



OCCUPATIONAL SAFETY **68** AND HEALTH SERIES

THE USE OF LASERS IN THE WORKPLACE

A PRACTICAL GUIDE

Prepared by the International Non-Ionizing
Radiation Committee of the International Radiation
Protection Association in collaboration with the
International Labour Organization



INTERNATIONAL LABOUR OFFICE, GENEVA



The International Programme for the Improvement of Working Conditions and Environment (PIACT) was launched by the International Labour Organisation in 1976 at the request of the International Labour Conference and after extensive consultations with member States. PIACT is designed to promote or support action by member States to set and attain definite objectives aiming at "making work more human". The Programme is thus concerned with improving the quality of working life in all its aspects: for example, the prevention of occupational accidents and diseases, a wider application of the principles of ergonomics, the arrangement of working time, the improvement of the content and organisation of work and of conditions of work in general, a greater concern for the human element in the transfer of technology. To achieve these aims, PIACT makes use of and co-ordinates the traditional means of ILO action, including:

- the preparation and revision of international labour standards;
- operational activities, including the dispatch of multidisciplinary teams to assist member States on request;
- tripartite meetings between representatives of governments, employers and workers, including industrial committees to study the problems facing major industries, regional meetings and meetings of experts;
- action-oriented studies and research; and
- clearing-house activities, especially through the International Occupational Safety and Health Information Centre (CIS) and the Clearing-house for the Dissemination of Information on Conditions of Work.

This publication is the outcome of a PIACT project.

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Preface

This publication is one of a series of practical guides on occupational hazards arising from non-ionizing radiation (NIR) carried out in collaboration with the International Non-Ionizing Radiation Committee (INIRC) of the International Radiation Protection Association (IRPA)¹ as part of the ILO International Programme for the Improvement of Working Conditions and Environment (PIACT).

The purpose of this book is to provide basic guidance on working conditions and procedures that will lead to higher standards of safety for all personnel engaged in the manufacture, maintenance and operation of laser devices. It is intended in particular for the use of competent authorities, employers and workers, and in general all persons in charge of occupational safety and health. The following topics are covered: the characteristics of laser radiation; the biological and health effects; occupationally related exposure type and effects; hazard evaluation; instrumentation and measurement techniques; occupational exposure limits and safety standards; control of and protection from exposure to laser radiation; and the principles of an administrative structure needed to ensure laser safety in the workplace. Emphasis is upon protective measures.

The manuscript was prepared by an IRPA-INIRC working group chaired by Dr D. H. Sliney and including Dr B. Bosnjakovic, Dr L. A. Court, Dr A. F. McKinlay and Dr L. D. Szabó. Following comments received from INIRC members, it was reviewed in detail during the annual meeting of the IRPA-INIRC in Rome (Italy), May 1991, in cooperation with Dr G. H. Coppée representing the International Labour Office.

This book is the result of a ILO/IRPA-INIRC activity and is published by the ILO on behalf of the two organizations. The ILO wishes to thank the International Non-Ionizing Radiation Committee of the IRPA, and in particular Dr D. H. Sliney and his working group, for their contribution and cooperation in the preparation of this practical guide on the use of lasers in the workplace.

¹ Since May 1992 the INIRC of the IRPA has become an independent scientific body called the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and has responsibility for NIR protection in the same way as the International Commission on Radiological Protection (ICRP) has for ionizing radiation. (ICNIRP Secretariat: c/o Dipl.-Ing. R. Matthes, Bundesamt für Strahlenschutz, Institut für Strahlenhygiene, Ingoldstädter Landstrasse 1, D-85764 Oberschleissheim, Germany, Tel.: +49 89 31603237, Fax +49 89 31603111.)

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