -102 mm

MOI: $I_{xx} = 0.130 \text{ kg m}^2$

$I_{yy} = 4.668 \text{ kg m}^2$

$I_{zz} = 4.852 \text{ kg m}^2$

Table 1: MOI Spreadsheet

See 050324 Boom Moi.xls