TECHNICAL SPECIFICATION

Mobile platforms UA1 and UA2

(This is a translation. In case of doubt, please refer to the original French version.)

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1. **INTRODUCTION**

CERN invites tenders for the manufacture, delivery to the point of use, assembly, testing and commissioning of two mobile platforms for the underground experimental areas ECX 4 and ECX 5 of the SPS accelerator.

The two platforms are required for the same purpose:

- to allow the continuity of transport (rolling of heavy loads) along the SPS tunnel, in two locations, in each of the experimental areas.

In addition, platform UA 1 (in LSS 5) will be used for transferring loads of 40 tons between two areas served by overhead travelling cranes.

2. **TECHNICAL DOCUMENTS AND DRAWINGS**

- Mobile platform UA 1 8080.0553.0
- Experimental area LSS 5 8080.0550.0
- Mobile platform UA 2 8080.0852.0
- Experimental area LSS 4 8080.0826.0

**Note:** Drawings 0553 and 0852 define the parameters required for this equipment. Bidders shall enclose, with their tenders, two complete preliminary design projects, one per platform, together with a detailed work schedule. It is pointed out that construction shall not begin until CERN has approved the manufacturing drawings.

3. **SCOPE OF TENDERS**

Tenders shall include (and describe in detail)

- manufacture
- transport
- assembly
- testing
- commissioning of the two mobile platforms

- The track will be laid by CERN, by agreement with the firm selected.

- The electricity supply points will be installed by CERN by agreement with the firm selected.

- The track continuity fittings which link the mobile platforms to the upstream and downstream stationary platforms shall be the responsibility of the firm selected; the support areas receiving these fittings on the stationary platforms will be prepared by CERN by agreement with the firm.

4. STRUCTURAL FRAMEWORK

4.1 Mobile platform UA 1

This platform is intended to provide continuity of transport for rolling loads of 30 tons. In addition, it will be required to allow the transfer, by rolling, of loads of 40 tons, which may be located at the centre of the beam. The loading cases are illustrated in drawing 0553.0 and cannot be superimposed. The measured deflection of platform UA 1 shall be less than 14 mm, i.e. 1/1'000th of the span, when subjected to a central load of 40 tons. A metal section (IPN 200) shall be fixed to the lower surface of the beam to receive a manually operated 5-ton hoist.

4.2 Mobile platform UA 2

The purpose of this platform is to provide transport continuity for rolling loads of 30 tons, as illustrated in 0852.0.

The measured deflection when subjected to a central load of 30 tons shall be less than 1/1'000th of the span, i.e. 15 mm.

5. MOVEMENT OF THE PLATFORMS

5.1 The mechanism of platform UA 1 is designed to move the platform, loaded at its centre (40 tons), at the speeds specified in drawing 0553.0 (for testing, see Section 1.1).
5.2 The mechanism of platform UA 2 is intended to move the platform, without any load, at the specified speeds (for testing, see Section 1.1).

5.3 Movement

Movement shall be effected on one or both sides, as selected by the bidder, but in all cases the result shall be a synchronous movement of both sides of the bridge (the two ends of the beam should not be misaligned by more than 5 mm in the operating position).

For reasons associated with the occupation of the area, it is not possible to have a direct transmission line between the structural legs.

5.4 Controls

Movement of the platforms shall be controlled from push-button boxes fixed to the structures to which the coiler is fitted. These boxes shall be of "TELEMÉCANIQUE" manufacture (with "RONIS" key no. 455).

5.5 Electricity supply

The supply shall be provided for the two platforms, via a flexible cable laid in a channel parallel to the rail, with a spring-loaded coiler, fixed to one of the structural legs. The lengths of the cables required are 30 m for platform UA 1 and 4 m for platform UA 2.

The supply points (380 V, 50 Hz) will be indicated by CERN at a later date.

6. PROTECTION SYSTEMS

Bidders shall provide shock-absorbing buffers on each platform, together with earthing brushes, limit switches and an audible warning signal operated when the corresponding platform is energized.
7. ROLLING SURFACES, ACCESSIBILITY

The rolling surfaces shall have a covering of non-skid metal sheeting; the guard-rails shall be removable, and the platforms shall be fitted with removable ladders with safety hoops.

8. SURFACE FINISH

After sanding, the platforms shall be given a coat of anti-rust zinc chromate paint, followed by a coat of yellow paint, RAL 1020.

9. WORKING ENVIRONMENT

Experimental areas LSS 5 and LSS 4 are underground enclosures in which the temperature variations are slight (between +10°C and 25°C).

10. ASSEMBLY

Mobile platform UA 1 may be assembled in BHA 5 and lowered in a single piece by means of the 72-ton crane via the central shaft. Handling will be effected by the central auxiliary lifting point, and the platform will be guided by the removable wheels at the end of the beam.

Mobile platform UA 2 shall be assembled in ECA 4. In order to lower it into the shaft, it will be necessary to construct the beam in several sections. The connections between the sections, shown in drawing 0852, are only intended as a guide, and bidders shall indicate the connection systems or fishplates proposed.

11. TESTING

Platform UA 1 shall be tested at a static load of 60 tons (i.e. 150 % of the nominal loading). Movement shall be tested at two speeds, at a load of 40 tons (i.e. 125 % of nominal loading).

Platform UA 2 shall be subjected to static tests at 45 tons (i.e. 150 % of the nominal value), and movement shall be tested at the two speeds, with a 5-ton load.
The deflections specified in Section 3.1 and 3.2 (1/1'000th of the span) will be subjected to static tests at nominal loading after these tests.

The connections between the "stationary platforms" and "mobile platforms" shall be tested by successive transfer of the nominal rolling load (30 tons). No vertical or lateral discontinuity in excess of 2 mm shall be observed after 10 rolling operations.