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#### Change Record

Edition	Date	Observations
00	21/09/2006	Original issue
01	15/11/06	Update following minute of meeting « TRR » ref : 06H026/MN/JCU/1421/06 ⇒ Status delete in columns : Prime and ESA approval ⇒ Add of tinning of EMC Steel backshells procedure

#### Distribution List

- internal : to whole of the personnel via the data-processing network and the original signed in the project file
- external : CEA

#### Stamps

	Name and Function	Date	Visa
PREPARED BY	J.CHANFREAU Service Méthodes / Manufacture Process	15/11/06	
CHECKED BY	B.ZAFRAN Service Méthodes / Manufacture Process	15/11/06	P/O STEMMER 
APPROVED BY	C.GARAT Service Qualité / Quality Assurance	16/11/06	

**ORIGINAL**

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## 1. PURPOSE

This document defines the applicable processes for wiring HERSCHEL SPIRE Harness.

## 2. APPLICABLE / REFERENCE DOCUMENTS

### Applicable Documents :

AD (1)	The technical reporting and approval procedure for materials, mechanical parts and processes	ESA PSS-01-700
AD (2)	Declared wiring Material List	06H026/LIM/JCU/1146/06

### Reference Documents :

RD (1)	The crimping of high-reliability electrical connections	ECSS-Q-70-26A
RD (2)	The manual soldering of high-reliability electrical connections	ECSS-Q-70-08-A
RD (3)	DPL Câblage harnais PSU SPIRE HERSCHEL	DPL-636/03/CAM/ST

### 3. PROCESS CLASSIFICATION

1. Adhesive bonding
2. Composite manufacture
3. Encapsulation / moulding
4. Painting/coating
5. Cleaning
6. Welding
7. Crimping/Stripping/Wire wrapping
8. Soldering / Brazing
9. Surface conversion treatments
10. Plating
11. Machining
12. Forming
13. Heat treatment
14. Special fabrication : processes developed specifically for the program
15. Marking
16. Miscellaneous processes
17. Inspection procedures

### 4. DPL (Declared PROCESS List)

The process list consists of 10 columns which shall be completed as indicated below. If a particular item does not apply, write N.A. (Not Applicable).

Column 1 :  
Item number

Column 2 :  
Process identification

Column 3 :  
Specification

Column 4 :  
Process description

Column 5 :  
Use and location

Column 6 :  
Manufacturer's name

Column 7 :  
Item in materials list or mechanical parts list

Column 8 :

Critically of process

Indicate here whether process is critical or non critical. In the case of a critical process, add reason for criticality.

Column 9 :

Justification for approval

The purpose of this is to enter any additional information that may be necessary

In order to achieve customer's approval. This information comprises reference and issue of the RFA Approval, processes justification file, evaluation reports and waivers.

Column 10 :

The prime contractor shall complete this column and by doing so confirms that :

The line indications are correct and complete

The process has passed all applicability tests (Including quality control testing).

A : Approved – The validation is approved by the contractor.

W : Approved with a waiver. The use of such processes shall be reduced to a minimum. The waiver number shall be entered in column 9.

P : Pending a decision. Processes for which a validation report or a waiver is awaiting the contractors decision.

O : Open. New process or process for which investigations and qualification are in progress.

D : Deleted. This classification is used for a process which is no longer used.

Column 11 :

Observations

Item	Process identification	Specification Issue / Rev	Process description	1 Use 2 Localisation	Manufacturer name	Associated items in materials list	Critically of process	Justification for approval	Prime app.	ESA app.	Observations
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5 CLEANING

5 / 1	Nettoyage en fabrication	Procédure Camerin PR-298/99/CAM/BZ éd 02	Brossage alcool ISO	Nettoyage câblage	CAMERIN	DML G12/1	NC	PSU SPIRE HERSCHEL			
5 / 1	Manufacture cleaning	Camarin procedure PR-298/99/CAM/BZ Iss 02	ISO Alcohol brushing	Harness cleaning	CAMERIN	DML G12/1	NC	PSU SPIRE HERSCHEL			

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## 7 CRIMPING/STRIPPING/WIRE WRAPPING

7 / 1	Dénudage	RNC / ECSS CNES/QFT-IN 0605 éd.02 Procédure Camerin PR-299/98/CAM/BZ éd. 03	Dénudage thermique et mécanique	Fils et câbles	CAMERIN	DML G19/1	NC	PSU SPIRE HERSCHEL			
7 / 1	Stripping	RNC / ECSS CNES/QFT-IN 0605 Iss 02 Camarin procedure PR-299/98/CAM/BZ Iss 03	<i>Thermal and mechanical stripping</i>	<i>Wires and cables</i>	CAMERIN	DML G19/1	NC	PSU SPIRE HERSCHEL			
7 / 2	Rétreint gaines thermo rétractables	Procédure Camerin PR-305/99/CAM/BZ éd. 01	Rétreint gaines thermo rétractables par générateur d'air chaud	Isolation électrique et tenue mécanique	CAMERIN	DML G17/1	NC	PSU SPIRE HERSCHEL			
7 / 2	<i>Shrinking of thermal shrink sleeves</i>	<i>Camarin procedure PR-305/99/CAM/BZ Iss. 01</i>	<i>Sleeves shrinking by heat airgun</i>	<i>Electrical insulation &amp; mechanical hold</i>	CAMERIN	DML G17/1	NC	PSU SPIRE HERSCHEL			
7 / 3	Formation, roulage des torons	Procédure Camerin PR-303/98/CAM/BZ éd. 00	Formation, roulage des torons	Fils et câbles	CAMERIN	DML G19/1	NC	PSU SPIRE HERSCHEL			
7 / 3	<i>Bundle manufacturing and routing</i>	<i>Camarin procedure PR-303/98/CAM/BZ Iss. 00</i>	<i>Loom formation and routing</i>	<i>Wires &amp; cables</i>	CAMERIN	DML G19/1	NC	PSU SPIRE HERSCHEL			

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7 CRIMPING/STRIPPING/WIRE WRAPPING

7 / 4	Sertissage de contacts	Procédure Camerin PR-300/99/CAM/BZ éd 03 RNC / ECSS-Q-70-26 A	Sertissage de contacts mobiles pour connecteurs	Fils et câbles	CAMERIN	DML G19/1	NC	PSU SPIRE HERSCHEL			
7 / 4	Contact crimping	Camerin procedure PR-300/99/CAM/BZ Iss 03 RNC / ECSS-Q-70-26 A	Crimping of mobile connector contacts	Wires & cables	CAMERIN	DML G19/1	NC	PSU SPIRE HERSCHEL			
7 / 5	Montage et démontage des contacts de connecteurs	Procédure Camerin PR-304/98/CAM/BZ éd 00	Montage et démontage des contacts de connecteurs	Contacts sertis	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
7 / 5	Mounting and dismounting of connector contacts	Camerin procedure PR-304/98/CAM/BZ Iss 00	Mounting and dismounting of connector contacts	Crimp contacts	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
7 / 6	Câblage connecteurs Sub-D	Procédure Camerin PR-306/98/CAM/ST éd 04	Câblage connecteurs Sub-D	Connecteurs Sub-D	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
7 / 6	Sub-D connector manufacturing	Camerin procedure PR-306/98/CAM/ST Iss 04	Sub-D connector wiring manufacturing	Sub-D connectors	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			

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## 7 CRIMPING/STRIPPING/WIRE WRAPPING

7 / 7	Câblage capots EMC	Procédure Camerin PR-301/99/CAM/BZ éd 00	Câblage capots EMC / Surblindage par gaine métallique	Câblage harnais / Gaine EMC BLJR	CAMERIN	DML G02/1 DML G06/1	NC	PSU SPIRE HERSCHEL			
7 / 7	EMC Backshells wiring	Camerin procédure PR-301/99/CAM/BZ Iss 00	EMC Backshells wiring /	Harness wiring / EMC sleeve BLJR	CAMERIN	DML G02/1 DML G06-1	NC	PSU SPIRE HERSCHEL			
7 / 8	Fixation par tie wrap	Procédure Camerin PR-308/99/CAM/BZ éd 01	Assemblage et fixation des faisceaux par tie wrap	Fixations harnais / Etiquette d'identification HTMS	CAMERIN	DML G17/2 DML G20/1	NC	PSU SPIRE HERSCHEL			
7 / 8	Maintain by tie wrap	Camerin procédure PR-308/99/CAM/BZ Iss 01	Assembly and Maintain bundle by tie wrap	Harness fixing / HTMS label identification	CAMERIN	DML G17/2 DML G20/1	NC	PSU SPIRE HERSCHEL			



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## 8 SOLDERING / BRAZING

8 / 1	Assemblage par brasure	Procédure Camerin PR-365/99/CAM/ST éd 01 SP-341/99/CAM/ST éd 00	Brasure Sn Pb Ag / Sn Pb sur fils argentés	Assemblage par brasure à l'étain	CAMERIN	DML G02/1 DML G06/1 DML G07/1	NC	PSU SPIRE HERSCHEL			
8 / 1	Assembly with tin brazing Lead/silver	Camerin procedure PR-365/99/CAM/ST Iss 01 SP-341/99/CAM/ST Iss 00	Brazing Sn Pb Ag / Sn Pb on silver plated wires	Assembly with tin brazing	CAMERIN	DML G02/1 DML G06/1 DML G07/1	NC	PSU SPIRE HERSCHEL			

## 9 SURFACE CONVERSION TREATMENTS

9 / 1	Etamage des capots EMC Inox	Procédure Camerin SP-286/98/CAM/PP éd 01	Etamage électrolytique alliage étain / Plomb (60/40) ; épaisseur 20 à 25µ, sur sous couche cuivre épaisseur 2 à 6µ	Cheminée et pastille sur capot EMC	CAMERIN	DML G06-1	NC	PSU SPIRE HERSCHEL			
9 / 1	Tinning of EMC Steel backshells	Camerin procedure SP-286/98/CAM/PP Iss 01	Electrolytical tinning with alloy of tin and lead (60 /40) Thickness 20 to 25 µ, on a under layer of copper (thickness 2 to 6 µ)	Cheminée and grounding contact on EMC backshell	CAMERIN	DML G06-1	NC	PSU SPIRE HERSCHEL			

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14 SPECIAL FABRICATION: PROCESSES DEVELOPED SPECIFICALLY FOR THE PROGRAM

14/1	Test électriques	Procédure Camerin spécifique	Contrôle électrique du harnais Herschel Spire par testeur automatique <i>Electrical control Herschel Spire harness by automatic tester</i>	Herschel Spire Harnais	CAMERIN	NA	NC	NA			
14/1	<i>Electrical test</i>	<i>Specific Camerin procedure</i>	<i>Electrical control Herschel Spire harness by automatic tester</i>	<i>Herschel Spire Harness</i>	<i>CAMERIN</i>	<i>NA</i>	<i>NC</i>	<i>NA</i>			

15 MARKING

15/1	Identification connecteur	Procédure Camerin PR-220/98/CAM/ST éd 06	Étiquettes auto collantes Kapton	Identification connecteur	CAMERIN	DML G11/1	NC	PSU SPIRE HERSCHEL			
15/1	<i>Connector identification</i>	<i>Camerin procedure PR-220/98/CAM/ST Iss 06</i>	<i>Kapton sticker</i>	<i>Connector identification</i>	<i>CAMERIN</i>	<i>DML G11/1</i>	<i>NC</i>	<i>PSU SPIRE HERSCHEL</i>			
15/2	Marquage HTMS	Procédure Camerin PR-220/98/CAM/ST éd 06	Marquage machine sur étiquettes HTMS	Identification harnais	CAMERIN	DML G12/2 DML G20/1	NC	PSU SPIRE HERSCHEL			
15/2	<i>HTMS marking</i>	<i>Camerin procedure PR-220/98/CAM/ST Iss 06</i>	<i>Machine marking on HTMS</i>	<i>Harness identification</i>	<i>CAMERIN</i>	<i>DML G12/2 DML G20/1</i>	<i>NC</i>	<i>PSU SPIRE HERSCHEL</i>			

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**16 MISCELLANEOUS PROCESSES**

16/1	Emballage	Procédure Camerin PR-152/97/CAM/ST éd 02	Emballage harnais et mise en conteneur	Emballage câblage embarqué	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
16/1	Packing	Camerin procedure PR-152/97/CAM/ST Iss 02	Harness packing	Flight harness packing	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
16/2	Protection par enrubannage	Procédure Camerin PR-302/98/CAM/BZ éd 01	Protection par enrubannage avec Scotch Kapton, ruban fibre de verre, ou ruban Téflon	Protection de torons par enrubannage au niveau des capots EMC, bords tranchants	CAMERIN	DML G11/2 DML G17/3	NC	PSU SPIRE HERSCHEL			
16/2	Tape wrapping insulation	Camerin procedure PR-302/98/CAM/BZ Iss 01	Loom insulation with Kapton adhesive, glass fibbers adhesive tape or Téflon tape	Loom insulation by wrapping, at EMC backshells level and sharp edges	CAMERIN	DML G11/2 DML G17/3	NC	PSU SPIRE HERSCHEL			
16/3	Assemblage de connecteurs fixes Sub-D	Procédure Camerin PR-421/00/CAM/ST éd 00	Montage de connecteur sur équerre ou équipement	Connecteurs Sub-D	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
16/3	Fixing of sub-D connectors	Camerin procedure PR-421/00/CAM/ST Iss 00	Connector Mounting on bracket or equipment	Sub-D connectors	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			

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### 17 INSPECTION PROCEDURES

17/1	Inspection / contrôle	Procédures Camerin PC-214/98/CAM/PP éd. 03 PR-327/99/CAM/ST éd 01	Contrôle câblage	Câblage embarqué	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/1	<i>Harness inspection and Control</i>	<i>Camerin procédures PC-214/98/CAM/PP Iss 03 PR-327/99/CAM/ST Iss 01</i>	<i>Harness inspection and control</i>	<i>Flight harness</i>	<i>CAMERIN</i>	<i>NA</i>	<i>NC</i>	<i>PSU SPIRE HERSCHEL</i>			
17/2	Test de verrouillage des contacts	Procédure Camerin PR-251/98/CAM/PP éd 00	Contrôle connecteurs assemblés	Contacts à sertir démontables dans connecteur	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/2	<i>Contact push test</i>	<i>Camerin procédure PR-251/98/CAM/PP Iss 00</i>	<i>Inspection of complete connectors</i>	<i>Removable crimp connector contacts</i>	<i>CAMERIN</i>	<i>NA</i>	<i>NC</i>	<i>PSU SPIRE HERSCHEL</i>			
17/3	Contrôle outillage à sertir	Procédure Camerin PR-106/97/CAM/PP éd 04	Vérification périodique	Pinces à sertir	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/3	<i>Crimping tool inspection</i>	<i>Camerin procédure PR-106/97/CAM/PP Iss 04</i>	<i>Periodical checking</i>	<i>Crimping tools</i>	<i>CAMERIN</i>	<i>NA</i>	<i>NC</i>	<i>PSU SPIRE HERSCHEL</i>			

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**17 INSPECTION PROCEDURES**

17/4	Contrôle Brasure	CNES/QFT-SP/0050/3A éd 01 Procédure Camerin SP-341/99/CAM/ST éd 00 PR 472/01/CAM/ST éd 00	Contrôle	Contrôle brasure	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/4	Soldering control	CNES/QFT-SP/0050/3A Iss 01 Camarin procedure SP-341/99/CAM/ST Iss 00 PR 472/01/CAM/ST Iss 00	Control	Soldering control	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/5	Contrôle de sertissage	CNES/QFT-SP/0050-6 éd 02 Procédure Camerin PR-157/97/CAM/ST éd 02	Control	Contacts à sertir	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/5	Crimping control	CNES/QFT-SP/0050-6 Iss 02 Camarin procedure PR-157/97/CAM/ST Iss 02	Control	Crimping contacts	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			

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17 INSPECTION PROCEDURES

17/6	Contrôle de routage de torons	Procédure Camerin PR-155/97/CAM/ST éd 00	Contrôle	Routage, frettage, fixation des torons	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/6	Routing Control	Camarin procedure PR-155/97/CAM/ST Iss 00	Control	Loom routing, lacing, fixation	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/7	Contrôle de dénudage	Procédure Camerin PR-156/97/CAM/ST éd 01	Contrôle	Fils et câbles	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			
17/7	Stripping control	Camarin procedure PR-156/97/CAM/ST Iss 01	Control	Wires & cables	CAMERIN	NA	NC	PSU SPIRE HERSCHEL			

End of document