Scope
This technical note describes the External DCU Switch Box (EXDSB) required for SPIRE testing on the EQM.

Change notes
1   18 March 2005   first issue

Applicable Documents

Reference Documents

Background
During SPIRE investigations on the JFET failure of December 2004, it was discovered, that transients on the JFET power lines of QM1 DCU may damage the JFET. During PFM1 ILT SPIRE has disconnected the relevant connector on the DCU prior to DCU switch-on, and reconnect it after DCU switch-on.
SPIRE request to maintain a similar switch-on sequence for the EQM test campaign. It is proposed to implement a small adapter (External DCU switch) between the connector of the cryoharness and the DRCU, which contains a TBD long harness with a switch at the other side. The switch side should be accessible from outside the SVM simulator. A special switch-on sequence will need to be followed for EQM test campaign.
This is a feature of the QM1 DRCU, and will not be present on the FM.

Implementation
A small die cast box (115x85x30) will be attached to the side of the DCU as shown in the following diagrams. This box will contain a connector that simulates J29, a short flying lead that plugs into J29 and a second flying lead of length approx 1 metre (TBC by Astrium) which connects to an external switch box. This switch box to be mounted on the opposite face of the SVM panel, in a location to be agreed with Astrium. A suggested location and dimensions of the box is shown in the following diagrams.
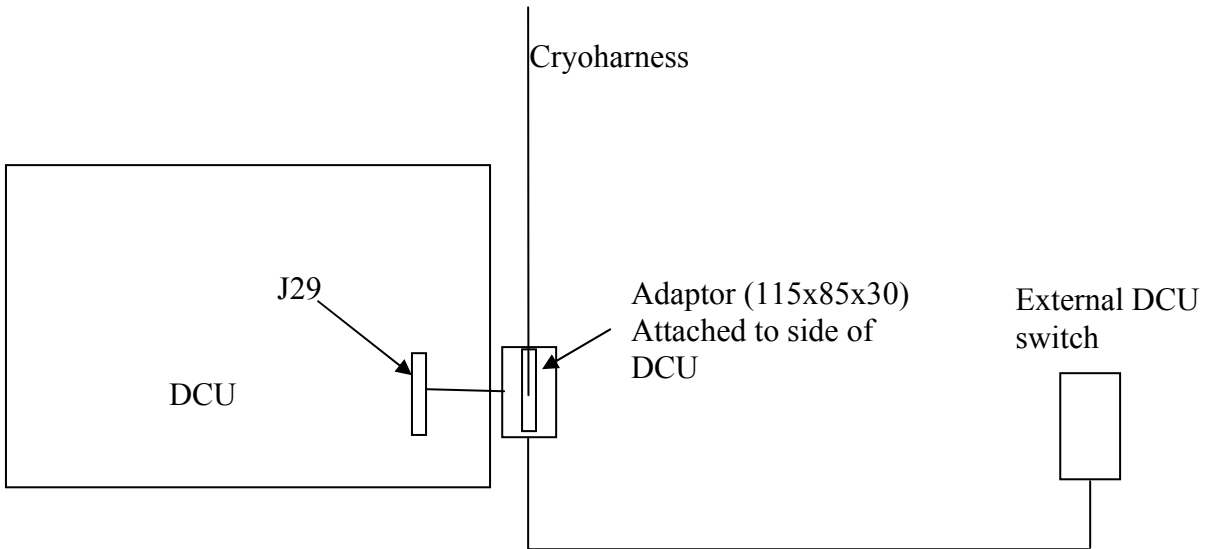The switch box will be clearly marked ON and OFF.

Operation.
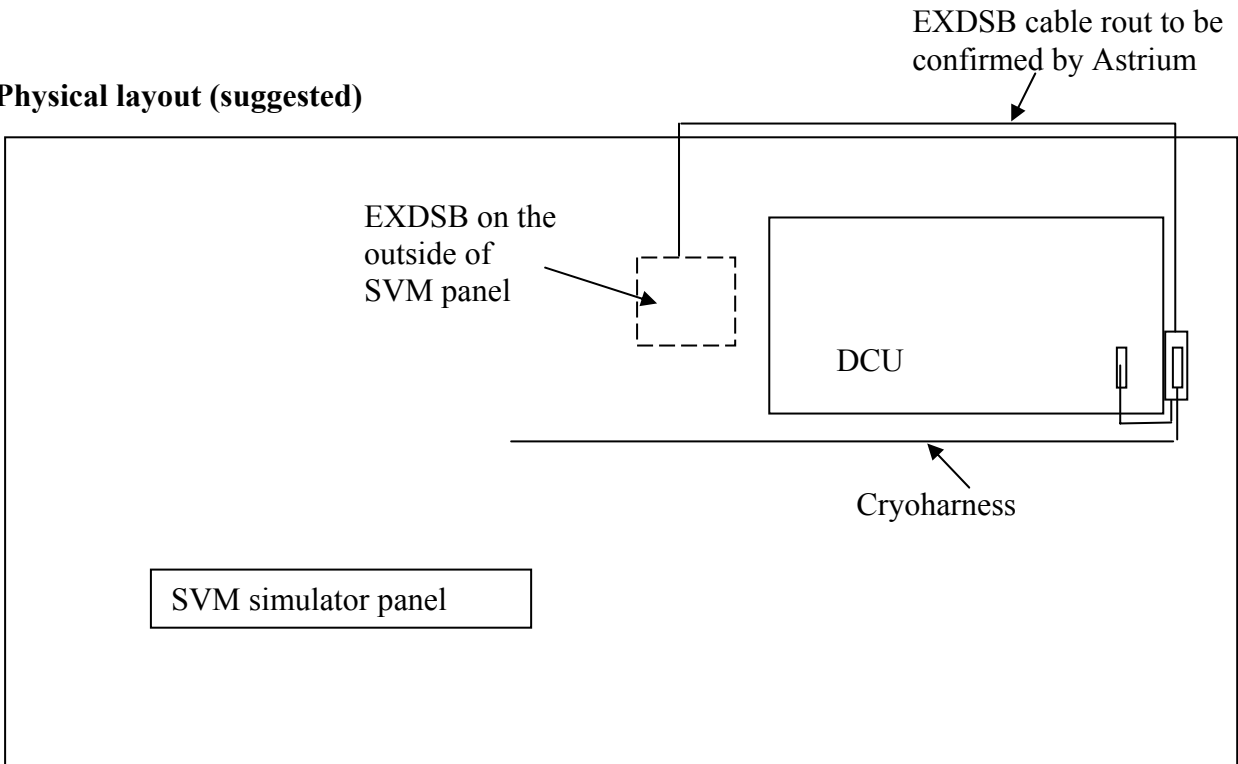Detailed operating procedures will be supplied. In outline the changes to existing procedures will be as follows.
- Before powering the DCU on, check external switch is in the OFF position
- Power up DCU
- Switch external switch to ON

Block diagram

Cryoharness

J29

Adaptor (115x85x30)
Attached to side of
DCU

External DCU
switch

DCU

EXDSB cable rout to be
confirmed by Astrium

Physical layout (suggested)

EXDSB on the
outside of
SVM panel

DCU

Cryoharness

SVM simulator panel

External DCU Switch Box (EXDSB) details