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Temporary Operational Radiation Protection Procedure

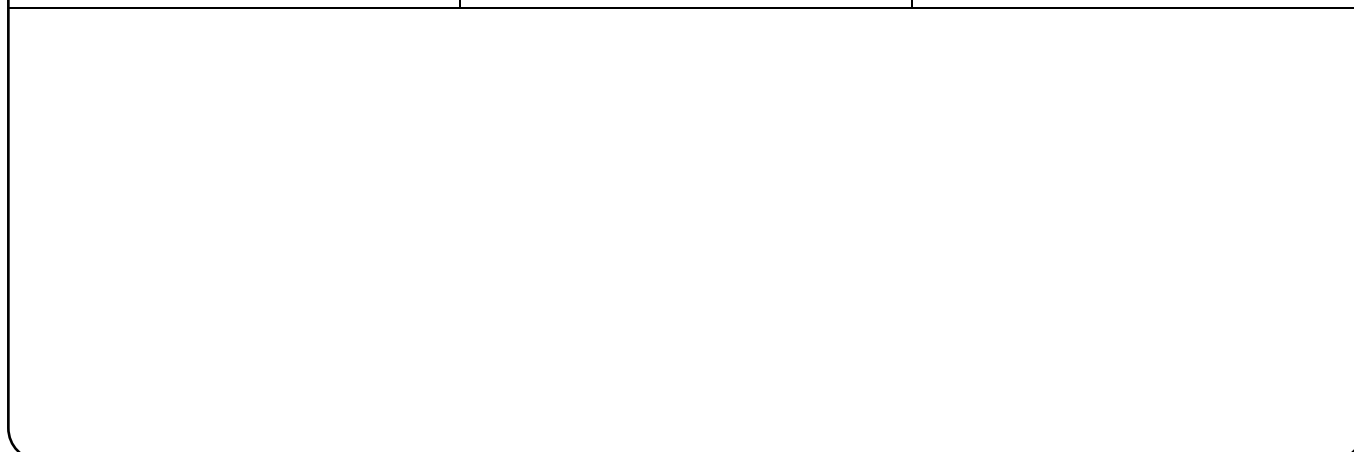
Work on Radioactive Electronics Irradiated at CNGS

(Validity until 30th November 2009)

ABSTRACT

This temporary procedure has to be respected in case radioactive electronics will be tested in an area provisionally classified as Radiation Area. The validity of this procedure expires on 30th November 2009. After this date the departments need to provide workplaces that are centralized and adapted to the risk and to the regulations.

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HISTORY OF CHANGES

REV. NO.	DATE	PAGES	DESCRIPTIONS OF THE CHANGES
0.1	02-09-2009		Draft
0.1	10-09-2009		Comments received from G. Roy, comments were taken into account Procedure released as final

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1. INTRODUCTION and SCOPE

All work on radioactive material must be carried out in classified Radiation Areas. The aim of this temporary procedure (valid until 30th November 2009) is to allow some tests on irradiated and activated electronics to take place in the very short term since these tests are vital before startup of the LHC. For a very limited period in time this procedure allows some tests to take place in selected areas that are not fully compliant with radiation protection regulations.

This document details the procedures to be followed for "non-destructive" as well as "destructive" testing of electronics. Any modification of an electronic board, etc. is defined as "destructive".

2. Temporary Procedures for Electronics Irradiated at CNGS

2.1 Justification

Any group intending to make use of this temporary procedure needs to first submit a justification and a complete and detailed description of the planned work in writing to DG-SCR and the RSO of the department concerned who will jointly review the request. Approval by both parties is required before the group will be permitted to test radioactive electronics along the lines laid down in this procedure.

2.2 Non-Destructive Tests

- DG-SCR up-dates the residual dose-rate values of the electronics temporarily stored under RP supervision.
- Non-destructive tests are only allowed for components with residual dose-rates less than 5 $\mu\text{Sv/h}$ on contact and with demonstrated absence of contamination.
- A small number of laboratories where non-destructive tests can be performed under the conditions below are defined: 30-5-40, 36-3-017, 866-1D-01. This number will be updated as necessary but has to be kept to a strict minimum.
 - DG-SCR will classify the area around the test-stand within the laboratory as Supervised Radiation Area. The dose rate at the boundaries of this area has to be less than 0.1 $\mu\text{Sv/h}$. The area needs to be delimited and signposted.
 - All persons working in the laboratory need to be informed about the temporary classification of the workplace as radiation area. This information has to be posted at the access doors to the laboratory.
 - The personal doses of the persons performing the test must be monitored. Only the concerned tests can be permitted inside the classified area, excluding any other work. The layout of the classified area must be conceived such that only persons directly involved in the tests can be present in the test area and therefore require individual dosimetry.



- Before transport to the workshop can take place, the component must be measured by DG-SCR, labelled and transferred to the equipment responsible under the following conditions:
 1. The equipment group guarantees the full traceability of all radioactive items. The group keeps up-to-date the logbook in the storage area and the one in the laboratory. The responsible of the device fills in the following information:
 - a. Date and time,
 - b. Name, unit and contact phone number of responsible person,
 - c. description of the equipment including reference and traceability numbers,
 - d. brief description of tests to be carried out,
 - e. laboratory where the equipment is to be transported,
 - f. foreseen return date of the equipment to storage.
 2. A transport slip for radioactive items has to be filled out by the owner and signed by DG-SCR.
 3. Transport by the user is limited to items with a dose rate of 5 $\mu\text{Sv/h}$ or less on contact to the total amount of transport goods. Above this limit, the transport must be performed by CERN's transport service. Adequate transport containers are required in all cases.
 4. The equipment owners are responsible to ensure that the device is transferred back to the storage area within the given delay.
 5. The classified area in the laboratory will be re-classified to a Non-Designated Area by DG-SCR as soon a test campaign is finished.

2.3 Destructive Tests

Any modification of an electronics board, such as replacing, adding or removing a component, is defined as "destructive".

Destructive tests are only allowed in dedicated and approved laboratories. Under this procedure the only approved laboratory is in building 530, under the responsibility of Thijs Wijnands (EN RSO).

Destructive tests are carried out as an extension to the above procedure on non-destructive tests:

- The user must obtain the formal agreement for use of the workshop from the person responsible of the workshop.
- The user must also inform DG-SCR of the activity to be performed and obtain their formal approval to perform the activity in the designated laboratory. Depending on



the kind of work to be carried out, a gamma spectroscopy measurement has to be performed and a proper work procedures must be established.

- The item to be tested can then be transferred from storage or from the non-destructive test area in the user's laboratory to the dedicated laboratory in building 530. A transport slip for radioactive items has to be filled out by the owner and signed by DG-SCR.
- Destructive tests can then be performed under the authority of the person responsible for the designated laboratory.
- After the destructive tests are finished, the device can be transferred back to storage or in the user's laboratory for further non-destructive testing. A transport slip for radioactive items has to be filled out by the owner and signed by DG-SCR.
- Any waste generated during destructive tests must be disposed into appropriate containers in the designated laboratory in building 530.

2.4 Responsibility

In the future, each workshop intended for the handling of radioactive material (destructive and/or non-destructive) will be placed under the responsibility and require the presence of a Radiation Protection Expert (RPE) from the respective equipment groups. This person will be responsible that radiation protection procedures are respected and will act as linkperson between the equipment groups and DG-SCR.

For the time being and in the application of this procedure, the RSO's who have followed the RPE training do take over these tasks and the responsibility.

3. Quality Management

Any non-compliance to this procedure (for example the loss of a radioactive component) needs to be brought immediately to the attention of the departmental RSO, the DSO and DG-SCR. Administrative measures will consequently be taken to remedy the situation, improve the procedure and to ensure that it does not happen again.