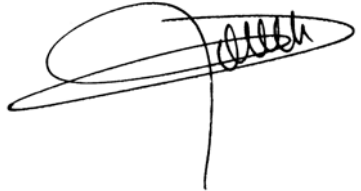





LPU mounting procedure on the SPIRE e-box

SPIRE-LAM-PRC-002976

**LPU mounting procedure
on the SPIRE E-box**

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LPU mounting procedure on the SPIRE e-box

1. GENERAL ASPECT

The aim of the document is to give the procedure to integrate the LPU box on the SPIRE e-box.

2. REFERENCE DOCUMENT

	Title	Author	Reference	Date
RD1	LPU box MICD	JC Blanc	SPI-MEC-82-DO-01-D	13/07/2007
RD2	Bonding area on FCU for LPU box	JC Blanc	SPI-MEC-82-DO-01-C	13/07/2007

3. NECESSARY EQUIPMENTS

The following equipments are requested to carry out the LPU integration

- Isopropyl alcohol (Provided by ASTRIUM)
- Gloves (Provided by LAM)
- Wipes (compatible with clean environment) (Provided by LAM)
- Precision scales (0.1g) (Provided by Astrium)
- Glue (3M 2216 B/A) (Provided by LAM)
- Small aluminium container to prepare and mix the glue (Provided by LAM)
- Abrasive paper N° 200 (Provided by LAM)
- Small vacuum facility to remove the air bulbs from the glue after having mixed the two components (Provided by ASTRIUM)
- Glue gun or Syringe (Provided by LAM)
- Compressed air socket (pressure > 4bars) (If compressed air is available LAM will use the Glue Gun in the contrary we will use a syringe)
- Teflon strip 0.1 mm thick (provided by LAM)
- Teflon foil 0.1 mm thick (provided by LAM)
- Adhesive kapton tape (Provided by LAM)
- Allen wrench N° 4 (Provided by LAM)
- Torque wrench adjusted on 4.8 Nm (Provided BY LAM)
- Table (Provided by ASTRIUM)

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4. LPU CONFIGURATION ON THE SPIRE E-BOX

The following pictures show the configuration of the LPU box on the SPIRE E-Box.

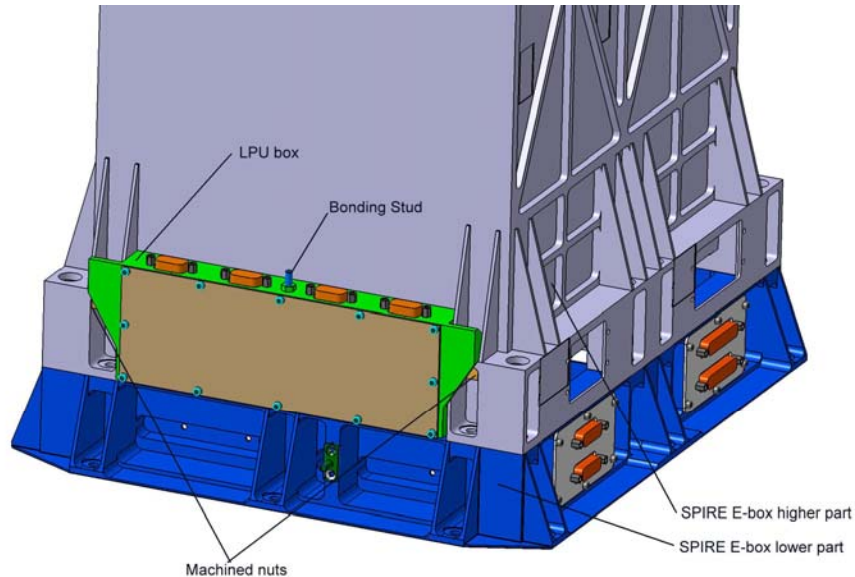


Figure 1: Configuration of the LPU box on the SPIRE E-box

5. MOUNTING PROCEDURE

The LPU box has been removed from the transport container and is on a table.

A) Glue preparation

- 1) put 5.6 g of resin (A) and 4 g of hardener (B) in an aluminium container
- 2) Mix the two components until the colour becomes homogeneous
- 3) Put the container inside a small vacuum facility
- 4) Put the container in a primary vacuum and let the bulbs swell until the glue reach the upper side of the container
- 5) Fill up the vacuum facility with air in order to allow the glue to recover its initial volume
- 6) Make the operation 4) and 5) three times
- 7) Take the container out of the vacuum facility
- 8) The glue is ready to be used

B) Mechanical parts preparation

- 1) Prior to the gluing operation, both the SPIRE e-box and the rear part of the LPU have been sand blasted on the bonding area, in order to remove the surface treatment (Alodine or Black anodise).
- 2) Rub all the bonding surfaces with an abrasive paper N° 200 soaked with water

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- 3) Soak a white wipe with isopropyl alcohol and rub, with the wipe, the rear part of the LPU on the whole surface which will be bonded. Check the colour of the wipe, which must remain white after the operation. If some traces are identified, change the wipe and do the operation again.
- 4) Do the same operation on the e-box on the bonding area

C) Bonding operation

- 1) Put 2 stripes, 10 mm large, of Teflon foil on each side of the rear part of the LPU and maintain the Teflon stripes with adhesive kapton tape
- 2) Apply the 2216 B/A glue on the rear part of the LPU. The glue will be applied by 12 spots whose diameters are approximately 20 mm.

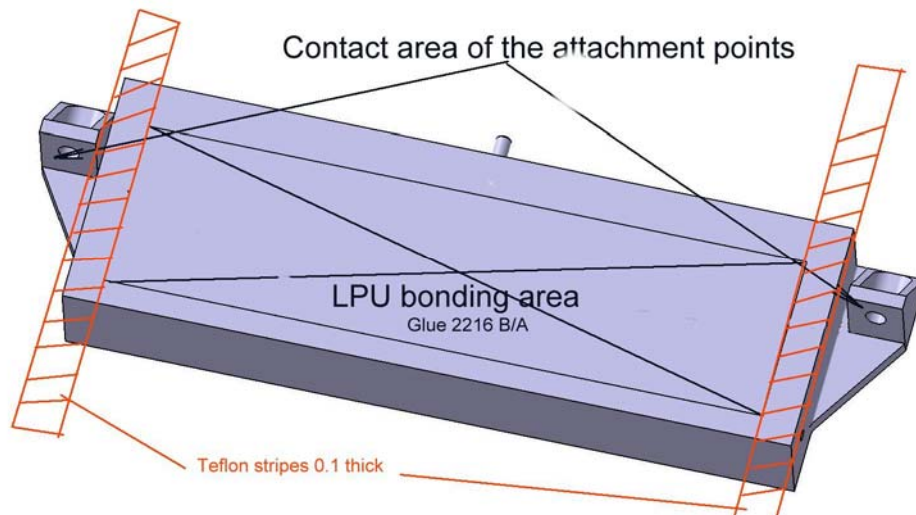


Figure 2: Location of the bonding area on the LPU box

- 3) Bring the LPU box close to the e-box. The side of the e-box on which the LPU is glued has to be vertical.
- 4) Insert a Teflon foil between the lower part and the higher part of the SPIRE e-box (the clearance is about 0.5mm). This Teflon foil will be used to avoid the glue to pour on the platform.
- 5) Apply the LPU (glued side) against the e-box taking care to be slightly above (about 2 mm) the plane of the attachment points located on each side of the LPU.
- 6) Pushing the LPU against the e-box, slide the LPU toward the bottom, until the contact area of the attachment planes are in contact

LPU mounting procedure on the SPIRE e-box

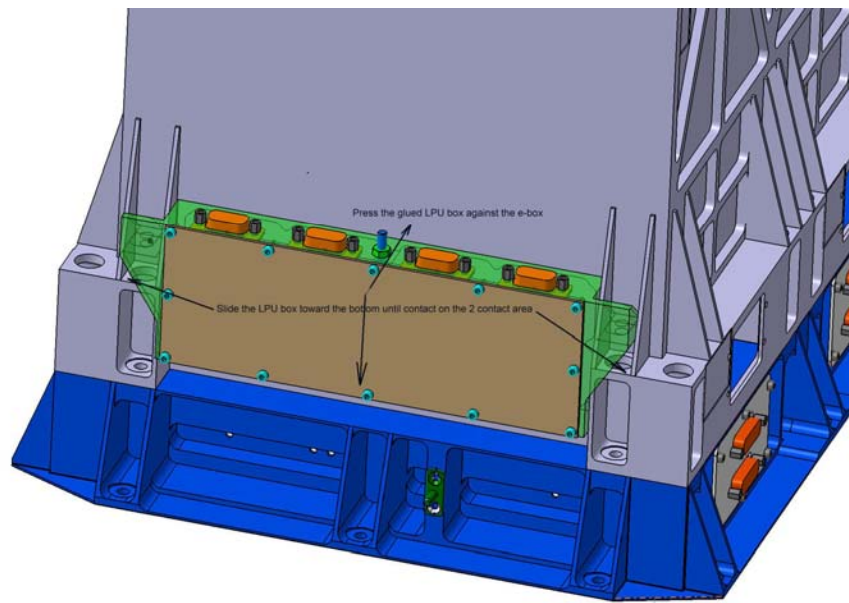


Figure 3: Setting of the LPU box during the bonding operation

- 7) Press the LPU box against the E-box and maintain the pressure
- 8) Install one machined nut, insert the corresponding M5 screw and washer, and screw it until contact of the head of the screw.
- 9) Do the same with the other machined nut and M5 screw + washer
- 10) Tighten the screws at 4.8 Nm tightening torque

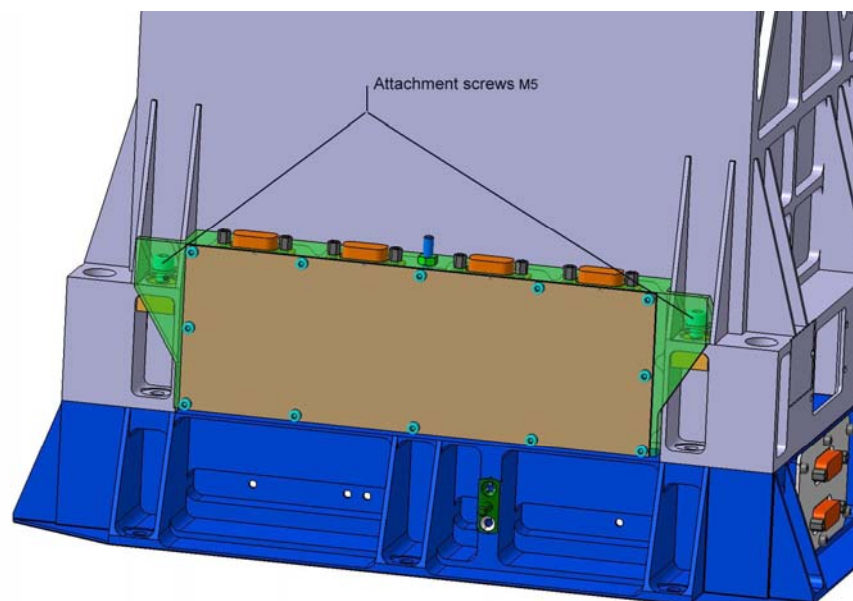
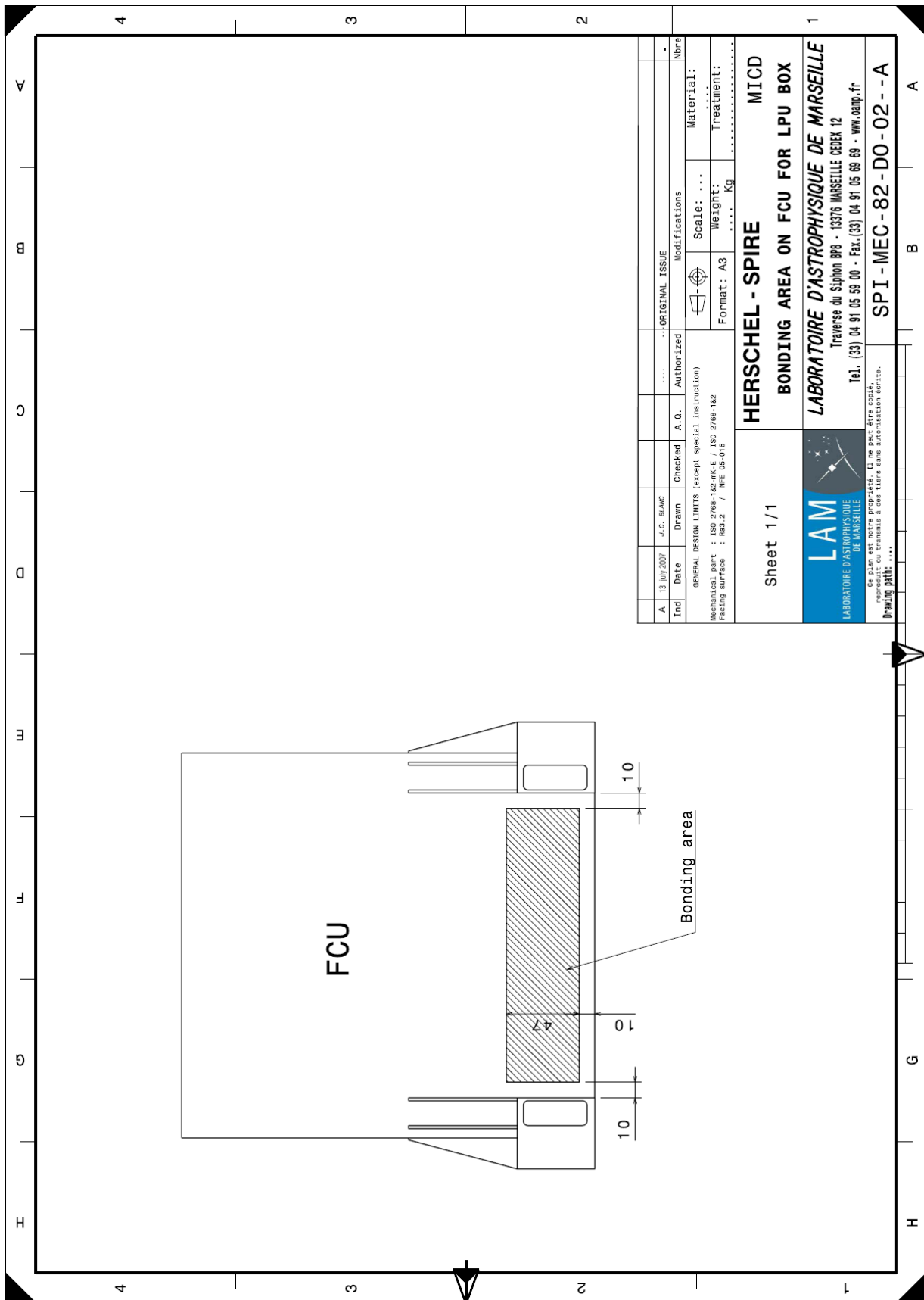


Figure 4: LPU box attachment screw location

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Facing surface : Ra3.2 / NFE 05-016											
Format : A3											
Weight :											
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