

RPC-LAP OPERATIONS REPORT LUTETIA FLY-BY MISSION PHASE

May 17 - September 3, 2010

IRFU-ROS-OPR-AST2
Version 1.0
31 Aug 2019



Anders Eriksson, Erik Johansson
Swedish Institute of Space Physics, Uppsala



Swedish Institute of Space Physics
Uppsala

Contents

1	INTRODUCTION.....	3
2	OPERATIONS OVERVIEW	3
3	OPERATIONS LIST	3

Document history

Revision	Date	Comment
1.0	2019-08-31	Initial release

Note: This document replaces IRFU-ROS-OPR-LUT which was delivered (as version 1.4) with version 1.0 of the LAP level 2 and 3 data sets for this mission phase.

1 Introduction

This is the report from the operations of RPC-LAP in the Lutetia fly-by (AST2) phase of the Rosetta mission, covering the period May 17 - September 3, 2010. The only LAP operations slot in this mission phase was for the fly-by itself:

- July 7-13, 2010: Fly-by of asteroid (21) Lutetia

2 Operations overview

Densities in the solar wind are generally too low for direct observation of the plasma by LAP Langmuir probe bias sweeps. In consequence, LAP was mainly operated in electric field mode for this flyby, mainly in normal mode telemetry rate (55 bps, macro 0x503) with burst mode (2.2 kbps, macros 0x504 and 0x704) for 6 h around closest approach (3,170 km at 16:45 UT in July 10). LAP handed over probe 2 to MIP for use in its LDL mode during part of this time (macro 0x704). An extended LDL test was also run at the end of operations (macro 0x803). Sweeps (macros 0x600 and 0x505) were executed at the start and end of the period to obtain photo-electron emission characteristics, and here also offset determination (macro 0x104) was performed.

All operations worked as planned.

3 Operations list

Below is a list of all LAP operations blocks during this mission phase. A LAP operations block is defined as a continuous run of an instrument macro, though as the archive is organized by calendar days, blocks are defined to break at midnight even if the instrument operation is continuous over this artificial border. If you find operations blocks running the same macros on both sides of midnight, this is likely to actually be a continuous operation. The list is based on the science data stream are included, so pure maintenance operations or periods with LAP idle between macro runs are not shown.

The macro concept is described in the EAICD, and the macro definitions are tabulated in the macro table, both available in the documents directory of the LAP archives in the ESA Planetary Science Archive (PSA). A LAP macro defines all aspects of the instrument operations, though particularly when a probe is in electric field mode, the probe bias (current in the case of electric field mode, otherwise bias voltage) may often be tuned by manual commands.

Block start	Block end	Macro	Notes
(21) Lutetia flyby			
2010-07-07T16:13:15.594	2010-07-07T23:00:43.596	600	
2010-07-07T23:12:27.596	2010-07-07T23:27:23.596	104	
2010-07-07T23:32:43.596	2010-07-07T23:59:56.141	503	
2010-07-08T00:00:00.570	2010-07-08T23:59:56.148	503	
2010-07-09T00:00:00.577	2010-07-09T23:59:56.155	503	
2010-07-10T00:00:00.584	2010-07-10T12:52:12.158	503	
2010-07-10T12:56:27.613	2010-07-10T16:49:31.614	504	
2010-07-10T16:52:43.614	2010-07-10T18:53:15.615	704	
2010-07-10T18:56:27.615	2010-07-10T23:59:56.161	503	
2010-07-11T00:00:00.591	2010-07-11T23:59:56.168	503	
2010-07-12T00:00:00.597	2010-07-12T05:38:36.170	503	
2010-07-12T05:42:19.625	2010-07-12T06:27:08.724	505	
2010-07-12T06:32:27.625	2010-07-12T06:52:11.625	104	
2010-07-12T06:57:31.625	2010-07-12T23:59:56.175	803	
2010-07-13T00:00:00.051	2010-07-13T15:57:48.180	803	