Chapter 1 - Introduction

Contents

Introduction

The G1 orbit is the first of eleven orbits in Galileo’s Tour of the Jovian System. This orbit has a targeted satellite flyby of Ganymede and a non-targeted distant flyby of Europa. Some of Galileo’s science objectives for this orbit are: 1) Perform a close Ganymede flyby to characterize the morphology, geology and physical state of the surface, investigate the surface mineralogy and distribution of compositional units, determine the gravitational field, magnetic field and dynamic properties, and study volatiles associated with the satellite, 2) Investigate the circulation and dynamics of the Jovian atmosphere, 3) Investigate the upper Jovian atmosphere and ionosphere, and 4) Perform in-situ measurements of the Jovian magnetosphere.

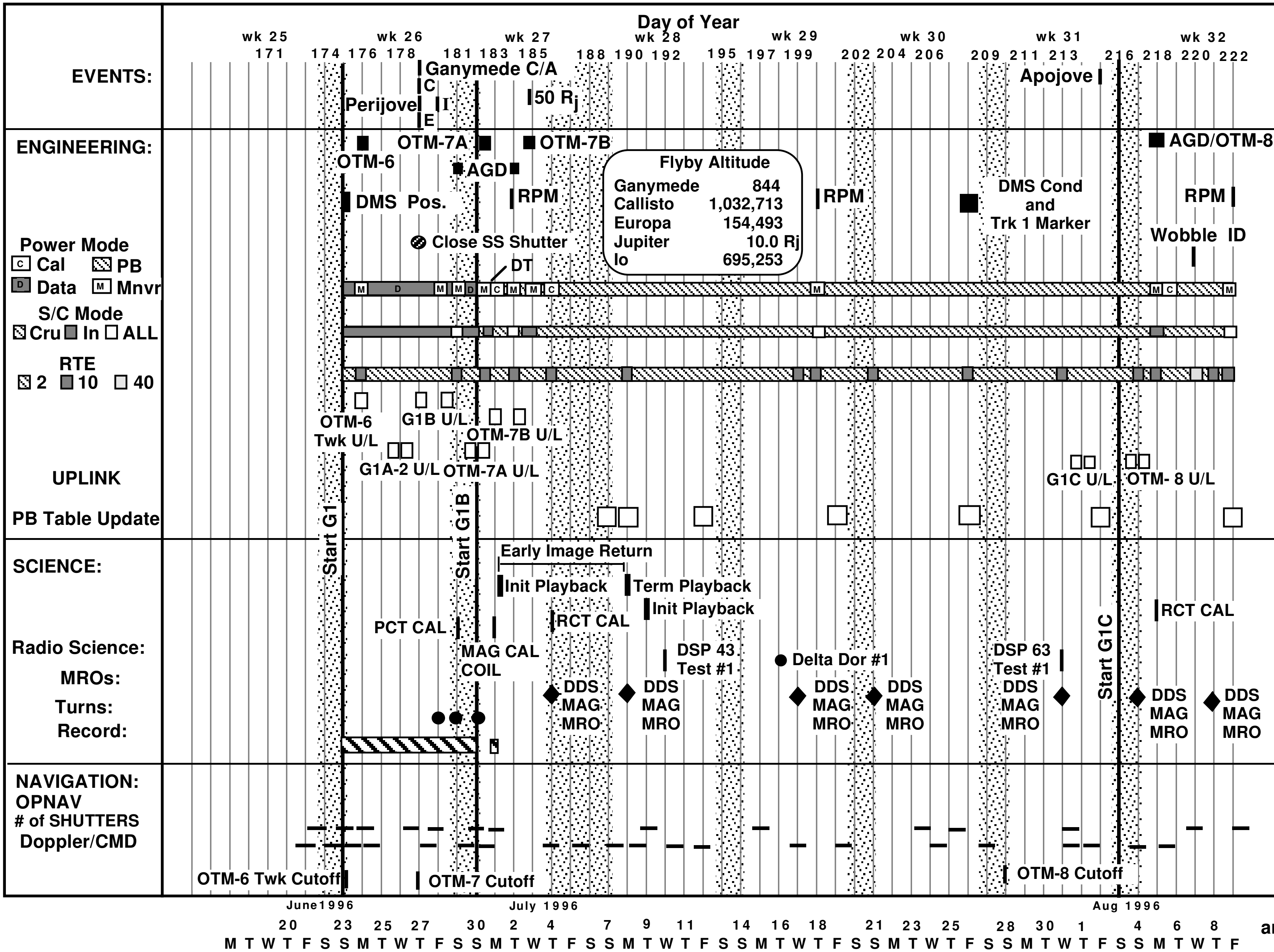
G1 is also the first time that the new Phase 2 flight software will be fully utilized. The NIMS Phase 2 flight software allows both spatial and spectral editing of the NIMS data before passing the data to CDS. The CDS Phase 2 flight software allows NIMS to record at a rate of 7.68 kbps (LPU and LNR formats) as well as the old rate of 28.8 kbps (MPW, etc.). CDS can further edit the NIMS data spectrally and compresses it before transmitting the recorded data to Earth. CDS also has a real time capability for transmitting NIMS data. The real time capabilities of the NIMS and CDS Phase 2 software were successfully tested during the In-Flight Load prior to G1.

The G1 orbit is divided into 3 sequence loads: one Encounter load (G1A) and two Orbital Cruise loads (G1B and G1C). The Encounter Load, G1A, begins at the conclusion of the J0CD command load on D175 of 1996 (06/23/96) and ends on D182 (06/30/96). This load encompasses the period of all of the flybys of Jupiter and satellites and both the G1 -3 day OTM (OTM-6) and the G1 +3 day OTM (OTM-7). The first Cruise load, G1B, covers from D182 to D216 and has no associated OTMs. The second Cruise load, G1C, covers from D216 to D245 and encompasses both the G1 Apojove OTM (OTM-8) and the G2 -10 day OTM (OTM-9) and concludes at the start of the G2 Encounter Load, G2A. A high-level overview timeline of the G1 orbit can be found on the follwing two pages.

The following table lists the major events during G1, including NIMS Real Time observations, in UTC.

6/23/96	96-175/16:00:00	G1 Encounter Start
6/26/96	96-178/07:14:06	NIMS R/T Jupiter Jailbar Spectrum
6/27/96	96-179/06:29:04	Ganymede Closest Approach
6/27/96	96-179/13:12:36	Callisto Closest Approach
6/28/96	96-180/00:31:23	Jupiter Closest Approach
6/28/96	96-180/01:22:11	Europa Closest Approach
6/28/96	96-180/17:12:20	NIMS R/T Io Monitor Map 05
6/28/96	96-180/18:27:38	Io Closest Approach
6/29/96	96-181/11:28:22	NIMS R/T Io Monitor Map 07
6/30/96	96-182/04:30:00	G1 Encounter End
6/30/96	96-182/04:30:00	G1 Playback Start
9/01/96	96-245/16:00:00	G1 Playback End

G1 Overview (Part 1)



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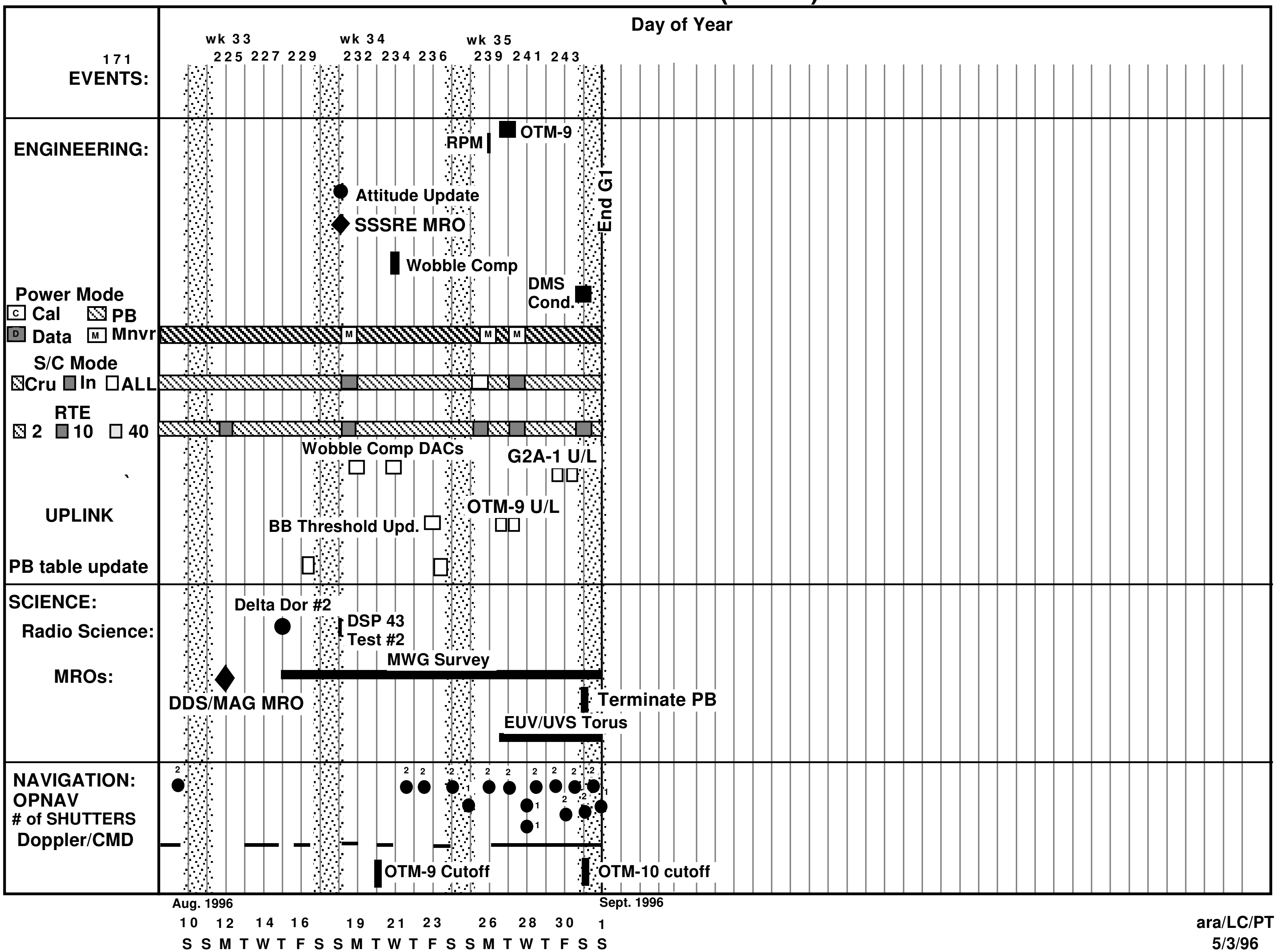
G1Overview (Part 2)



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