

PROJECT :
PVA FLEX Pioneer
ESTEC Contract Number N° 4000126081/18/NL/BJ/va.

Executive Summary Report

<i>Written by</i>	<i>Responsibility</i>
	+ handwritten signature if no electronic workflow tool
DAS Johan	
<i>Verified by</i>	
DAWIDOWICZ Elie	
COLICIS Hugues	
VERDONCK Julo	
<i>Approved by</i>	
DAS Johan	

Approval evidence is kept within the documentation management system.

OPEN

CHANGE RECORDS

ISSUE	DATE	§ CHANGE RECORDS	AUTHOR
01	28/10/2019	New Document	Das J.

OPEN

1. PVA-FLEX-PIONEER : EXECUTIVE SUMMARY

ESTEC Contract Number N° 4000126081/18/NL/BJ/va.

Thales Alenia Space is currently developing a flexible solar array, for future generation of telecom or observation satellites, with the following objectives:

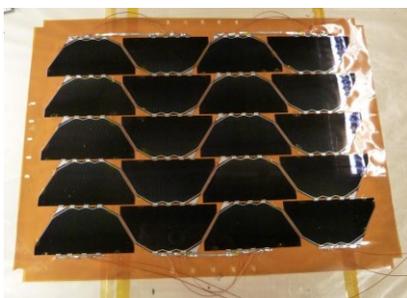
- Increase of total **power** thanks to its low mass
- Obtain a high **modularity** in the design, to reduce non-recurrent effort and cost
- **Mass** saving
- Improve **global competitiveness** on the market
- Stowed **volume saving**

As part of this roadmap, the PVA-FLEX-Pioneer project is the first de-risking project for Thales Alenia Space in Belgium, to develop a modular flexible PVA (PhotoVoltaic Assembly). The objectives of this first projects are twofold:

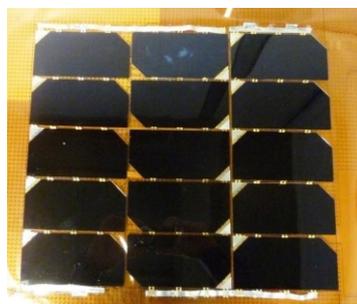
- Realize a first “**pioneer**” **flexible demonstrator**, using current heritage processes of rigid PVA.
- **Compare different welding technologies**, in order to choose a baseline technology for the planar interconnection of Solar Cell Assemblies.

Different technologies (resistance welding, ultrasonic welding, laser welding) were compared, by performing welding tests on representative KOVAR/Ag interconnectors. From the trade-off, parallel resistance welding was chosen as preferred technology. In a second step, this process was further optimized and characterized by tensile testing, visual inspection and cross-section metallurgy.

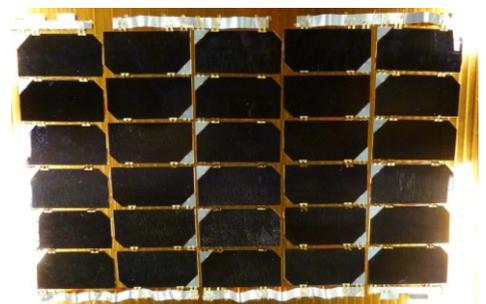
Finally, different coupons were realized, using today's rigid heritage processes, onto a kapton substrate in order to make a first evaluation of the current baseline. Pictures of the different coupons are shown below.



Flex-Pioneer-1



Flex-Pioneer-2



Flex-Pioneer-3

OPEN

OPEN

OPEN

END OF DOCUMENT

OPEN