

---

---

**Radiation protection — Performance  
criteria for laboratories performing  
initial cytogenetic dose assessment  
of mass casualties in radiological  
or nuclear emergencies — General  
principles and application to dicentric  
assay**

*Radioprotection — Critères de performance pour les laboratoires  
pratiquant l'estimation dosimétrique préliminaire par cytogénétique  
en cas d'accident radiologique ou nucléaire affectant un grand  
nombre de personnes — Principes généraux et application au test  
dicentrique*



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword.....	iv
Introduction.....	v
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>1</b>
<b>4 Responsibility of the laboratory.....</b>	<b>3</b>
4.1 Awareness of this document.....	3
4.2 Biological dosimetry request and confidentiality.....	3
4.3 Pre-planning.....	4
4.4 Responsibility during service.....	4
<b>5 Biological dosimetry process in radiological or nuclear mass-casualty incidents.....</b>	<b>5</b>
<b>6 Emergency response of the lead laboratory.....</b>	<b>5</b>
<b>7 Design of a laboratory network.....</b>	<b>5</b>
7.1 Overview.....	5
7.2 Preparedness of the laboratory network.....	6
7.3 Laboratory network operation.....	6
7.3.1 General.....	6
7.3.2 Lead laboratory responsibilities.....	7
7.3.3 Associate laboratory responsibilities.....	7
<b>8 Expected results.....</b>	<b>8</b>
8.1 General.....	8
8.2 Whole-body exposure.....	8
8.3 Inhomogeneous exposure.....	9
<b>9 Quality assurance and quality control.....</b>	<b>9</b>
9.1 Overview.....	9
9.2 Quality control.....	10
9.2.1 General.....	10
9.2.2 Quality control procedures.....	10
9.2.3 Performance checks of sample transport integrity.....	10
9.2.4 Performance checks of sample integrity by the laboratory.....	10
9.2.5 Performance checks of instrumentation.....	10
9.2.6 Performance checks of sample protocol.....	11
9.2.7 Performance checks of exposure categorization.....	11
9.2.8 Performance checks of sample scoring.....	11
9.2.9 Performance checks of dose and confidence intervals estimation.....	11
9.2.10 Performance checks of the generation of reports results.....	11
9.2.11 Performance checks of a data security plan.....	11
9.2.12 Performance of the network.....	12
<b>Annex A (informative) Interactions between requestors and biological dosimetry laboratories.....</b>	<b>13</b>
<b>Annex B (informative) Guidance for threshold of detection when the dicentric assay is analysed using manual scoring procedures.....</b>	<b>15</b>
<b>Annex C (informative) Example group sample report.....</b>	<b>16</b>
<b>Bibliography.....</b>	<b>18</b>