Issue Date	**:**	**23 October 2012**
Issue	**:**	**1.0**

Title : **GOCE L1b Data Quality Control Report**
November 2011

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Distribution : GOCE Users Community

DOCUMENT CHANGE RECORD

Issue	Date	Reason for Change	Changed Pages/Paragraphs
1.0	23/10/2012	First issue	

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1. INTRODUCTION

1.1 Purpose and Scope

This document contains the Quality report for GOCE L1b data for November 2011.

The latest version of this document is available on the GOCE Data Quality portal at:

> http://earth.esa.int/GOCE/ → "Level 1b QC" → "Monthly"

The GOCE Data Quality portal is the principal source for any quality-related information on GOCE products.

> http://earth.esa.int/GOCE/ → "Level 1b QC".

1.2 Glossary

The following acronyms and abbreviations have been used in this report.

ABBREVIATION	MEANING
EGG	Electrostatic Gravity Gradiometer
DFACS	Drag Free and Attitude control system
SST-I	Satellite-to-satellite tracking instrument
CTR	Control Voltages
STR	Star Tracker
Trace SD	Trace Spectral Density
ICM	Inverse Calibration Matrix
GAR	Gradiometer Angular Rates
FPM	Fine Pointing Mode

2.   NOVEMBER 2011 OVERVIEW

02-Nov-11	Beam Out event at UTC 14:20:12
06-Nov-11	Beam Out event at UTC 05:08:11 impaction on performance.
09-Nov to 11-Nov-11	TMM Triggering. Fallback to FPM. DFM Fine resumed on 11/11 at 08:14 followed by the installation of the K2 Offset
15-Nov-11	Beam Out event at UTC 16:11:14
18-Nov-11	Beam Out event at UTC 02:13:39
20-Nov-11	Beam Out event at UTC 04:15:05
21-Nov-11	Beam Out events at UTC 11:19:38 and 14:04:34
22-Nov-11	Beam Out event at UTC 21:23:02
24-Nov-11	Anomalous oscillation found in gradients components with impacts on trace at UTC 23:22:20
26-Nov-11	Anomalous oscillation found in gradients components with impacts on trace at UTC 01:00:09

3.   NOVEMBER 2011 DATA QUALITY ANALYSIS

3.1   S/C Anomaly: fallback to Fine Pointing Mode

On 9th Nov a fallback to fine pointing mode occurred when the software of the ion propulsion system stopped working, marking the first interruption of drag-free mode since 19th Jan 2011.

The observables are virtually identical to the anomaly on 30th June 2010. Drag-free mode could be recovered on 11th Nov.

Earlier on the same day a TMM FDIR trigger occurred, interfering with the configuration of the downlink chain prior to a ground contact as observed once before. Good S/C health status was confirmed in the ensuing contact.

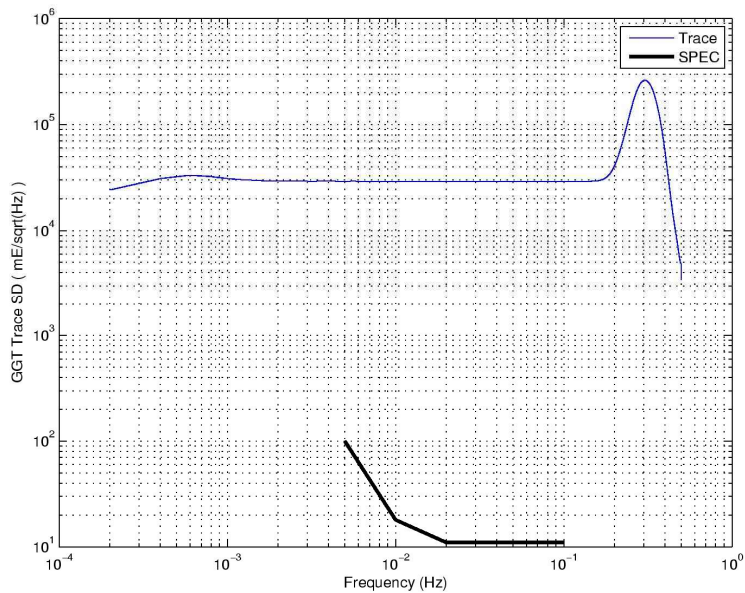Nominal operations were resumed in drag free mode on 11th November at 08:14.

3.2 Gradients oscillation on 24th November

An anomalous oscillation occurred on 24th November at UTC 23:22:20 with impacts on trace as reported below:
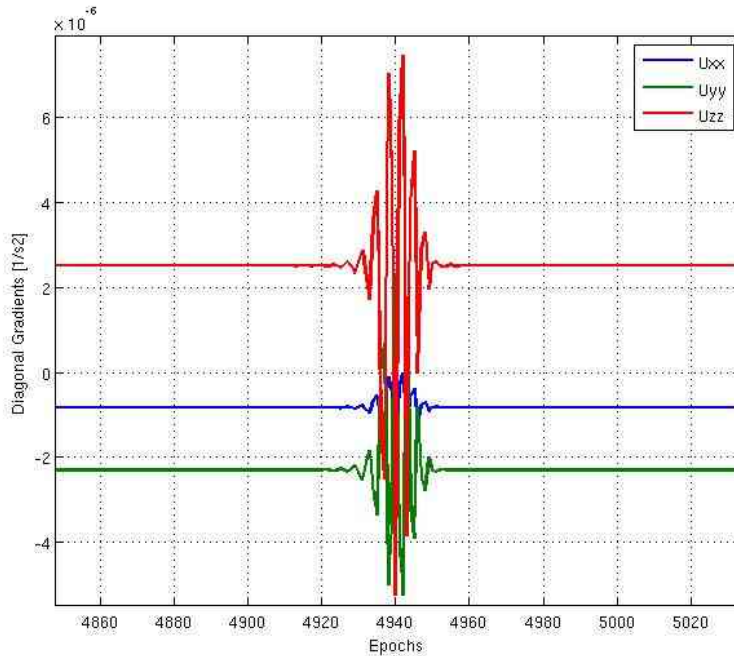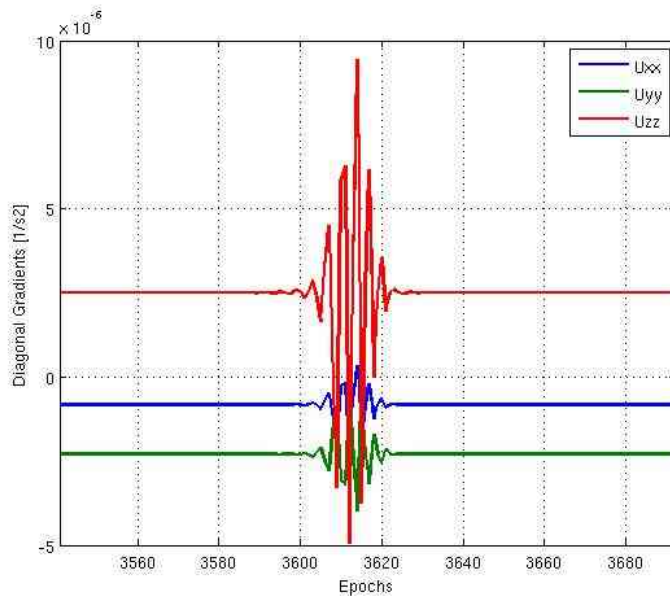

Figure 1 Gradients oscillation on 24th November

The effect of the oscillation on trace PSD is reported below:
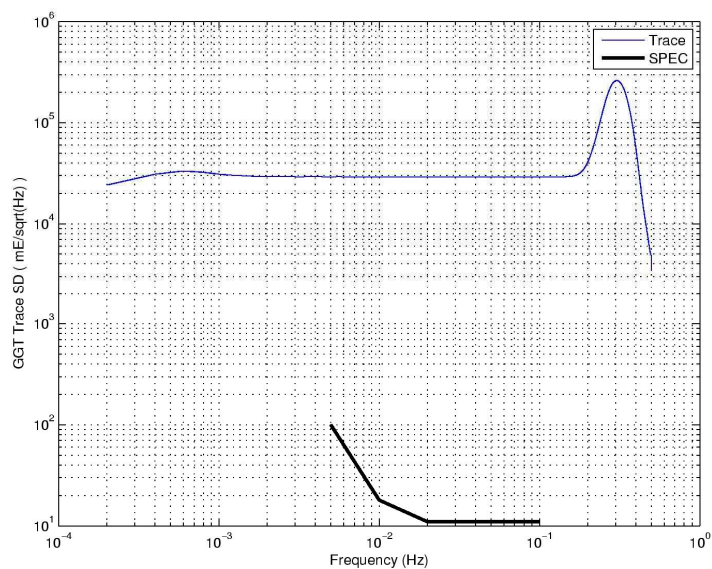

Figure 2 Trace PSD

3.3   Gradients oscillation on 26th November

An anomalous oscillation occurred on 26th November at UTC 01:00:09 with impacts on trace as reported below:

Figure 3 Gradients oscillation on 26th November

The effect of the oscillation on trace PSD is reported below, which is similar to what occurred on 24th November:


Figure 4 Trace PSD

3.4   Beam Out events

The following Beam Out events occurred during November 2011 reference frame:

EVENT	UTC TIME
02-Nov-11	Beam Out event at UTC 14:20:12
06-Nov-11	Beam Out event at UTC 05:08:11
15-Nov-11	Beam Out event at UTC 16:11:14
18-Nov-11	Beam Out event at UTC 02:13:39
20-Nov-11	Beam Out event at UTC 04:15:05

Table 1 Beam out events

Below, the effects of the Beam Out in the common mode acceleration, component 14_x, for the 06th November event, is displayed (the effect is the same for all the events).
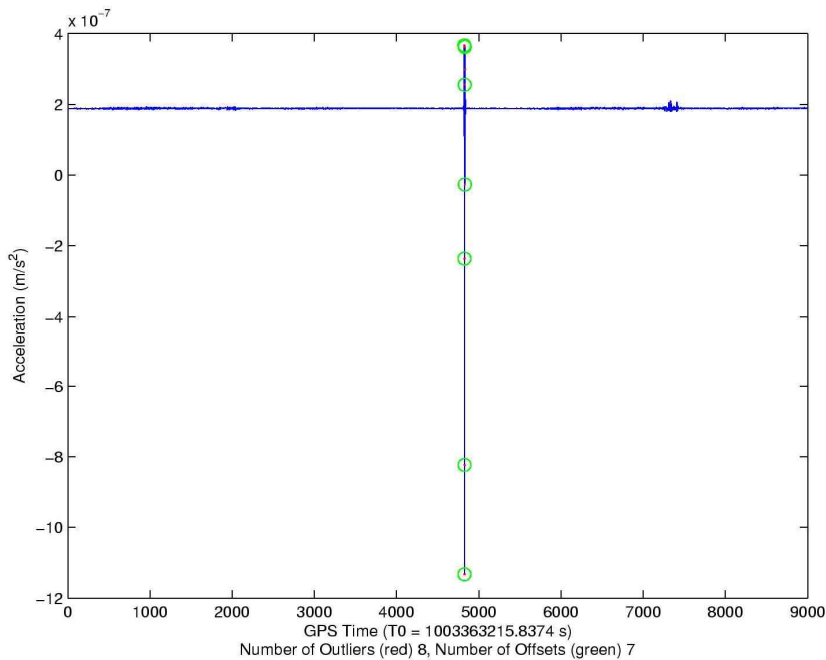
Figure 5 Beam Out event on 06th of November

The Beam Out event enters in the gradients time series notably in the Uxx component without any relevant impacts on performance.