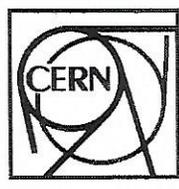


 ATLAS project	 CERN	ATLAS AGREEMENT 358/2010
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43000 CHF from T577020	To T541500	12 October 2010
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ATLAS AGREEMENT No. 358 / 10

Production and test of 50 opto-boards to study Pixel on-detector optical transmitters lifetime

BETWEEN

The ATLAS Collaboration

Represented by the ATLAS Resources Coordinator on the one hand,

AND

Ohio State University,

Represented by the US ATLAS project manager,

On the other hand

IT IS AGREED AS FOLLOWS:

CONSIDERING THAT:

- The United States has signed the ATLAS construction MoU (RRB-D 98-44 rev.) and M&O MoU (CERN-RRB-2002-035);
- The US contributes to the Inner Detector sub-systems;
- Ohio State University contributes to the Pixel sub-detector;
- The M&O-B for the Inner Detector includes efforts to upkeep the detector in a good working order. This requires, among other, to evaluate in a dedicated setup the lifetime of the on-detector optical transmitters (opto-boards);

IT IS AGREED AS FOLLOWS:

ARTICLE 1 SCOPE OF THE AGREEMENT

- 1.1 The purpose of the Agreement is to record the financial effort made by
 - and within- the Pixel to achieve the above goals.

ARTICLE 2 OBLIGATIONS OF THE PARTIES

- 2.1 Ohio State University will purchase parts and build 50 Pixel optical transmitters to study their lifetime. Ohio State University will perform the relevant tests in a controlled environment and using an Optical Spectrum Analyser to monitor the evolution. The cost of parts, the labor of one technician and one engineer is \$ 43000 \$, equivalent to 43000 CHF (the average exchange rate \$ 1 = 1 CHF has been used) based on a careful quotation. An M&O credit in that amount will be given to US ATLAS. The tasks described in detail in Annex 1 will be performed in accordance with the schedule and milestones approved by Pixel PL and with ATLAS and CERN safety rules, which are

inalienable parts of this Agreement. The health and accident insurances related to the execution of the work package will be the responsibility of the individuals. Once the Agreement is finished, the engineering personnel will return back to their home institute unless the Agreement is extended beyond the present Addendum.

ARTICLE 3 FUNDING

3.1 For producing the work package as described in Article 2, a total amount of 45000 CHF will be paid from the Pixel M&O team account T577020 to US team account T541500 at CERN.

ARTICLE 4 DURATION OF THE AGREEMENT

4.1 This Agreement is valid until September 30, 2011. It can be extended by mutual consent using appropriate Addenda.

ARTICLE 5 CO-ORDINATION AND ADDRESSES FOR CORRESPONDENCE

5.1 All documents concerning this agreement shall bear the reference:

“ATLAS Agreement No. 358/10”

5.2 The performance of this agreement shall be co-ordinated by the following persons:

for the ATLAS Collaboration:

ATLAS Pixel Project Leader, CERN – Department PH, CH-1211
Geneva 23, SWITZERLAND (attn. B. Di Girolamo)

for US ATLAS

US ATLAS Project Manager, MS 510A, Brookhaven National
Laboratory, Upton, NY 11973-5000 (Attn: Howard Gordon).

ARTICLE 6 ARBITRATION

- 6.1 Any differences arising during the execution of this agreement will be
submitted to the ATLAS Spokesperson which will propose solutions
in the best interest of the Collaboration.

Signed in Geneva, 12 October 2010

(B. Di Girolamo)

Pixel Project Leader
ATLAS Collaboration




(H. Gordon)

Project Manager
US ATLAS

(M. Nordberg)

Resources Coordinator
ATLAS Collaboration



ANNEX 1

STATEMENT OF WORK

The ATLAS Pixel and SCT off-detector optical transmitters started to have a high rate of mortality after about 6 months of operation. The Pixel on-detector optical transmitters are based on the same technology, using VCSEL devices packaged by Academia Sinica (Taiwan) and assembled as Pixel opto-boards by Ohio State University. These devices are mounted in the Pixel package and can only be exchanged by removing the complete Pixel package from ATLAS. Therefore it is very important to make a measurement to assess the lifetime of the devices in the conditions as near as possible as the on-detector transmitters. That will require the assembly of 50 new opto-boards by Ohio State University and their deployment in a temperature and humidity controlled setup to establish the same conditions as they are in ATLAS. These correspond to an average temperature of 16 degrees Celsius and a humidity level near to 0%, thanks to nitrogen circulation. Ohio State University will perform, in these environmental conditions, tests at different transmission duty cycles to emulate the Pixel detector data taking and the off-detector optical transmitters operating conditions, to be able to study the behaviour and their compliance to the models developed by calculation. The duration of the test is of 12 months as that period of time is equivalent, at 50% duty cycle, to the Pixel running conditions for the innermost layer modules at mid-rapidity until 2021 for the foreseen LHC running conditions. A continuous monitoring of the optical spectra will be done via the use of an Optical Spectrum Analyser.