

Agreement on the transfer of the CERN Inner Barrel Staves to the NA61/SHINE Collaboration

(hereinafter referred to as the “Agreement”)

between

THE EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH (hereinafter referred to as “CERN”), an Intergovernmental Organization with its seat at Geneva, Switzerland, Host laboratory of the ALICE and NA61/SHINE experiments, represented by its Director for Research and Computing, Eckhard Elsen

and

THE INSTITUTIONS OF THE NA61 COLLABORATION (hereinafter referred to as “NA61/SHINE”), represented by the Spokesperson, Marek Gazdzicki,

hereinafter each a “Party” and collectively the “Parties”.

THE PARTIES HAVE AGREED AS FOLLOWS

Article 1 – Scope of the Agreement

CERN hereby agrees to make available and transfer to NA61/SHINE ALICE ITS Upgrade “partially functional” Inner Barrel (IB) Staves (hereinafter referred to as the “Equipment”) for use by NA61/SHINE for the exclusive purpose of the NA61/SHINE Experiment. An IB Stave consists of a row of nine silicon pixel sensors. CERN shall test the staves in accordance to the procedures defined in the document “ALICE ITS Stave series test and classification”, attached hereto as Annex 1. “Partially functional” staves are those that contain at least one sensor that does not meet the requirements for the categories “gold” or “silver”. Based on the test carried out by CERN, NA61/SHINE will decide which of the “partially functional” staves can be part of the Equipment to be used in the NA61/SHINE experiment.

Article 2 – Equipment construction, testing and transfer

2.1 The construction of the Equipment shall take place in the context of IB Stave production for the collaboration with sPHENIX. Such a production started in October 2019 and should be completed by the end of 2020. Assuming a yield of 80% of fully functional staves, about 20

staves "partially functional" will be made available to NA61/SHINE for further selection. The number of "partially functional" staves that will be actually transferred to NA61/SHINE as part of the Equipment will be decided by NA61/SHINE. Subject to the availability of material (sensors and FPCs) and human resources, a dedicated production of a small series (up to a maximum of 10) of IB Staves (partially equipped in accordance to the NA61/SHINE request) might be planned at the end of the construction for sPHENIX.

- 2.2 CERN's engagement is on a best efforts basis, without representations and warranties as to its contribution and any of the items contributed, and subject to available resources and priority on its scientific programme.
- 2.3 Ownership of the Equipment shall be transferred from CERN to NA61/SHINE upon completion of the testing by CERN, validation of the Equipment by NA61/SHINE and the execution of the payment as specified in article 3. From this moment on, NA61/SHINE will exclusively bear all obligations and responsibilities associated with ownership, transport, operation and any other activity concerning the Equipment, including in particular under the General Conditions applicable to Experiments at CERN. In addition, CERN will grant NA61/SHINE access to the stave-related software and its documentation.
- 2.4 Transfer of the equipment is as-is, and CERN does not provide any warranty, whether express or implied, as to the condition, properties and suitability of the equipment.
- 2.5 ALICE shall not be obliged to commission the Equipment in NA61/SHINE.

Article 3 – Financial Compensation

Prior to Equipment delivery, NA61/SHINE shall transfer to a CERN account the following amounts:

- a) 4'000 CHF for each Stave "partially functional" selected among those produced for sPHENIX;
- b) 10'600 CHF for each Stave specifically assembled with a dedicated production.

A staged delivery and payment over two years (2020 and 2021) could be accepted upon NA61/SHINE request.

Article 4 – Safety

Each Party shall be responsible for Safety of any activities performed under its responsibility under this Agreement and shall ensure compliance with the CERN Safety Rules and any instructions given by CERN concerning Safety. CERN Safety personnel shall be entitled to carry out Safety visits, checks and inspections as well as other Safety measures deemed necessary by CERN.

If so required by CERN for the purpose of elimination of the Equipment in case it has become irradiated whilst in use by NA61/SHINE, ownership in the Equipment shall transfer to CERN upon completion of such use.

Article 5 – Amendments

Any amendments to this Agreement shall be agreed in writing between the Parties.

Article 6 – Entry into Force

This Agreement shall enter into force upon approval of the NA61/SHINE upgrade programme by the CERN Research Board, and shall remain in force for as long as necessary to give effect to its provisions.

On behalf of CERN

On behalf of NA61/SHINE

Eckhard Elsen

Marek Gazdzicki

Director of Research and Computing

NA61/SHINE Spokesperson

Date:

Date: