



FM-1.

JEM-X Detector Assembly
for
INTEGRAL Satellite

Test of the Instrument's Envelope.

(IN-13-JEM-0112)

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1. INTRODUCTION

Flight Model 1 of Jem-X Detector Assembly is one of the two detectors to be flown on the Integral satellite. After the Detector Assembly, consisting of the Detector part and the electronic box, (the so-called DFEE box), were fully assembled, the overall envelope of the instrument was tested.

2. METHOD OF DETERMINATION

The envelope of the Jem-X Detector Assembly FM1 was tested with respect to the requirements given in the Alenia Aerospazio Integral drawing number 032N403 sheet 3/3. The test was done with the help of fixture with the circular opening corresponding to the allowable envelope in Y and Z direction given as the diameter dimension (max. \varnothing 442 mm). In direction +X and -X (with respect to the Unite Coordinate System) the dimensions were compared with the MICD, DSRI drawing Jem-X No.130100 Edition D.

The planarity of the interface surface and center tolerances of the interfacing bolt holes were documented by mechanical measurement of 3 coordinates measurement machine, before assembly of the DFEE-box. The results of these measurements are assembled in the Engineering Memorandum IN-EM-JEM-0011 (enclosed). The assembly of the Jem-X and the DFEE-box was subsequently assembled using the procedures that secured that parts were not deformed during assembly. The legs of the Jem-X detector that are bolted on the interfacing surface of the DFEE-box are assembled on the dedicated jig with high level of planarity and controlled center tolerances of the bolt holes. This way we secured that the data given in the IN-EM-JEM-0011 are representative for the tolerances that can be seen on the finished FM1.

3. RESULTS

The Jem-X FM1 Detector Assembly fulfils the envelope requirements in Y and Z direction as tested with the method described under #2. The alignments prisms are slightly exceeding the envelope line (as also pointed out on the MICD), but they are on another level in X direction than the interface surface (shifted ~140 mm in +X direction). The small shift of the Jem-X Assembly center axis during mounting would protect the prisms from coming to close to the wall of the opening in the PLM structure. After mounting the prisms are positioned about 100 mm over the PLM structure +X' surface

The envelope dimensions in +X and -X directions corresponds to the values given on the MICD drawing with the tolerance ± 2 mm.