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PROPOSAL FOR THE AWARD OF A CONTRACT FOR THE SUPPLY OF Ni-Zn FERRITE BLOCKS FOR KICKER MAGNETS FOR THE ANTIPROTON COLLECTOR PROJECT

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INTRODUCTION

1 The present adjudication concerns the supply of approximately 1,5 tons of Ni-Zn ferrite for use as magnetic circuit in kicker magnets. The kicker magnets will be immersed in ultra high machine vacuum and are needed for fast beam transfer into the AC machine and between AC and AA machines.

DESCRIPTION

2 Ni-Zn ferrite of adequate frequency response must be used in fast switched, impedance matched, transmission line type kicker magnets. The ferrites determine the vertical magnet aperture, form both magnetic poles and provide the magnetic return path.

3 In order to present the required switching characteristic a magnet module is built-up from a large number of stacked, short C-cells. Each C-cell consists basically of two electrical current conductors and three suitable arranged Ni-Zn ferrite blocks. This forms the magnets cross-sectional aperture and provides the cells inductance. The impedance matching is obtained by attaching interleaving capacitor plates to both conductors (similar to a radio's tuning capacitor).

4 The project requires 14 magnets with 6 different apertures. A total of 312 three piece C-cores, i.e. 936 individual ferrite blocks are required.

5 The assembled magnets will be installed in ultra high vacuum. Some must withstand repeated in situ bake-outs to 300°C. To reduce the gas load and hence pumpdown time all ferrite must be machined using only pure water as grinding agent. The blocks will then be submitted to special pre ..... assembly bake-out to 1000°C under vacuum.

CALL FOR TENDERS

6 Prior announcement of I-1380/PS in the Member States interested three firms previously unknown for their ferrite manufacturing ability. These firms were contacted to verify their technical know-how and possibilities. All three then withdrew their interest and declined to offer (see annexed letters).

7 Subsequently, the call for tenders I-1380/PS for the supply of Ni-Zn ferrite blocks was sent on 19th March, 1985 to two firms in two Member States, namely Marconi - GB and Philips - NL. Both firms were known to have previously supplied ferrite for kicker magnets to an European Laboratory.

8 When tenders were opened on 30th April 1985, one firm had submitted an offer and one firm had declined (see annexed letter).

ANALYSIS OF TENDER

9 The only bid has been submitted by Philips - NL. The detailed analysis of this offer and the previous technical discussion held between representatives of CERN and Philips during a visit made to its factory in Eindhoven have shown, that the offer meets all requirements of the technical specification. The requested completion of the technical questionnaire was also duly made. Philips have already supplied the same grade of ferrite for all past CERN kicker projects, where similar, stringent requirements were met. Philips have the technical know-how necessary manufacturing possibilities and the essential raw material to fabricate and supply the ferrite blocks in the time scale requested.

10 Philips have made an exceptionally interesting offer. The price quoted in Swiss Francs per cm^3 is almost as low as was paid six years ago for the original AA kicker ferrites. (In the meantime for LEAR and EPA successively much higher prices were applicable).

11 However, Philips guarantees the requested delivery schedule only if the order is placed before 15 mai 1985. Otherwise delivery will be delayed by approximately three months.

12 In order not to jeopardise the kicker magnet work for the ACOL project, which a delay of three months would invariably entail, Finance Division was asked (PS/BT/Mem. 85-11, annexed) to inform Philips of the technical acceptance of their offer, in a bid to avoid the three month delay.

RECOMMANDATION

13 The Finance Committee is invited to agree that a contract be negociated with Philips the only bidder, for the supply and delivery of Ni-Zn ferrite for the Antiproton Collector project at a total net price, not subject to revision of 382'627,80 Swiss Francs.