

		REF. : HP-ASPI-MN-1238	
		SPIRE-ALC-MOM-001230	
		DATE : 04/04/02	PAGE : 1 /
MINUTES OF MEETING		PLACE : Alcatel / Cannes	

PURPOSE : **SPIRE – SVM layout : Convergence Meeting**

CLASSIFICATION :

PARTICIPANTS	FIRM	SIGNATURE	PARTICIPANTS	FIRM	SIGNATURE
Glenn Lund	Alcatel		Christophe CARA	CEA	
Bernard Collaudin	Alcatel		Thierry TOURRETTE	CEA	
Baptiste Marchand	Alcatel				
Pascal Rideau	Alcatel	<i>Rideau</i>			
Filipo Cionini	Alenia	<i>F. Cionini</i>			
Giovanni Bottaro	Alenia				
Marco Cesa	Alenia	<i>Cesa</i>			
Jean Bruston	ESA				
John Delderfield	RAL	<i>[Signature]</i>			
Written by : G. LUND					

CONCLUSIONS :

DISTRIBUTION : PARTICIPANTS	FOR FURTHER ACTION
	FOR INFORMATION

APPROVED BY

NAME				
SIGNATURE				

Discussion / presentation of objectives of the meeting & agenda. - (Annex 1)

Objective Achieve a common, agreed understanding of the SPIRE W.U. configurations, their layout on the SVM, and the associated harness routings.

Exclusion zones on lateral edge of all SVM panels: 60mm.

Location of shear panels is fixed

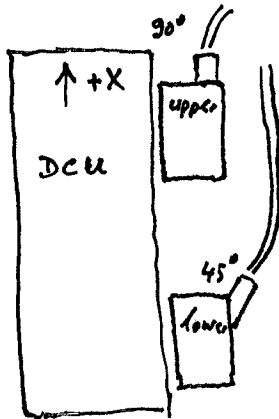
Whenever the lateral (W.U.) SVM panels are removed, the upper and lower closure ~~panels~~ ^{platforms} remain fixed to the SVM-cone. The cryo-harness is routed ^{on} around the upper closure ~~panel~~ ^{platform}, whereas the SVM harness is routed on the lower platform.

and the shear panels

Explanation of space restrictions at the top of the SVM panel, resulting from need to retract + tilt the panel.

DCU - Connectors

Since there are 2 rows of connectors (J06... J28; and J05... J29) both of which need to provide harnesses leaving the W.U. in the same (+X) direction, it is proposed to use 90° backshells for the "upper row", and 45° backshells on the "lower row"



FCU

Connectors J15 and J16 have been removed (no longer needed). J27 and J28 are used for testing only.

CEA would like to move J07 + J08 to the ^{opposite} ~~left~~ side (with respect to current drawings) ~~(instead of current left side)~~ of their panel on the FCU box.

This would impact the cryoharness routing (down from the top of the box) → would probably require a stand-off structure. See Annex 2 - for new proposed layout from CEA.

On "B-side": Jumpers used between

{	J10 - J32
	J09 - J31
	J33 - J35
	J34 - J36

Alenia prefers, for reasons of harness implementation, to have all (non-jumper) connectors on the same (A-side) panel of the FCU: this minimizes free-space constraints around the box.

Rapid CAD analysis shows that the FCU could be shifted ≤ 30 mm in the $-X_p$ direction (closer to the panel edge). This should enable the J07 & J08 (and J05/06) connectors to be shifted to the "B-side" of the FCU. *

Proposed new layout:

- FCU is shifted 30 mm in the $-X_p$ direction
- Connectors are switched between "A" and "B" sides
→ See Annex 2 a and 2 b.
- Updated connectors on top of box

CEA to produce updated, configured drawings for the above-described changes to the FCU connector locations, and mechanical interface to SVM panel (see next page for later).

AI-1
10-04-02

* one additional cut-out will be necessary on shear panel to route the SVM harness.

MINUTES OF MEETING

It has been agreed that both DCU and FCU W.U.s will be designed to provide a flat baseplate, nominally to be fully in contact with the sum panel, (instead of the previous design in which only the mounting feet were in physical contact with the panel), when mounted with I/F filler.

CEA (C. Cara) and Alenia (G. Bottaro) to discuss / converge on agreed solution for stand-off support of the cryo-harnesses along the side of the FCU.

DCU

Various inconsistencies have been noticed by Alenia, wrt connector locations, between mech. drawings and harness block diagram.

Alenia's current routing schematics are based on the block diagram. This will be maintained as the baseline for industry.

CEA to update the mech. drawings accordingly. (also including updates to mounting feet, baseplate).

AI-2
16-
08-04-02

Agreed that J03 and J04 ~~are~~ connectors are to have 45° backshells. RAL to supply ^{backshell} connector type and reference.

AI-3
08-04-03

The (logic signal) J01 and J02 lines on DCU ^{would best} ~~would~~ be routed along the side of the DCU: 2 fixation points per line. CEA / SPIRE to propose design / implementation of glued fixation supports. Alenia to provide its routing constraints.

Cryoharness - DCU

SPIRE prefers to have the bundles grouped closely together. Number of upper PCT cutouts to be reduced from 3 to 2. Grouping as shown in the block diagram.

Further clarification is needed between Alenia and Astrum, concerning the implementation of the cryoharness connector brackets.

Fixation points are to be foreseen for cryoharness routing on the +Yp side of the DCU box.

Fixation Feet

It is agreed that the n° of feet (on DCU & FCU) will be increased, to ensure that total mass (box + connectors) per foot ≤ 1.5 kg. Mounting bolts are to be M4.

Both Units: N° of feet increased from 10 to 12.

This is not expected to have any impact on the connector positions.

Alenia to confirm updated cutout locations, to be communicated to Astrium (CAMIA file including panel configuration)

Alenia will produce updated layout + routing

2D-drawings, according to input provided today and AZ O/Ps. These are expected to be ready by around 15-04-02.

Responsibility for defining fixation devices / intervals for the Warm Harnesses remains to be clarified (PR, normal work)

DPU

No comments. Box dimensions have not changed. Grounding stud too long - TBD.

THERMAL PERFORMANCE

Alenia present preliminary Thermal analysis of new proposed layout.

Assumptions:

- Dissipation = 110% of instrument provided "ON" dissipation.
- St. State temps include a +7° C margin, HOT Case.

Results:

- | | | |
|-----------------|------------------------------------|---|
| - DCU : 29.7° C | (op. design range = -15 to +45 °C) |) * Note that the assumed power for DCU + FCU does not take into account the revised values ^{agreed} requested in SPIRE ECR-005. |
| - FCU : 21.7° C | " " " " " | |
| - DPU : 18.3° C | " " " " " | |

See also Annex 3

AJ-4

09-04-02

MINUTES OF MEETING

PLACE: Alcatel / Cannes

Implementation of ^{panel} heaters and temperature sensors has yet to be detailed by Alenia, and will be included in future updates of layout drawings - when available.

Transient thermal behaviour

Not yet available, but is not expected to be strongly different to that given in the TCS proposal document (already sent to the instruments). Revised figures should (as promised at the Q.P.M in March) be available by April 30.

To perform a realistic evaluation, and since transient behaviour will be influenced by the slewing behaviour of the satellite during observations, Alenia needs "reasonable, worst-case" observing scenario data ~~to~~ input ~~in order to make a realistic assessment.~~

Power Budget

- Current power reqts total 95.3 W (Allocation = 100 W).
- A clarification is needed, with regard to whether the W.U. reqts given as "average" ~~is~~ correspond to the worst-case conditions*, i.e. - BOL/EOL (whichever is worse)
 - Bus voltage: 26V - 29V. (worst-case for power demand)

SPIRE to provide update budget document (mass + power) - reasonable margins.

Mass Budgets

- FCU power supply mass allocation ~ 4 kg
- Mass of FCU, DCU boxes (A1) ~ 4 kg ea.

~~See~~ Announced Masses for DCU/FCU presented at IBDR were agreed are:

- DCU 15.4 kg
 - FCU 15.0 kg
- } These figures have been reached through a mass-reduction exercise. They are nevertheless NOT accepted by project. (see allocations on DCU + FCU data sheets).

Total nominal mass of SPIRE ~ 89 kg (alloc. = 90 kg), Without margins.

* Clear from discussion that present approach is to keep power dissipation constant by compensation heaters. T.B.C.

AI-5 / SPIRE

12-04-02

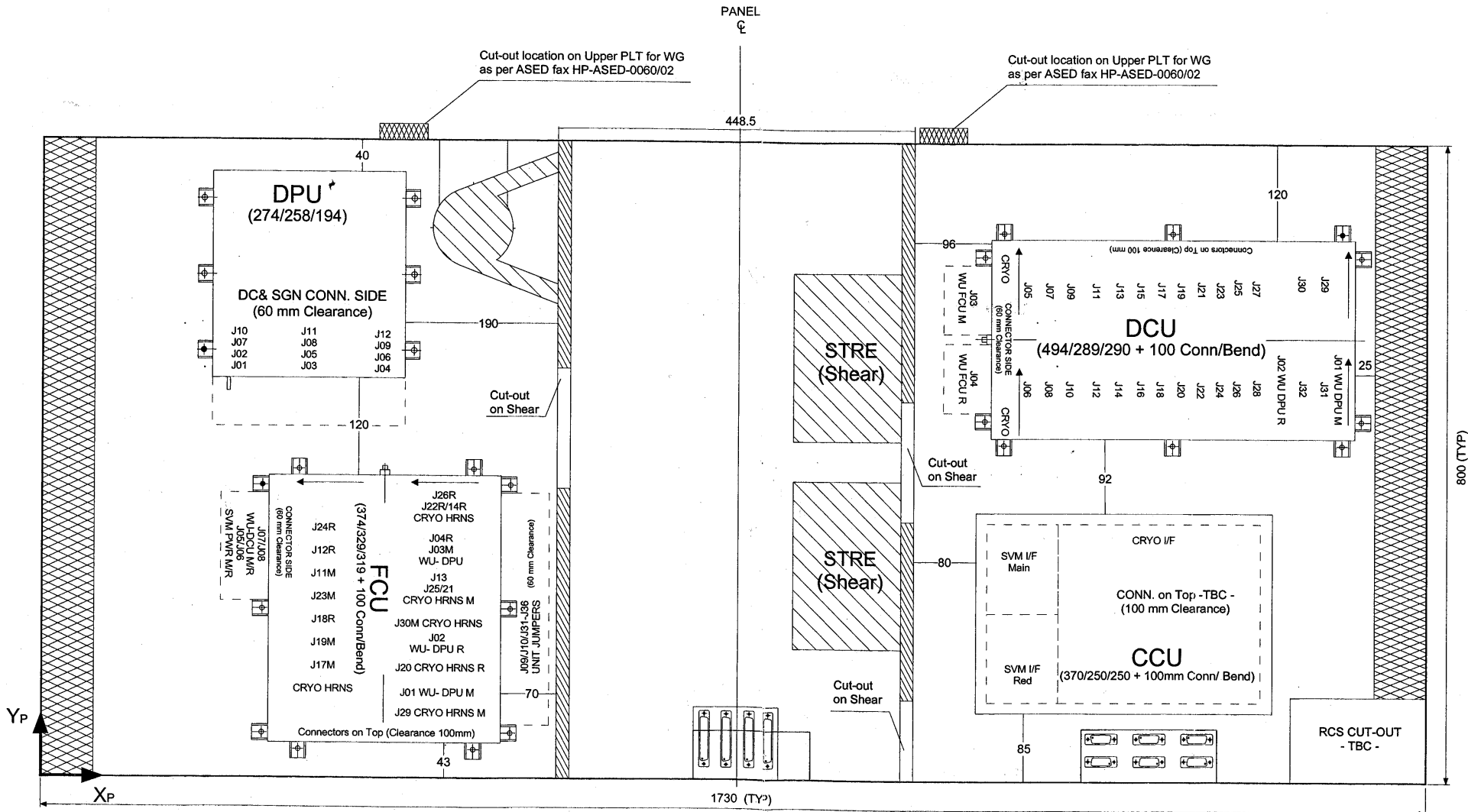
Review of SPIRE IDS (Instrument Data Sheets).

- Include connector list for each IDS.
- Drawing formats: SPIRE will try to supply ASPI with vectorial format versions of all drawings, ~~in~~ in addition to PDF versions.
- DCU drawings will be updated by 10-04-02
- IDS heat dissipations to be updated to reflect photometry / spectroscopy requirements.
- JD will (try to) include the SPIRE "inter-connecting diagram", extracted from latest version of SPIRE cryoharness doc (= v. 0.9), into a Word document, and send this to Alcatel - Grenoble.

E.L.
 (most recent)
 03-04-02

HERSCHEL SPIRE PANEL -Z UNIT LAYOUT

- NOTES :
- A. DIMENSIONS ARE IN mm
 - B. BOX ENVELOPES INCLUDES THE MOUNTING FEET (UNLESS OTHERWISE SPECIFIED)



PRELIMINARY

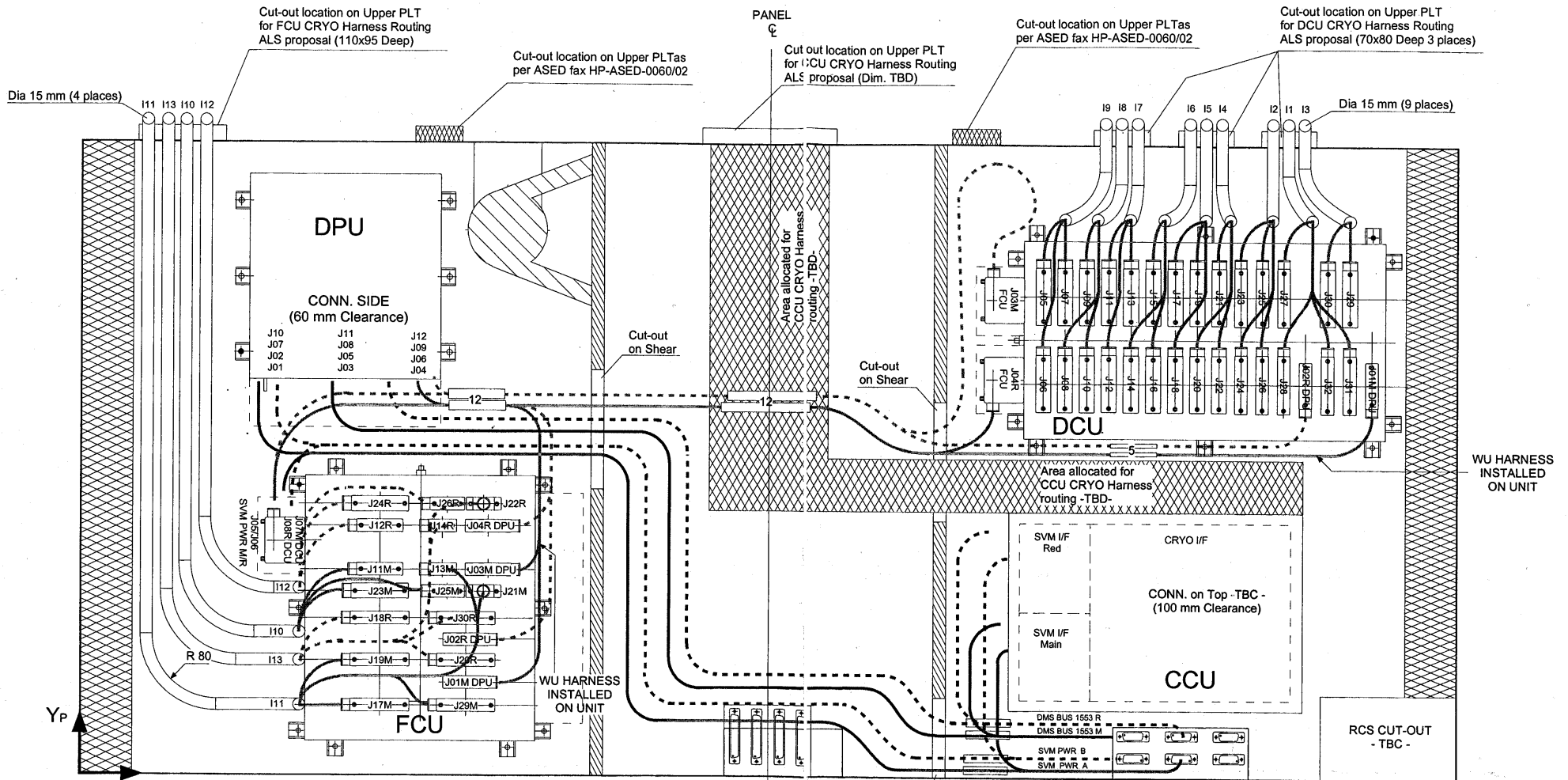
FOR REFERENCE ONLY

SVM I/F CB F)R STR I/F
 (4 CONN. 37P/S) 110x90mm
 & Cut-out 150:60 for EXT
 Unit Harness

SVM I/F CB FOR
 PWR M/R (DPU/FCU/CCU)
 DMS 1553 M/R (DPU/CCU)
 SYNC (TBD)
 (6 CONN. 15P/S)
 170x65mm

DATE : 03.04.02
 REV : /

HERSCHEL SPIRE PANEL -Z HARNESS ROUTING



- NOTES :
1. QUOTES ARE IN mm
 2. EMC CLASS : 1 RED
2 BLU
4 GREEN

3. DASHED LINE ARE REDUNDANT PATHS
4. YELLOW LINES IDENTIFY WARM UNIT HARNESS
5. PINK LINES IDENTIFY CRYO HARNESS
6. BACKSHELLS/CONNECTORS ON CCU ARE TBD
7. HARNESS FIXATION POINTS ON FCU AND DCU ARE TBD

8. ROUTING ON Upper PLT TO I/F CB IS TBD (CRITICAL)
9. BACKSHELLS ENVELOPE ON FCU BASED ON GLENAIR 550-039 TYPE
10. CCU HARNESS ROUTING IS TBD (CRITICAL).
11. CONNECTORS LOCATION/REFERENCE ON DCU ACCORDING TO SPIR-MX-5100 000 A. CONNECTOR SIZE ACCORDING TO SPIRE-RAL-PRJ-000608 IS.0.9
12. CONNECTORS LOCATION/REFERENCE ON FCU ACCORDING TO SPIR-MX-5200 000 A. CONNECTOR SIZE ACCORDING TO SPIRE-RAL-PRJ-000608 IS.0.9

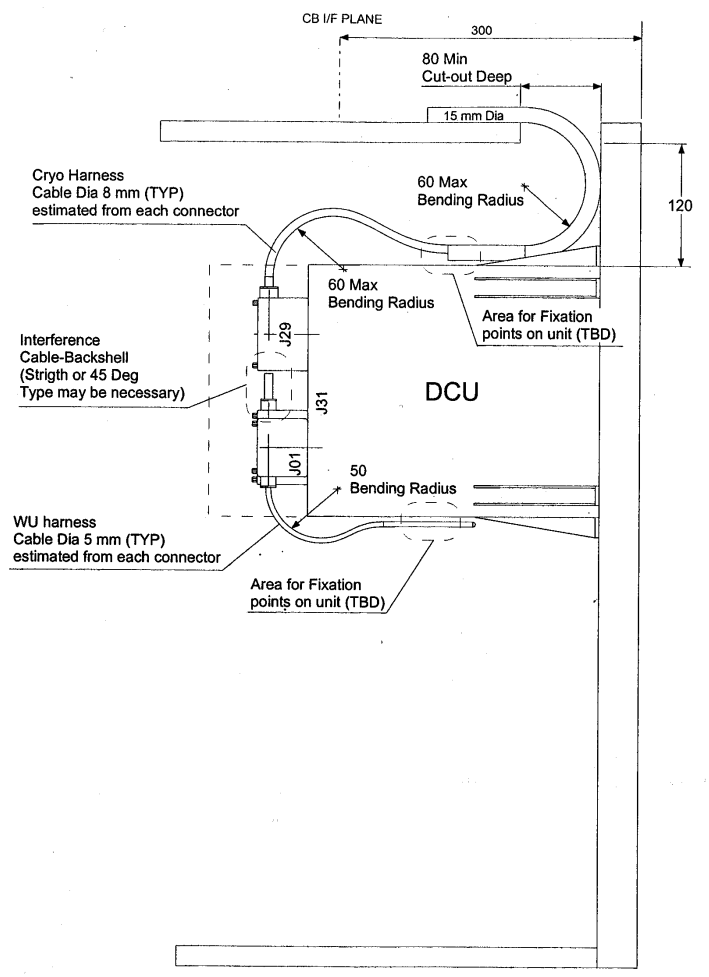
SVM I/F CB FOR STR. I/F
(4 CONN. 37P/S) 110x90mm
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Unit Harness

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SYNC (TBD)
(6 CONN. 15P/S)
170x65mm

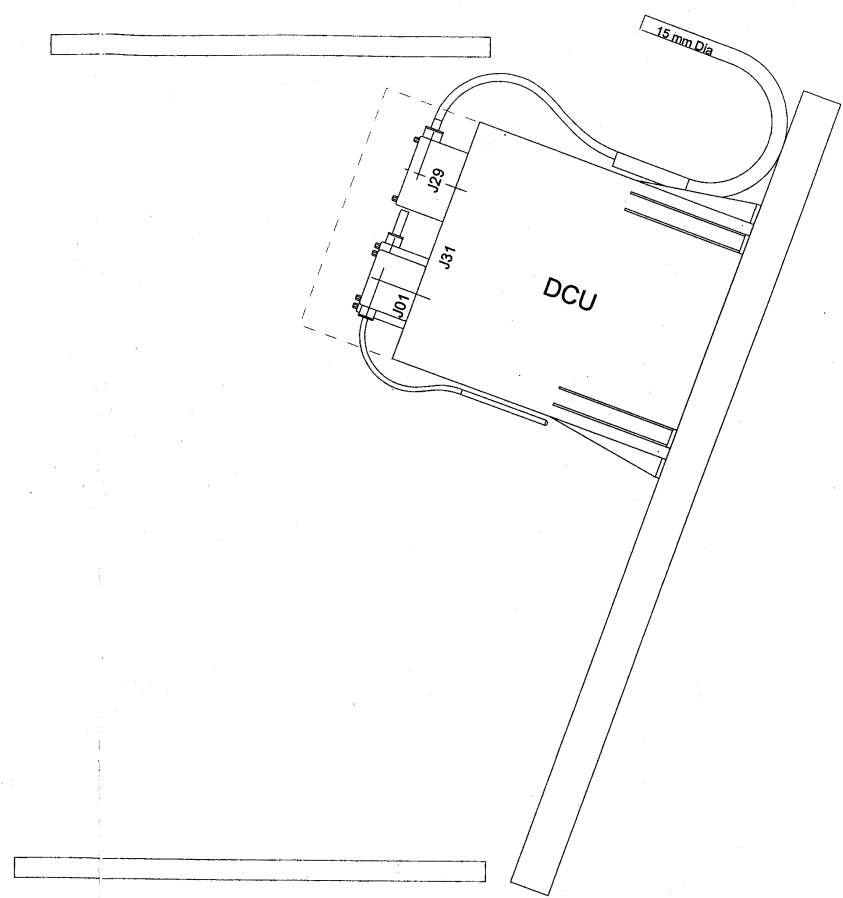
PRELIMINARY

FOR REFERENCE ONLY

HERSCHEL SPIRE PANEL -Z HARNESS ROUTING



DCU SIDE VIEW WITH CRYO HARNESS
ROUTING TO PLM I/F CB
AND WU HARNESS TO DPU



20 DEG PANEL TILTING
(WORST CASE)

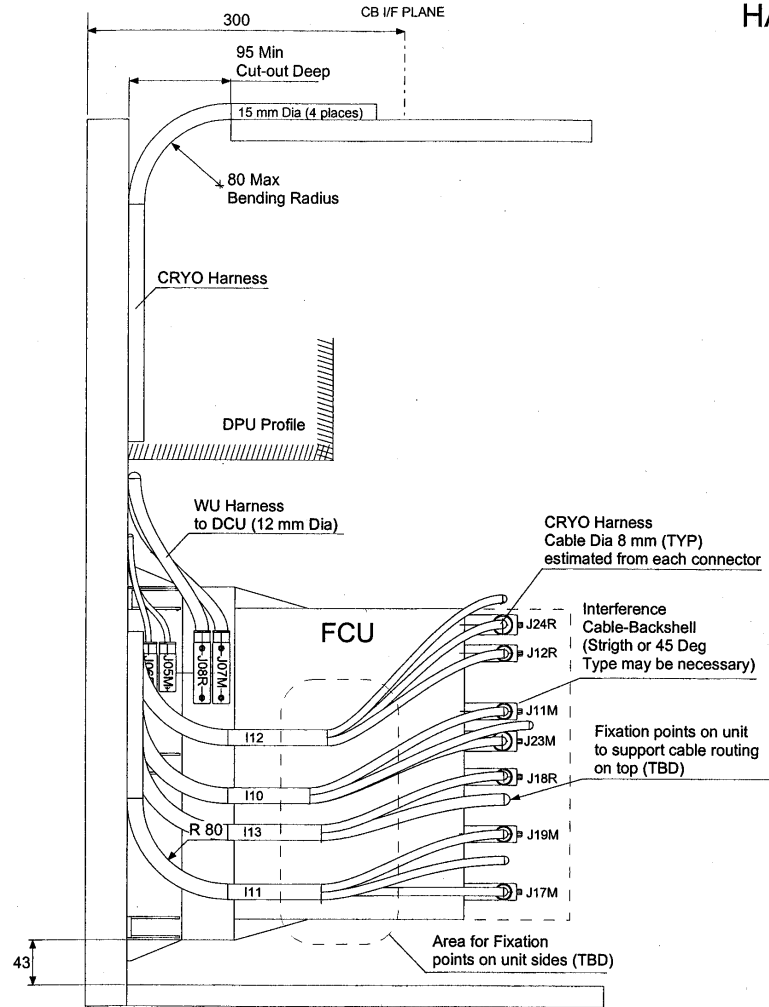
- NOTES :
1. QUOTES ARE IN mm
 2. CONNECTORS LOCATION/REFERENCE ON DCU ACCORDING TO SPIR-MX-5100 000 A. CONNECTOR SIZE ACCORDING TO SPIRE-RAL-PRJ-000608 IS.0.9
 3. BACKSHELLS ENVELOPE ON DCU BASED ON GLENAIR 550-039 TYPE
 4. HARNESS FIXATION POINTS ON UNIT ARE TBD
 5. ROUTING ON Upper PLT TO I/F CB IS TBD (CRITICAL)
 6. PLM CB I/F PLANE AS PER ASFD FAX HP-ASFD-0060/02
 7. HARNESS ROUTING SHOWN ONLY FOR REFERENCE

PRELIMINARY

FOR REFERENCE ONLY

DATE : 03.04.02
REV. : /

HERSCHEL SPIRE PANEL -Z HARNESS ROUTING



FCU SIDE VIEW WITH CRYO HARNESS
ROUTING TO PLM I/F CB
AND WU/SVM HARNESS

NOTES :

1. QUOTES ARE IN mm
2. CONNECTORS LOCATION/REFERENCE ON FCU ACCORDING TO SPIR-MX-5200 000 A. CONNECTOR SIZE ACCORDING TO SPIRE-RAL-PRJ-000608 IS.0.9
3. BACKSHELLS ENVELOPE ON FCU BASED ON GLENAIR 550-039 TYPE
4. HARNESS FIXATION POINTS ON UNIT ARE TBD
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6. PLM CB I/F PLANE AS PER ASED FAX HP-ASED-0060/02
7. HARNESS ROUTING SHOWN ONLY FOR REFERENCE

PRELIMINARY

FOR REFERENCE ONLY

DATE : 03.04.02
REV. : /

**HERSCHEL-PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

Page 1/4 3
DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite : Herschel	Instrument : HSFCU
SubSystem : SVM SPIRE	Unit Code : HSFCU

1. EQUIPMENT INTERFACE CHARACTERISTICS

UNIT DESIGNATION : FCU	IN OPERATION : ...	IN REDUNDANCY : ...
TOTAL NUMBER : ...		

MECHANICAL CHARACTERISTICS PER UNIT

DIMENSIONS ⁽¹⁾ (Baseplate = Length x Width, including mounting feet)
 Length : 374 mm Width : 329 mm ^{+80 #} Height : ~ 330 mm

BOX ENVELOPE (including internal connector or not needed access connector)
 Length : 374 mm Width : 410 mm Height : 377.9 mm TBC

MASS : ~~15.4~~ kg +/- TBD Kg **Allocated mass** : ~~13.2~~ Kg) *pro rata: 14.3*

CoG. LOCATION ⁽¹⁾ (mm) (wrt reference hole R) : *guideline* *15.4 + 14.3 + 7 + 2* * 34

X : +/- Y : +/- Z : +/- ... *12.0*

INERTIA (m².kg) (wrt CoG)
 I_{xx} : +/- I_{yy} : +/- I_{zz} : +/-

MATERIAL OF HOUSING AND SURFACE FINISH :

TOTAL CONTACT AREA : cm² = 100% of baseplate area

ROUGHNESS OF CONTACT AREA : microns RMS

EIGENFREQUENCY : Hz (if below 140Hz) **TIGHTENING THICKNESS** : mm

* including internal conn + jumper harness
45° backs shells.

THERMAL CHARACTERISTICS PER UNIT

BASEPLATE MATERIAL AND THICKNESS (mm) :

SURFACE PROPERTIES : Black painted *Altochromed - TBC.*
 Emissivity : > 0.85 Absorptivity ⁽²⁾ : > 0.85 - *TBC.*

SPECIFIC AREAS ⁽¹⁾ :

SPECIFIC HEAT (J/kg/°K) :

QUALIFICATION TEMPERATURE LIMITS (°C)

GROUND STORAGE & TRANSPORT		OPERATING MODE		NON OPERATING MODE		START UP
MIN	MAX	MIN	MAX	MIN	MAX	MIN
? -35	2+60	-15	+45	-35	+60 TBC	-30

HEAT DISSIPATION (W) (give % of incertitude)

MODE ⁽³⁾	AVERAGE	MINI ⁽⁴⁾	MAXI ⁽⁴⁾
ON	42.9	<i>3 spec.</i>	<i>2 photom.</i> TBC.

Worst-case, with margins??

- Precise with a sketch on separated sheet (Page 2) specific areas in case of various thermal coating (if any)
- Solar Absorptance only for locations outside of the satellite (which could be seen by the sun)
- Complete with special modes if any : state precisely relevant events
- Give diagram on separated sheet W = f(t) for each typical phase

**HERSCHEL - PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

Page 2/~~4~~ 3
DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite :	Herschel	Instrument :	HSFCU
SubSystem :	SVM SPIRE	Unit Code :	HSFCU

Observations

**HERSCHEL - PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

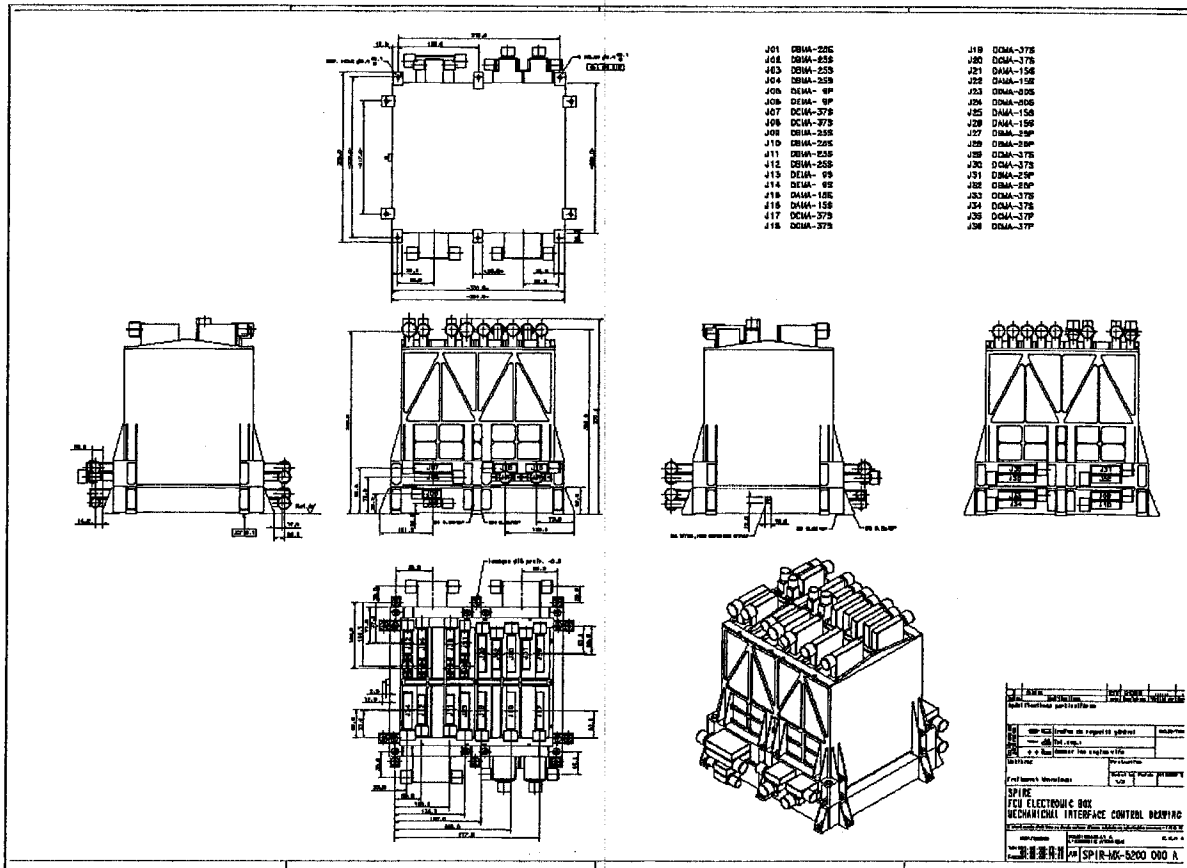
Page 3/ 3
DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite : Herschel
SubSystem : **SVM SPIRE**

Instrument : HSFCU
Unit Code : **HSFCU**

2. MECHANICAL DRAWING(S)



Present drawing reference is SPIR-MX-5200 000 A, latest update dated from 12/01/2002 ✓

On this sketch, indicate dimensions, inertia axes OX, OY, OZ, footprint, location of CG, mounting points, diametric tolerance, centre to centre distance, position tolerance (guide pins or holes), location type orientation, reference of connectors, necessary access after integration for calibration or test, bonding strap location and length and so on.

If additional pages are necessary, add the number after 2.

Modification / updates of the above drawing traceability :

Date	Change
03/04/02	First Issue

**HERSCHEL - PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

Page 1/43
DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite :	Herschel	Instrument :	HSDCU
SubSystem :	SVM SPIRE	Unit Code :	HSDCU

1. EQUIPMENT INTERFACE CHARACTERISTICS

UNIT DESIGNATION :	DCU
TOTAL NUMBER :	... IN OPERATION : ... IN REDUNDANCY : ...

MECHANICAL CHARACTERISTICS PER UNIT

DIMENSIONS ⁽¹⁾ (Baseplate = Length x Width, including mounting feet)	
Length :	494 mm Width : 289 mm Height : 305 mm
BOX ENVELOPE (including all connectors) - <i>For reference only.</i>	
Length :	524 mm Width : 289 mm Height : 352.4 mm
MASS :	4.3 kg +/- TBD Kg Allocated mass : 14.3 Kg
CoG. LOCATION ⁽¹⁾ (mm) (wrt reference hole R) :	<i>information for reference only.</i> guided line 13.0 <i>pro rata: 15.5</i>
X :	... +/- ... Y : ... +/- ... Z : ... +/- ...
INERTIA (m ² .kg) (wrt CoG)	
I _{xx} :	... +/- ... I _{yy} : ... +/- ... I _{zz} : ... +/- ...
MATERIAL OF HOUSING AND SURFACE FINISH :	
TOTAL CONTACT AREA :	cm ² = 100% of baseplate area
ROUGHNESS OF CONTACT AREA :	microns RMS
EIGENFREQUENCY :	Hz (if below 140Hz) TIGHTENING THICKNESS : mm

*Allocated mass for:
DCU + FCU + DPU = 34kg
* 34 =*

THERMAL CHARACTERISTICS PER UNIT

BASEPLATE MATERIAL AND THICKNESS (mm) :	
SURFACE PROPERTIES :	Black painted <i>anodized aluminium</i>
Emissivity :	> 0.85 Absorptivity ⁽²⁾ : > 0.85
SPECIFIC AREAS ⁽¹⁾ :	TBD TBD
SPECIFIC HEAT (J/kg/°K) :	

*any pb.?
Myriam.*

QUALIFICATION TEMPERATURE LIMITS (°C)

GROUND STORAGE & TRANSPORT		OPERATING MODE		NON OPERATING MODE		START UP
MIN	MAX	MIN	MAX	MIN	MAX	MIN
<i>-35</i>	<i>+60</i>	-15	+45	-35	<i>+80 +60</i>	-30

HEAT DISSIPATION (W) (give % of incertitude)

MODE ⁽³⁾	AVERAGE	MINI ⁽⁴⁾	MAXI ⁽⁴⁾
ON	37 <i>TBC</i>	? <i>Spectro.</i>	? <i>Photometry</i>

Worst-case (BOL/EOL; 26.29v; margins)??

- Detail*
Precise with a sketch on separated sheet (Page 2) specific areas in case of various thermal coating (if any).
- Solar Absorptance only for locations outside of the satellite (which could be seen by the sun).
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*to be refined : photometry Mode
Spectroscopy Mode*

**HERSCHEL - PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

Page 2/3
DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite : Herschel
SubSystem : **SVM SPIRE**

Instrument : HSDCU
Unit Code : **HSDCU**

Observations

Connector list is needed.

**HERSCHEL - PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

Page 3/43
DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite :	Herschel	Instrument :	HSDCU
SubSystem :	SVM SPIRE	Unit Code :	HSDCU

2. MECHANICAL DRAWING(S)

The drawing consists of several views of the HSDCU instrument:

- Top View:** Shows the footprint of the instrument with dimensions and mounting points.
- Perspective View:** Shows the 3D structure of the instrument with various components and connectors.
- Side View:** Shows the profile of the instrument with dimensions.
- Front View:** Shows the front face of the instrument with dimensions.
- Bottom View:** Shows the underside of the instrument with dimensions and mounting points.

Parts List:

J01	DCMA-525	J14	DCMA-50P
J02	DCMA-525	J15	DCMA-50P
J03	DCMA-37P	J16	DCMA-50P
J04	DCMA-37P	J17	DCMA-50P
J05	DCMA-50P	J18	DCMA-50P
J06	DCMA-50P	J19	DCMA-50P
J07	DCMA-50P	J20	DCMA-37P
J08	DCMA-50P	J21	DCMA-37P
J09	DCMA-50P	J22	DCMA-50P
J10	DCMA-50P	J23	DCMA-50P
J11	DCMA-50P	J24	DCMA-37P
J12	DCMA-50P	J25	DCMA-37P
J13	DCMA-50P	J26	DCMA-37P
J14	DCMA-50P	J27	DCMA-37P
J15	DCMA-50P	J28	DCMA-37P
J16	DCMA-50P	J29	DCMA-37P
J17	DCMA-50P	J30	DCMA-37P
		J31	DCMA-75S
		J32	DCMA-75S

POUR INFORMATION

Project Name	Project Number	Project Status
SPIRE	HSDCU ELECTRONIC BOX	MECHANICAL INTERFACE CONTROL DRAWING
Author	Checked	Approved
03/04/02		

11/01/02,

Present drawing reference : SPIR-MX-5100 000 A, latest update dated from ~~11/01/2002~~

On this sketch, indicate dimensions, inertia axes OX, OY, OZ, footprint, location of CG, mounting points, diametric tolerance, centre to centre distance, position tolerance (guide pins or holes), location type orientation, reference of connectors, necessary access after integration for calibration or test, bonding strap location and length and so on.

If additional pages are necessary, add the number after 2.

Modification / updates of the above drawing traceability :

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03/04/02	First Issue

**HERSCHEL - PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

Page 1/43
DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite :	Herschel	Instrument :	HSDPU
SubSystem :	SVM SPIRE	Unit Code :	HSDPU

1. EQUIPMENT INTERFACE CHARACTERISTICS

UNIT DESIGNATION :	DPU				
TOTAL NUMBER :	...	IN OPERATION :	...	IN REDUNDANCY :	...

MECHANICAL CHARACTERISTICS PER UNIT

DIMENSIONS ⁽¹⁾ (Baseplate = Length x Width, including mounting feet)	
Length :	274 mm Width : 274 ²⁷⁴ mm Height : 194 mm
BOX ENVELOPE (including internal connector or not needed access connector)	
Length :	274 mm Width : 274 ³²⁰ mm Height : 194 mm
MASS :	7.0 kg +/- TBD Kg Allocated mass : 6.5 Kg ^{7.0 Kg} <i>pro rata :</i>
CoG. LOCATION ⁽¹⁾ (mm) (wrt reference hole R) :	
X : 120 +/-	Y : 110 +/- Z : 96 +/-
INERTIA (m ² .kg) (wrt CoG)	
I _{xx} : 0.056 +/-	I _{yy} : 0.054 +/- I _{zz} : 0.054 +/-
MATERIAL OF HOUSING AND SURFACE FINISH :	
TOTAL CONTACT AREA :	644.28 cm ² = 100% of baseplate area
ROUGHNESS OF CONTACT AREA :	microns RMS
EIGENFREQUENCY :	Hz (if below 140Hz) TIGHTENING THICKNESS : mm

x 34

THERMAL CHARACTERISTICS PER UNIT

BASEPLATE MATERIAL AND THICKNESS (mm) :	AntiCorodal 6082
SURFACE PROPERTIES :	Alodine 1200 treatment
Emissivity :	> 0.172 Absorptivity ⁽²⁾ : > 0.172
SPECIFIC AREAS ⁽¹⁾ :	
SPECIFIC HEAT (J/kg/°K) :	

QUALIFICATION TEMPERATURE LIMITS (°C)

GROUND STORAGE & TRANSPORT		OPERATING MODE		NON OPERATING MODE		START UP			
MIN	MAX	MIN	MAX	MIN	MAX	MIN			
<i>9</i>	<i>-35</i>	<i>9</i>	<i>+60</i>	-15	+45	-35	<i>9</i>	<i>+60</i>	-30

HEAT DISSIPATION (W) (give % of incertitude)

MODE ⁽³⁾	AVERAGE	MINI ⁽⁴⁾	MAXI ⁽⁴⁾
ON	15.3	<i>15.3</i>	<i>15.3</i>

Worst-case, margins ??

- Precise with a sketch on separated sheet (Page 2) specific areas in case of various thermal coating (if any)
- Solar Absorptance only for locations outside of the satellite (which could be seen by the sun)
- Complete with special modes if any : state precisely relevant events
- Give diagram on separated sheet W = f(t) for each typical phase

**HERSCHEL-PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

Page 2/43
DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite :	Herschel	Instrument :	HSDPU
SubSystem :	SVM SPIRE	Unit Code :	HSDPU

Observations

Add connector list.

34
- 9
25

(2/7) 2.

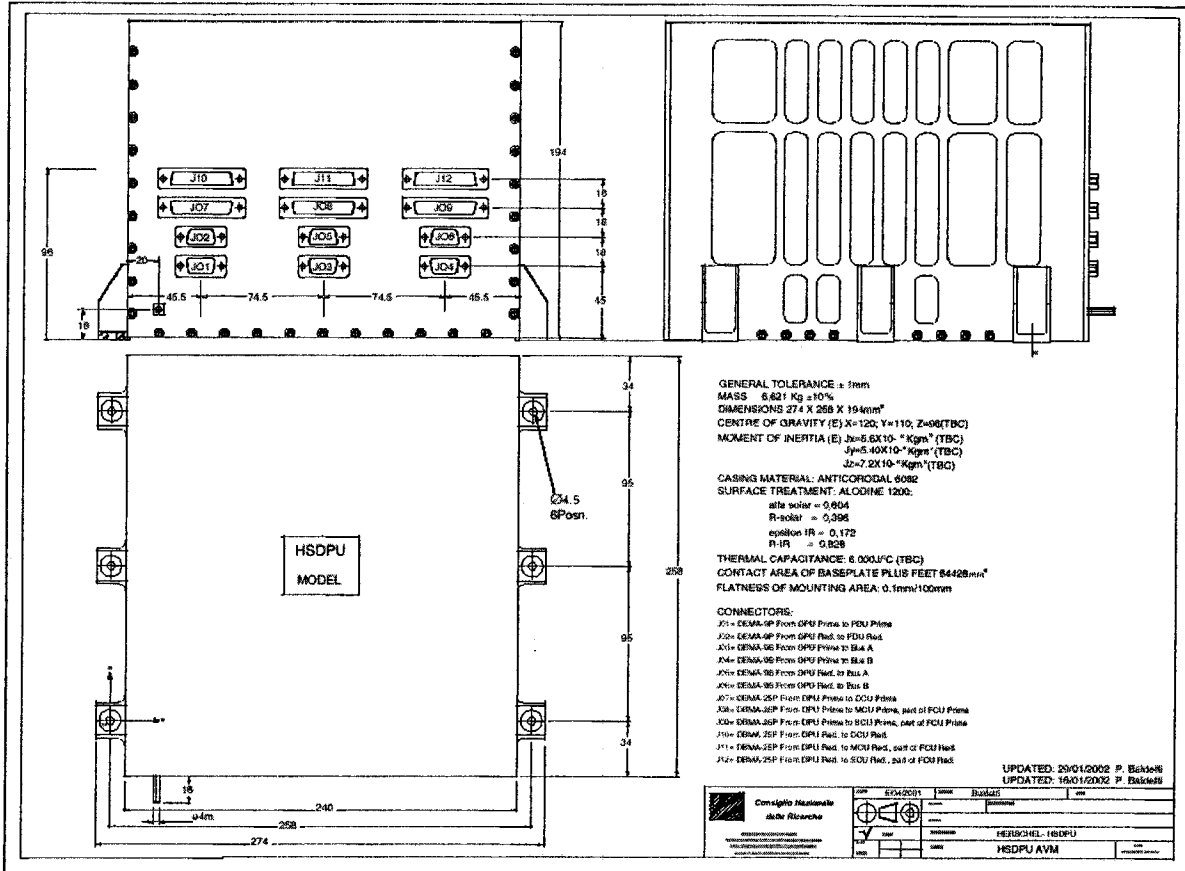
**HERSCHEL - PLANCK INSTRUMENTS
MECHANICAL INTERFACE DATA SHEET**

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DATE 03/04/02

- For inclusion in SPIRE IIDB v. 2.1 -

Satellite :	Herschel	Instrument :	HSDPU
SubSystem :	SVM SPIRE	Unit Code :	HSDPU

2. MECHANICAL DRAWING(S)



10/02

Present drawing reference : HER S003/02, latest update dated from 29/01/2002

On this sketch, indicate dimensions, inertia axes OX, OY, OZ, footprint, location of CG, mounting points, diametric tolerance, centre to centre distance, position tolerance (guide pins or holes), location type orientation, reference of connectors, necessary access after integration for calibration or test, bonding strap location and length and so on.

If additional pages are necessary, add the number after 2.

Modification / updates of the above drawing traceability :

Date	Change
03/04/02	First Issue