

**ATLAS AGREEMENT
566/2016**

ATLAS AGREEMENT No. 566/ 2016

Contribution of Tomsk State University to the Testing of the NSW VMM ASICs

BETWEEN

The ATLAS Collaboration

Represented by the ATLAS Resources Coordinator

on the one hand,

AND

**Tomsk State University, Tomsk, Russia, hereinafter referred to as TSU, and
Brookhaven National Laboratory, Upton NY, US, hereinafter referred to as BNL,**

on the other hand

CONSIDERING THAT:

- The ATLAS Collaboration Board, The Large Hadron Collider Committee (LHCC) and the CERN Research Board have approved the New Small Wheel as ATLAS Phase-1 Upgrade project (CERN-LHCC-2013-006) <https://cds.cern.ch/record/1552862> ;
- The respective deliverables of the participating funding agencies and institutes have been defined in the NSW Memorandum of Understanding (CERN-RRB-2014-050) <https://cds.cern.ch/record/1666494> ;
- TSU has joined ATLAS as an associate institute through IHEP Protvino in July 2015 and has expressed its interest to become a member of ATLAS in the February 2016 Collaboration Board meeting;
- ATLAS and TSU have signed a cooperation agreement (AA554/2015) on development of tools for electronics testing and for use during electronics integration for the NSW Upgrade ;

IT IS AGREED AS FOLLOWS:**ARTICLE 1 SCOPE OF THE AGREEMENT**

- 1.1 The purpose of the Agreement is to define the financial recognition of the TSU contribution to the NSW Electronics effort.
- 1.2 The TSU participation is recognized as NSW CORE contribution against a corresponding reduction of the US CORE value.

- 1.3 In exchange for TSU taking the responsibility for the VMM test setup development and VMM testing, US ATLAS will provide manpower for the integration and testing of the New Small Wheels.

ARTICLE 2 OBLIGATION OF THE PARTIES

- 2.1 TSU is responsible for providing to ATLAS one or several automated test fixture(s) for the testing of the approximately 50'000 VMM ASICs of the NSW Upgrade project. The ASIC testing shall be carried out within a period of 3 months (AA 554/2015 Article 1.2.2) and shall match the VMM production schedule.
- 2.2 TSU is responsible for carrying out the VMM mass testing including providing the required manpower. (AA554/2015 Article 1.2.3). With the present ASIC and electronics schedule the testing will take place at CERN. Carrying out testing of a part of the ASICs at TSU remains an option if compatible with the project schedule and not prevented by customs or import/export regulations.
- 2.3 TSU is responsible for providing to ATLAS two Ground Leak Testers which will be used during the integration of the NSW electronics with the NSW chambers (AA554/2015 Article 1.2.5).
- 2.4 TSU will fund the development and production of the ASIC test fixtures and ground leak testers through "The Program of Enhancing the Competitiveness of the Leading Universities of the Russian Federation among the world's leading research and education centres" of the Russian Ministry of Education and Science.
- 2.5 The TSU obligation is recognized as NSW CORE contribution with value of 50'000 CHF, to the NSW MoU item 4, "Frontend ASICs". The CORE deliverables tables will be updated accordingly before the autumn 2016 RRB meeting.

ARTICLE 5 **CO-ORDINATION AND ADDRESSES FOR
CORRESPONDENCE**

5.1 All documents concerning this agreement shall bear the reference:

“ATLAS Agreement No. 566/2016”

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

for ATLAS:

ATLAS Resources Co-ordinator,
CERN – Department EP, CH-1211 Geneva 23, SWITZERLAND
(attn. F. Dittus)

for the related NSW institutes:

NSW Project Leader,
CERN – Department EP, CH-1211 Geneva 23, SWITZERLAND
(attn. S. Zimmermann)

ARTICLE 6 **ARBITRATION**

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

- 2.6 The NSW CORE contribution of BNL (US) to the ATLAS NSW MoU item 4, "Frontend ASICs", sub-item 4.1, "ASIC production", is reduced by 50'000 CHF.

ARTICLE 3 **SECONDMENT OF PERSONNEL**

- 3.1 Personnel seconded by TSU to the CERN site under Article 2.2 of this Agreement shall remain employees of TSU.
- 3.2 The TSU personnel so seconded shall be subject to the rules, in particular the safety regulation, as applicable on the CERN site.
- 3.3 TSU shall ensure that its personnel is insured and covered by social security arrangements in accordance with applicable laws.
- 3.4 The personnel seconded by TSU to the CERN site under the present Agreement will be considered as Associated Members of the Personal and must be registered with the CERN User's Office.
- 3.5 TSU shall make arrangements to cover the costs arising from the secondment of TSU personnel to CERN under the present agreement, including any potential subsistence or cost of living payments.
- 3.6 The seconded personnel shall be sufficient to carry out the VMM testing within a period of 3 months (Article 2.1) and have the required training and/or skills necessary for the successful execution of the task.

ARTICLE 4 **DURATION OF THE AGREEMENT**

- 4.1 This Agreement is valid until the end of the VMM ASIC production and testing of all chips, and until the obligations set forth in Article 2 have been fulfilled.

Signed in Geneva, on 2 June 2016
and Tomsk

For the ATLAS Collaboration



(F. Dittus)
Resources Coordinator
ATLAS Collaboration



(S. Zimmermann)
Project Leader
ATLAS NSW Upgrade



(D. Charlton)
Spokesperson
ATLAS Collaboration

For Tomsk State University and Russia ATLAS



(Prof. I.V. Ivonin)
Pro-rector for Research
TSU, Tomsk, Russia



(A. Zaitsev)
ATLAS-Russia NCP
IHEP Protvino, Russia



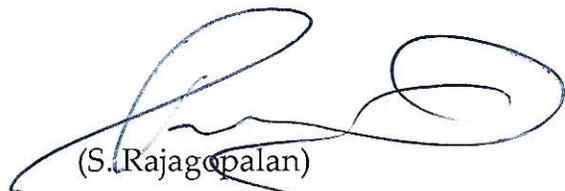
(Prof. D. Sukhushin)
Pro-rector for Strategic Development
TSU, Tomsk, Russia

For Brookhaven National Laboratory and US ATLAS

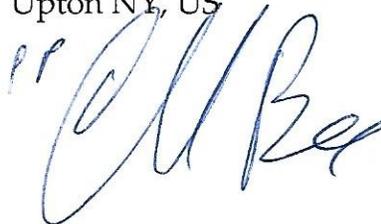


(V. Polychronakos)
Brookhaven National Laboratory
Upton NY, US

(J. Kotcher)
Brookhaven National Laboratory
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(S. Rajagopalan)
ATLAS-US NCP
Brookhaven National Laboratory
Upton NY, US



APPENDIX 1 MANPOWER ESTIMATE FOR CARRYING OUT THE MASS TESTING OF THE VMM ASICS

- A1.1 The manpower effort needed for the mass testing of the NSW VMM ASICs under Article 2.2 is estimated as 12 man-months.
- A1.2 The estimate is based on a 2 minutes per VMM ASIC test time, including mounting and dismounting the ASIC in the test fixture, and a total quantity of approximately 50'000 ASICs to test. An additional 2 man-months are included for setup.
- A1.3 The manpower effort needed for the mass testing of the NSW VMM ASIC will be required starting in Q1 2017, subject to the ASIC delivery schedule. In accordance with Article 2.1 prescribing tests to be done within a period of 3 months, a team comprising several people will be required.