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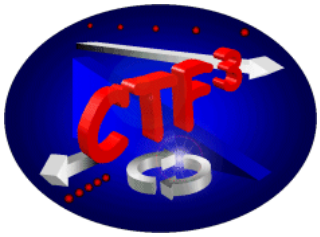

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TECHNICAL SPECIFICATION FOR THE SUPPLY OF A S-BAND VARIABLE ATTENUATOR

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Qualifying criteria for submitting a tender

The firm submitting a tender shall proof to have

a) Experience in the design and production of high power RF components in particular in S-band.

b) The qualified personnel and the necessary equipment for the execution of the work described.

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1. The application of the variable attenuator

For the extension and upgrade of the CLIC Test Facility 3 (CTF3) a S-band RF waveguide network will be constructed to power a RF cavity in the probe beam in the CLEX building. The variable attenuator is to be inserted in the waveguide network between the klystron and the RF cavity to attenuate the RF power in the waveguides. The waveguide type is WR284

2. Designs and drawings

Before commencing the manufacture of the attenuator the contractor shall submit to CERN for approval

- Provisional drawings
- The proposed brazing procedure

If necessary CERN can provide the LIL flanges for the manufacture of the attenuator and the manufacturer must state this requirement in the return of the price enquiry

3. Mechanical tests

The following points will be checked:

- Dimensions and tolerances
- Surface quality of the flanges
- Capillarity of the brazed joint by external examination
- Oxide layer inside the coupler
- Cleanness

4. Test of RF characteristics at low power

The RF characteristics are specified in Appendix 1. The result of the measurements shall appear on the test certificate, issued by the contractor, and attached to the attenuator when delivered to CERN.

5. RF tests with high power

The attenuator will be exposed to the nominal RF power, as specified in Appendix 1, for no less than 3 hours and during this period the forward reverse signal must remain constant and without breakdowns. If the contractor has no adequate power source then the test will be done at CERN.

6. Remote control

The value of attenuation must be controlled remotely and be compatible with the CERN controls system in steps of 0.1 dB

7. Pressurised by gas

The attenuator must be leak tight when pressurised by a gas up to 3 bars absolute

8. Packing and transport

After completion of the tests the attenuator will be filled with an over pressure of dry nitrogen and sealed with tight covers. The attenuator will be packed so as to avoid damage or alteration of the tested characteristics during transportation. The contractor will bear the responsibility for the safe delivery to final destination on the CERN site.

9. Guarantee

Reference is made to General Conditions of CERN Contracts (CERN/FC/1814-11). The guarantee period starts with the successful high power test and its duration shall be two years. The manufacturer must replace a faulty component free of charge during the guarantee period.

APPENDIX 1

Specification of the high power attenuator

Operating frequency	2998.55 +/-10 MHz
Peak input power and duration	10 MW and 4.5μS
Repetition rate	100 Hz
Attenuation range	0.5 to 20 dB
VSWR	< 1.1
Internal pressure	3 bars SF6
Flanges	LIL Type
Calibration constant	0.1 dB/step
Radiation resistance: no deterioration in performance after receiving a radiation dose of up to	10^6 Gy (10^8 rad)