

STRV1-b Flight Experiment

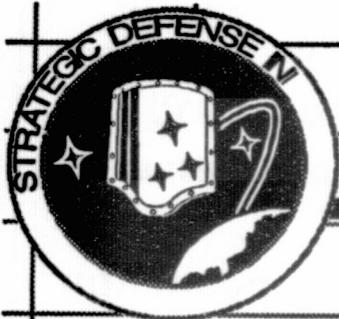
EXISTING		NEW	✓	CONTRACT	✓	IN-HOUSE
-----------------	--	------------	---	-----------------	---	-----------------

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	BENEFITS	APPLICATION
----------------------------	----------	-------------

<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - Generate first look at space performance of new R&D PV cells - Flight hardware experience for PL/VTPC - Enhance cooperation with NASA, DRA, etc. 	<ul style="list-style-type: none"> - Data generated will help guide future R&D efforts - Public use of GaAs as main power <div style="text-align: right; margin-top: 20px;"> <p><i>157228</i></p> <p><i>54-18</i></p> <p><i>10/7</i></p>  </div>
---	--	---



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

CELL TYPE

SOURCE

Si (standard)

Spectrolab

GaInP (top cell)

Spire

GaAs (standard)

ASEC

GaInP (top cell)

Spectrolab

CdTe

Martin Marietta

AlGaAs (top cell)

RTI/ASEC

CIS

Martin Marietta

AlGaAs + CIS

Boeing/Kopin

CIS

Boeing

GaAs/Ge

Spectrolab

MANTECH GaAs/Ge

ASEC

a-Si

TRW

ITO/InP

NREL

GaAs

EML/TST

InP

Spire

■ - SDIO

■ - Air Force

■ - NASA LeRC



Space Technology Research Vehicle



Programmatic

- 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