PMA 1503	Task 9 - Solar	21 July 1992

STRV1-b Flight Experiment

EXISTING		NEW	√	CONTRACT	√	IN-HOUSE	

Description: STRV1-b is a microsat built by the Defense Research Agency UK. PL and SDIO/TNK are co-funding a set of power panels for the satellite in order to fly a set of experimental PV cells.

PROJECT MANAGER: Lt Joel Boswell (505) 846-2637
CONTRACTOR: Various

PROJECT GOALS & OBJECTIVES

- Assemble up to 20 next generation PV cells for flight testing
- Provide three power panels populated with advanced PV cells
- Generate relations with UK government and contractors

BENEFITS

- Generate first look at space performance of new R&D PV cells
- Flight hardware experience for PL/VTPC
- Enhance cooperation with NASA, DRA, etc.

APPLICATION

- Data generated will help guide future R&D efforts
- Public use of GaAs as main power

Sept-18 15228 p. 7

STRATEGIC DEFENSE INITIATIVE DEPARTMENT OF DEFENSE

N93-28723

Space Technology Research Vehicle

(STRV-1b)

- Small (100 watt) satellite flown by the British Defense Research Agency

- Mission goal is to fly new and emerging space technologies
  - -- At a more reasonable cost
  - -- In a short term timeframe

- Orbit GTO Perigee 200 km
  Apogee 36,000 km (GEO)
  Period 10.5 hours

- Mission lifetime 1 year requirement, 3 year goal

- Various participants include US, UK, and French governments

Space Technology Research Vehicle

SDIO/TNK - PL/VTPC INVOLVEMENT

- Up to 20 advanced experimental cell types to be flown
  - --Thin film cells funded by PL
  - -- Multi-bandgap cells funded by SDIO
  - -- High efficiency cells funded by NASA LeRC, flown as a cooperative venture
  - -- Other cells of interest to SDIO and AF SPO's

- Three of four prime power panels supplied in return (78 watts total)
  - -- Two panels made of thin GaAs/Ge MANTECH cells from ASEC
  - -- One panel and a spare made of GaAs/Ge cells from Spectrolab
  - -- All four panels will be integrated by Spectrolab
  - -- PL/VTPC working directly with DRA on requirements, definitions, etc.

Space Technology Research Vehicle

SDIO/TNK - PL/VTPC INVOLVEMENT (cont.)

- Schedule
  - -- Flight Panel design complete — Nov 92
  - -- Engineering Panel fabrication complete — Nov 92
  - -- Experimental Cells delivered to PL — Jan 93
  - -- Flight Panel fabrication complete — May 93
  - -- Delivery of Flight Panels to DRA (UK) — Sep 93
  - -- Launch — CY94

- Associated ground testing
  - -- Up to 30 of each cell type will undergo proton and electron radiation testing in the UK
  - -- Part of a larger joint US-ESA equipment and procedure comparison

Space Technology Research Vehicle

STRV-1b EXP. CELL LIST

CELL TYPE	SOURCE
Si (standard)	Spectrolab
GaAs (standard)	ASEC
CdTe	Martin Marietta
CIS	Martin Marietta
CIS	Boeing
MANTECH GaAs/Ge	ASEC
ITO/InP	NREL
InP	Spire

CELL TYPE	SOURCE
GaInP (top cell)	Spire
GaInP (top cell)	Spectrolab
AlGaAs (top cell)	RTI/ASEC
AlGaAs + CIS	Boeing/Kopin
GaAs/Ge	Spectrolab
a-Si	TRW
GaAs	EML/TST

- SDIO
- Air Force
- NASA LeRC

Space Technology Research Vehicle

Programmatics

- Budget

	SDIO/TNK	PL/VTPC
JON	150309ST	682JTDAJ
$K	151	50

Total experiment cost: $201K

- Schedule
  - -- Launch will be early 94
  - -- Our delivery date is Sep 93

- Status
  - -- On schedule
  - -- Sufficient funding