NIST GCR 01-815

A Guide to the EU Medical Device Directive

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ABSTRACT

This guide (prepared under contract by Helen Delaney and Rene van de Zande, DVZ Joint Ventures) is an easy-to-use introductory reference for industry and government officials on the requirements of the European Union's (EU) Medical Device Directive (MDD) 93/42/EEC]. It is designed to help business and government officials understand the purpose of the directive, its relationship to other directives, the essential requirements contained in the directive, and the basic steps necessary for compliance. The guide offers explanations of such requirements as: the products covered by the directive, the products excluded from coverage under the directives, and issues regarding device classification and the use of standards. The guide contains the text of the directive and a list of applicable standards. The guide also references appropriate sections of *NIST Special Publication 951: A Guide to EU Standards and Conformity Assessment* for further information on some of the generic conformity assessment concepts and requirements of the EU's New Approach.

Key Words: CEN; CENELEC; conformity assessment; device classification; directives; European Union; Medical Device Directive; medical devices; New Approach directives; pharmaceuticals; technical construction files; user manuals;

Contents

The Medical Device Directive[1] [2] [3]

Directive 93/42/EEC
Applicable since June 1993 and mandatory since June 1998

To Be Considered:

The Medical Device Directive (MDD) is not applicable to the following products:

- *In vitro diagnostics (covered by Directive 98/79/EEC)(See NIST GCR 01- 817).*
- *Active Implantable Medical Devices (covered by Directive 90/385/EEC) (See NIST GCR 01-816).*
- *Medicinal Products (covered by Directive 65/65/EEC).*
- *Cosmetic Products (covered by Directive 76/768/EEC).*
- *Devices intended for use in clinical investigation and custom-made medical devices must satisfy the requirements of the Medical Device Directive but do not need to affix the CE Marking. (See Annex VIII and Annex X* of the Directive*).*

*Other exceptions (*See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 19).*

The electrical and electromagnetic safety aspects of medical devices are covered in the MDD.

Where a medical device is intended to administer a substance defined as a medicinal product within the meaning of Council Directive 65/65/EEC of 26 January 1965 on the approximation of provisions laid down by law, regulation or administrative action relating to proprietary medicinal products(6), as last amended by Directive 87/21/EEC(7), that substance shall be subject to the system of marketing authorization provided for in that Directive.

Where a medical device incorporates, as an integral part, a substance which, if used separately, may be considered to be a medicinal product within the meaning of Article 1 of Directive 65/65/EEC, that device must be evaluated and authorized in accordance with the provisions of this Directive.

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[1] A medical device is**: "**Any instrument, apparatus, appliance, material or other article, whether used alone or in combination, including the software necessary for its proper application, intended by the manufacturer to be used for human beings for the purpose of:
-diagnosis, prevention, monitoring, treatment or alleviation of disease,
-diagnosis, monitoring, treatment, alleviation of or compensation for an injury or handicap,
-investigation, replacement or modification of the anatomy or of a physiological process,
-control of conception,
and which does not achieve its principal intended action in or on the human body by pharmacological, immunological or metabolic means, but which may be assisted in its function by such means."

[2] Readers of this report may wish to refer to NIST SP 951 *A Guide to EU Standards and Conformity Assessment,* which is available on NIST's website at: http://ts.nist.gov/ca.

[3] For additional information on active implantable medical devices and in vitro diagnostic devices , see NIST GCR 01-816 *A Guide to the EU Active Implantable Medical Device Directive* and NIST 01-817 *A Guide to the EU In Vitro Diagnostic Directive.*

Purpose of the Medical Device Directive

The purpose of the Medical Device Directive is to harmonize the regulations and administrative provisions among the member states of the European Economic Area (EEA) (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 1)* with regard to the safety, health protection and performance characteristics of medical devices.

Before manufacturers can place the CE Marking (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 17)* on their medical devices and legally sell to, or within the EEA, they must be in compliance with the Medical Device Directive.

Basic Steps to Compliance

I. Determining Whether or Not the Product Has To Comply with the Medical Device Directive
II. Classification of the Medical Device
III. Conformity Assessment Routes
IV. Compliance to the Essential Requirements of the Directive
V. Harmonized Standards
VI. Risk Analysis
VII. Technical File
VIII. Vigilance System
IX. EC Verification by Notified Body
X. Authorized Representation and Competent Authority registration
XI. CE marking
XII. Declaration of Conformity

I. Determining Whether or Not the Product Has To Comply with the Medical Device Directive

The Medical Device Directive applies to medical devices and their accessories. Accessories are considered medical devices in their own right. The manufacturer may use the following definitions (taken directly from the Medical Devices Directive) to help determine whether or not the product is a medical device.

- **Medical device: "**Any instrument, apparatus, appliance, material or other article, whether used alone or in combination, including the software necessary for its proper application, intended by the manufacturer to be used for human beings for the purpose of:
    - diagnosis, prevention, monitoring, treatment or alleviation of disease,
    - diagnosis, monitoring, treatment, alleviation of or compensation for an injury or handicap,
    - investigation, replacement or modification of the anatomy or of a physiological process,
    - control of conception,

and which does not achieve its principal intended action in or on the human body by pharmacological, immunological or metabolic means, but which may be assisted in its function by such means."

- **Accessory: "**means an article which while not being a device is intended specifically by its manufacturer to be used together with a device to enable it to be used in accordance with the use of the device intended by the manufacturer of the device."

II. Classification of the medical device

If a medical device is within the scope of the Medical Device Directive, the manufacturer must determine the classification of the device.

The classification of the device will decide the conformity assessment route. In other words, it will determine whether the manufacturer can self certify (See *Annex VII* of the Directive) or whether he or she needs to prepare for a Third Party audit by a Notified Body *(*See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 20)* in accordance with the following Annexes of the Directive:

Annex II EC Declaration of Conformity: Full Quality Assurance System
Annex III EC Type Examination
Annex IV EC Verification (Batch Testing)
Annex V EC Declaration of Conformity: Production Quality Assurance.
Annex VI EC Declaration of Conformity: Product Quality Assurance

Classification rules are based on terms related to duration of contact with the patient, degree of invasiveness and the part of the body affected by the use of the device.

1. Definitions for the classification rules

1. 1. *Duration*

Transient
Normally intended for continuous use for less than 60 minutes.

Short term
Normally intended for continuous use for more than 60 minutes, but not more than 30 days.

Long term
Normally intended for continuous use for more than 30 days.

Concepts of duration such as transient, short term and long term are defined in terms of continuous use. Continuous use is an uninterrupted actual use for the intended purpose.

Note: For instance, a scalpel may be used on the same patient throughout an operation that may last for several hours. The uninterrupted use for an intended purpose, i.e., cutting tissue,

will normally not last for more than a few seconds at a time. Therefore a scalpel is a transient use device.

However, where usage of a device is discontinued in order for the device to be replaced immediately by the same or an identical device (e.g., replacement of a ureteric catheter), this shall be considered an extension of the continuous use of the device.

1.2. ***Invasive devices***

Invasive device

A device which, in whole or in part, penetrates the body, either through a body orifice or through the surface of the body.

Body orifice

Any natural opening in the body, as well as the external surface of the eyeball, or any permanent artificial opening, such as a stoma.

Surgically invasive device

An invasive device that penetrates through the surface of the body with the aid or in the context of a surgical operation.

Devices other than those referred to in the previous subparagraph, and which produce penetration other than through an established body orifice, shall be treated as surgically invasive devices for the purposes of this Directive.

Implantable device

Any device which is intended:

- to be totally introduced into the human body, or

- to replace an epithelial surface or the surface of the eye, by surgical intervention,

and which is intended to remain in place after the procedure.

Any device intended to be partially introduced into the human body through surgical intervention and intended to remain in place after the procedure for at least 30 days is also considered an implantable device.

1.3. ***Reusable surgical instrument***

An instrument intended for surgical use by cutting, drilling, sawing, scratching, scraping, clamping, retracting, clipping or similar procedures, without connection to any active medical device, and which can be reused after appropriate procedures have been carried out.

1.4. ***Active medical device***

Any medical device the operation of which depends on a source of electrical energy or any source of power other than that directly generated by the human body or gravity and which acts by converting this energy. Medical devices intended to transmit energy, substances or other elements between an active medical device and the patient, without any significant change, are not considered active medical devices.

1.5. ***Active therapeutical device***

Any active medical device, whether used alone or in combination with other medical devices, to support, modify, replace or restore biological functions or structures with a view to treatment or alleviation of an illness, injury or handicap.

1.6. ***Active device for diagnosis***

Any active medical device, whether used alone or in combination with other medical devices, to supply information for detecting, diagnosing, monitoring or treating physiological conditions, states of health, illnesses or congenital deformities.

1.7. ***Central circulatory system***

For the purposes of this Directive, 'central circulatory system' means the following vessels.

Arteriae pulmonales, aorta ascendens, arteriae coronariae, arteries carotis communis, arteries carotis externa, arteries carotis interna, arteriae cerebrates, truncus brachicephalicits, venae cordis, venae pulmonales, vena cava superior, vena cava inferior.

1.8. ***Central nervous system***

For the purposes of this Directive, 'central nervous system' means brain, meninges and spinal cord.

2. Implementing rules

- Application of the classification rules shall be governed by the intended purpose of the devices.
- If the device is intended for use in combination with another device, the classification rules apply separately to each of the devices. Accessories are classified in their own right separately from the device with which they are used.
- Software which drives a device or influences the use of a device falls automatically into the same class.
- If the device is not intended to be used solely or principally in a specific part of the body, it must be considered and classified on the basis of the most critical specified use.

- If several rules apply to the same device, based on the performance specified for the device by the manufacturer, the strictest rules resulting in the higher classification shall apply.

3. Classification

Devices are divided into four groups:

1. Non-invasive devices,
2. Invasive devices,
3. Active devices, and
4. Special devices.

1. Non-invasive devices

Rule 1

All non-invasive devices are in Class I (unless one of the other Rules apply).

Examples:

- *Body liquid collection devices intended to be used in such a way that a return flow is unlikely (e.g., to collect body wastes such as urine collection bottles, ostomy pouches, incontinence pads or collectors used with wound drainage devices). They may be connected to the patient by means of catheters and tubing.*
- *Devices used to immobilize body parts and/or to apply force or compression on them (e.g., non-sterile dressings used to aid the healing of a sprain, plaster of Paris, cervical collars, gravity traction devices, compression hosiery).*
- *Devices intended in general for external patient support (e.g., hospital beds, patient hoists, walking aids, wheelchairs, stretchers, dental patient chairs).*
- *Corrective glasses, frames, stethoscopes for diagnosis, eye occlusion plasters, incision drapes, conductive gels, non-invasive electrodes (electrodes for EEG or ECG), image intensifying screens.*
- *Permanent magnets for removal of ocular debris.*

Rule 2

All non-invasive devices intended for channeling or storing blood, body liquids or tissues, liquids, or gases for the purpose of eventual infusion, administration or introduction into the body are in Class IIa if:

1) They are connected to an active medical device in Class IIa or a higher class.

Examples:

- *Devices intended to be used as channels in active drug delivery systems, e.g., tubing intended for use with an infusion pump.*
- *Devices used for channeling, e.g., antistatic tubing for anesthesia, anesthesia breathing circuits and pressure indicator, pressure limiting devices.*

- *Syringes for infusion pumps.*

2) They are intended for use for storing or channeling blood or other body liquids or for storing organs, parts of organs or body tissues are in Class IIa.

Examples:

- *Devices intended to channel blood (e.g., in transfusion, extracorporeal circulation).*
- *Devices intended for temporary storage and transport of organs for transplantation.*
- *Devices intended for long term storage of biological substances and tissues, such as: corneas, sperm, human embryos, etc.*

In all other cases, they are in Class I.

Examples:

- *Devices that provide a simple channeling function, with gravity providing the force to transport the liquid, e.g., administration sets for infusion.*
- *Devices intended to be used for a temporary containment or storage function such as cups and spoons specifically intended for administering medicines.*
- *Syringes without needles.*

Rule 3

All non-invasive devices intended for modifying the biological or chemical composition of blood, other body liquids, or other liquids intended for infusion into the body are in Class IIb

Examples:

- *Devices intended to remove undesirable substances from the blood by exchange of solutes such as hemodyalizers.*
- *Devices intended to separate cells by physical means, e.g., gradient medium for sperm separation.*
- *Haemodialysis concentrates.*

If these non-invasive devices are used in a treatment that consists of filtration, centrifugation or in exchanges of gas or heat, they are in Class IIa.

Examples:

- *Particulate filtration of blood in an extracorporeal circulation system. These are used to remove particles and emboli from the blood.*
- *Centrifugation of blood to prepare it for transfusion or autotransfusion.*
- *Removal of carbon dioxide from the blood and/or adding oxygen.*
- *Warming or cooling the blood in an extracorporeal system.*

Rule 4

All non-invasive devices which come into contact with injured skin are in Class I if they are intended to be used as a mechanical barrier, for compression, or for absorption of exudates.

Examples:

- *Wound dressings, such as absorbent pads, island dressings, cotton wool, wound strips and gauze dressings to act as a barrier or to maintain the wound positionally or to absorb exudates from the wound.*

Non-invasive devices are in Class IIb if they are intended to be used principally with wounds that have breached the dermis and can only heal by secondary intent.

Examples:

- *Non-invasive devices that are principally intended to be used with severe wounds that have substantially and extensively breached the dermis, and where the healing process can only be by secondary intent, such as: dressings for chronic extensive ulcerated wounds; dressings for severe burns having breached the dermis and covering an extensive area; dressings for severe decubitis wounds; and dressings incorporating means of augmenting tissue and providing a temporary skin substitute.*

In all other cases, the devices are in Class IIa, including devices principally intended to manage the micro-environment of a wound.

Examples:

- *Devices with specific properties intended to assist the healing process by controlling the level of moisture at the wound during the healing process and to generally regulate the environment in terms of humidity and temperature, levels of oxygen and other gases and pH values or by influencing the process by other physical means.*
- *These devices may specify particular additional healing properties while not being intended for extensive wounds requiring healing by secondary intent.*
- *Adhesives for topical use.*
- *Polymer film dressings, hydrogel dressings and non-medicated impregnated gauze dressings.*

2. Invasive devices

Rule 5

All invasive devices with respect to body orifices that are not surgically invasive devices and that are not intended for connection to an active medical device are:

1) in Class I if they are intended for transient use;

Examples:

- *Handheld mirrors used in dentistry to aid in dental diagnosis and surgery, dental impression materials, tubes used for pumping the stomach, impression tray, enema devices, examination gloves and prostatic balloon dilation catheters.*

2) or in Class IIa if they are intended for short-term use;

Examples:

- *Contact lenses, urinary catheters, tracheal tubes, stents, vaginal pessaries and perineal reeducation devices.*

  If these devices are used in the oral cavity as far as the pharynx, in an ear canal up to the ear drum, or in a nasal cavity, they are in Class I.

Examples:

- *Dressings for nose bleeds, dentures intended to be removed by the patient.*

3) or in Class IIb if they are intended for long-term use;

Examples:

- *Urethral stents.*

  Exception: If they are used in the oral cavity as far as the pharynx, in an ear canal up to the car drum, or in a nasal cavity and are not liable to be absorbed by the mucous membrane, they are in Class IIa.

Examples:

- *Orthodontic wire, fixed dental prostheses, fissures sealants.*

4) or in Class IIa if they are intended for connection to an active medical device in Class lIa or a higher class.

Examples:

- *Tracheotomy or tracheal tubes connected to a ventilator, blood oxygen analyzers placed under the eye-lid, powered nasal irrigators, nasopharyngeal airways, some enteral feeding tubes, fibreoptics in endoscopes connected to surgical lasers, suction catheters or tubes for stomach drainage, dental aspirator tips.*

Rule 6

All surgically invasive devices intended for transient use are in Class IIa.

Examples:

- *Needles used for suturing, needles of syringes, lancets, suckers, single use scalpels, single use scalpel blades, support devices in ophthalmic surgery, staplers, surgical swabs, drill bits connected to active devices, surgical gloves, etchants**,** tester of artificial heart valves, heart valve occluder, heart valve sizers and holders, trial hip prosthesis heads or stems, swabs to sample exudates, single use aortic punches.*

All surgically invasive devices intended for transient use are in Class III if they are intended specifically to diagnose, monitor, or correct a defect of the heart or of the central circulatory system through direct contact with these parts of the body.

Examples:

- *Cardiovascular catheters (e.g., angioplasty balloon catheters), including related guidewires and dedicated disposable cardiovascular surgical instruments e.g.,*

electrophysiological catheters, electrodes for electrophysiological diagnosis and ablation and catheters containing or incorporating sealed radioisotopes, where the radioactive isotope as such is not intended to be released into the body, if used in the central circulatory system.

All surgically invasive devices that are intended for transient use are in Class I if they are reusable surgical instruments.

Examples:

- *Scalpels, scalpel handles, drill bits, saws, that are not intended for connection to an active device, and retractors forceps, excavators and chisels.*

All surgically invasive devices for transient use intended to supply energy in the form of ionizing radiation are in Class IIb.

Examples:

- Catheters containing or incorporating sealed radioisotopes, where the radioactive isotope as such is not intended to be released into the body, if used in the circulatory system, excluding the central circulatory system.

All surgically invasive devices intended for transient use intended to have a biological effect or to he wholly or mainly absorbed are in Class IIb.

All surgically invasive devices intended for transient use intended to administer medicines by means of a delivery system (if this is done in a manner that is potentially hazardous taking account of the mode of application) are in Class IIb.

Examples:

- *Devices for repeated self-application where dosage levels and the nature of the medicinal product are critical, e.g., insulin pens.*

Rule 7

All surgically invasive devices intended for short-term use are in Class IIa.

Examples:

- *Clamps, infusion cannulae, skin closure devices, temporary filling materials.*
- *Tissue stabilizers used in cardiac surgery.*

All surgically invasive devices that are intended for short-term use and that are intended either specifically to diagnose, monitor, or correct a defect of the heart or of the central circulatory system through direct contact with these parts of the body are in Class III.

Examples:

- *Cardiovascular catheters, cardiac output probes and temporary pacemaker leads*
- *Thoracic catheters intended to drain the heart, including the pericardium.*
- *Carotid artery shunts.*

All surgically invasive devices intended specifically for use in direct contact with the central nervous system are in Class III.

Examples:

- *Neurological catheters, cortical electrodes and connonoid paddles.*

All surgically invasive devices intended to supply energy in the form of ionizing radiation are in Class IIb.

Examples:

- *Brachytherapy devices.*

All surgically invasive devices intended to have a biological effect or to be wholly or mainly absorbed are in Class III.

Examples:

- *Absorbable sutures and biologic*al *adhesives.*

All surgically invasive devices intended to undergo chemical change in the body, except if the devices are placed in the teeth, or to administer medicines, are in Class IIb.

Examples:

- *Adhesives.*

Rule 8

All implantable devices and long-term surgically invasive devices are in Class IIb.

Examples:

- *Prosthetic joint replacements, ligaments, shunts, stents, nails, plates, intra-ocular lenses, internal closure devices, tissue augmentation implants, infusion ports, peripheral vascular grafts, penile implants, non-absorbable sutures, bone cements and maxillo-facial implants, visco-elastic surgical devices intended specifically for ophthalmic anterior segment surgery.*

All implantable devices and long-term surgically invasive devices intended to be placed in the teeth are in Class IIa.

Examples:

- *Bridges, crowns, dental filling materials and pins, dental alloys, ceramics and polymers.*

All implantable devices and long-term surgically invasive devices to be used in direct contact with the heart, the central circulatory system or the central nervous system are in Class III.

Examples:

- Prosthetic heart valves, aneurysm clips, vascular prostheses, spinal stents, vascular stents, CNS electrodes and cardiovascular sutures.
- Permanent vena cava filters.

All implantable devices and long-term surgically invasive devices intended to have a biological effect or to be wholly or mainly absorbed are in Class III.

Examples:

- *Absorbable sutures, adhesives and implantable devices claimed to be bioactive through the attachment of surface coatings such as phosphorylcholine.*

All implantable devices and long-term surgically invasive devices that are intended to undergo chemical change in the body, except if the devices are placed in the teeth or are used to administer medicines, are in Class III.

Examples:

- *Rechargeable non-active drug delivery systems.*

3. Additional rules applicable to active devices

Rule 9

All active therapeutic devices intended to administer or exchange energy are in Class IIa.

Examples:

- *Electrical and/or magnetic and electromagnetic energy: Muscle stimulators and external bone growth stimulators, TENS devices and eye electromagnets, electrical acupuncture.*
- *Thermal energy: Cryosurgery equipment, heat exchangers.*
- *Mechanical energy: Powered dermatomes, powered drills and dental hand pieces*
- *Light: Phototherapy for skin treatment and for neonatal care.*
- *Sound: Hearing aids.*
- *Ultrasound: Equipment for physiotherapy.*

All active therapeutic devices intended to administer or exchange energy are in Class IIb if their characteristics are such that they may administer or exchange energy to or from the human body in a potentially hazardous way, taking account of the nature, the density and site of application of the energy.

Examples:

- *Kinetic energy: Lung ventilators.*
- *Thermal energy: Incubators for babies, warming blankets, blood warmers, electrically powered heat exchangers, for instance those used with patients incapable of reacting, communicating and/or who are without a sense of feeling.*
- *Electrical energy: High-frequency electrosurgical generators, and electrocautery equipment, including their electrodes, external pacemakers, external defibrillators, electroconvulsive therapy equipment.*
- *Coherent light: Surgical lasers.*
- *Ultrasound: Lithotriptors, surgical ultrasound devices.*
- *Ionizing radiation: Radioactive sources for after loading therapy, therapeutic cyclotrons, linear accelerators, therapeutic X-ray sources.*

All active devices, intended to control or monitor the performance of active therapeutic devices in Class IIb or intended directly to influence the performance of such devices, are in Class IIb.

Examples:

- *External feedback systems for active therapeutic devices, after-loading control devices.*

Rule 10

Active devices intended for diagnosis are in Class IIa if they are intended to supply Energy that will be absorbed by the human body, except for devices used to illuminate the patient's body in the visible spectrum.

Example:

- *Magnetic resonance equipment, pulp testers, evoked response stimulators, diagnostic ultrasound.*

Active devices intended for diagnosis are in Class IIa if they are intended to image in vivo distribution of radiopharmaceuticals.

Example:

- *Gamma cameras, positron emission tomography and single photon emission computer tomography.*

Active devices intended for diagnosis are in Class IIa if they are intended to allow direct diagnosis or monitoring of vital physiological processes.

Example:

- *Electrocardiographs, electroencephalographs, cardioscopes with or without pacing pulse indicators.*
- *Electronic thermometers.*
- *Electronic stethoscopes.*
- *Electronic blood pressure measuring equipment.*

Active devices intended for diagnosis are in Class IIb if they are specifically intended for monitoring of vital physiological parameters where the nature of variations is such that it could result in immediate danger to the patient, such as variations in cardiac performance, respiration, or activity of the CNS.

Example:

- *Intensive care monitoring and alarm devices (e.g., blood pressure, temperature, oxygen saturation), biological sensors, blood gas analyzers used in open heart surgery, cardioscopes and apnea monitors.*

Active devices intended to emit ionizing radiation and intended for diagnostic and therapeutic interventional radiology, including devices that control or monitor such devices or that directly influence their performance, are in Class IIb.

Examples:

- *Diagnostic X-ray sources.*

Rule 11

All active devices intended to administer and/or remove medicines, body liquids or other substances to or from the body are in Class IIa.

Example:

- *Suction equipment, feeding pumps.*
- *Jet injectors for vaccination.*
- *Nebulizers to be used on conscious and spontaneously breathing patients where failure to deliver the appropriate dosage characteristics is not potentially hazardous.*

All active devices intended to administer and/or remove medicines, body liquids or other substances to or from the body done in a manner that is potentially hazardous, taking account of the nature of the substances involved, of the part of the body concerned, and of the mode of application, are in Class IIb

Examples:

- *Infusion pumps, ventilators, anesthesia machines, anesthetic vaporizers, dialysis equipment, blood pumps for heart-lung machines, hyper baric chambers, pressure regulators for medical gases, medical gas mixers, moisture exchangers in breathing circuits if used on unconscious or non-spontaneously breathing patients.*
- *Nebulizers where the failure to deliver the appropriate dosage characteristics could be hazardous.*

Rule 12

All other active devices are in Class I.

Examples:

- *Active diagnostic devices intended to illuminate the patient's body in the visible spectrum such as examination lights or to optically view the body such as surgical microscopes.*
- *Devices intended in general for external patient support (e.g., hospital beds, patient hoists, walking aids, wheelchairs, stretchers, dental patient chairs.*
- *Active diagnostic devices intended for thermography.*
- *Active devices intended for recording, processing or viewing of diagnostic images.*
- *Dental curing lights.*

4. Special Rules

Rule 13

All devices incorporating as an integral part, a substance, which if used separately can be considered to be a medicinal product (as defined in Article 1 of Directive 65/65/EEC Relating to Medicinal Products) and which is liable to act on the human body with action ancillary to that of the devices, are in Class III.

Examples:

- *Antibiotic bone cements, condoms with spermicide, heparin coated catheters, endodontic materials with antibiotics.*
- *Ophthalmic irrigation solutions principally intended for irrigation, which contain components that support the metabolism of the endothelial cells of the cornea.*
- *Dressings incorporating an antimicrobial agent where the purpose of such an agent is to provide ancillary action on the wound.*

Rule 14

All devices used for contraception or the prevention of the transmission of sexually transmitted diseases are in Class IIb.

Examples:

- *Condoms, contraceptive diaphragms.*

All devices used for contraception or the prevention of the transmission of sexually transmitted diseases and are implantable or long term invasive devices are in Class III.

Examples:

- *Contraceptive intrauterine devices (IUDs).*

Rule 15

All devices intended specifically to be used for disinfecting, cleaning, rinsing or, when appropriate, hydrating contact lenses are in Class IIb.

Example:

- *Contact lens solutions, comfort solutions.*

All devices intended specifically to be used for disinfecting medical devices are in Class IIa.

Example:

- *Disinfectants specifically intended for instance for endoscopes or haemodialysis equipment, sterilizers specifically intended to sterilize medical devices in a medical environment and washer disinfectors.*
- *Cleaners which disinfect prosthetic dentures.*

This rule does not apply to products that are intended to clean medical devices other than contact lenses by means of physical action.

Rule 16

Non-active devices specifically intended for recording of X-ray diagnostic images are in Class IIa.

Example:

- *X-ray films, photostimulable phosphor plates.*

Rule 17

All devices manufactured utilizing animal tissues or derivatives rendered non-viable are Class III, except where such devices are intended to come into contact with only intact skin.

Examples:

- *Biological heart valves, porcine xenograft dressings, catgut sutures, implants and dressings made from collagen.*

Rule 18

By derogation from other rules, blood bags are in Class IIb.

Examples:

- *Blood bags (including those containing or coated with an anticoagulant). Where blood bags have a function greater than for storing purposes and include systems for preservation other than anti-coagulants then other rules (e.g., rule 13) may apply.*

See Flow Diagrams on Pages 91-94 of this report.

III Conformity Assessment Routes

Class I
Class I devices must follow the procedures specified in *Annex VII* of the Medical Device Directive. In addition, the manufacturer must draw up a Declaration of *Conformity (*See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 26)*. The involvement of a Notified Body *(*See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 20)* is not needed and the manufacturer can self declare the product to be in compliance with the essential requirements of the Medical Device Directive.

Class I (Sterile or Measuring) and Class IIa
The manufacturer may choose one of the following conformity assessment routes to demonstrate conformity of the product to the Medical Device Directive:

Annex II,
Annex VII and Annex IV,
Annex VII and Annex V, or
Annex VII and Annex VI.

Requires the intervention of a Notified Body. Note: In lieu of these routes, a manufacturer may follow the conformity routes for Class IIb devices, although the classification of the device would remain the same – Class I or Class IIa.

Class IIb
The manufacturer may choose one of the following conformity assessment routes to demonstrate conformity of the product to the Medical Device Directive:

Annex II,
Annex III and Annex IV,
Annex III and Annex V, or
Annex III and Annex VI.

Requires the intervention of a Notified Body.

Class III
The manufacturer may choose one of the following conformity assessment routes to demonstrate conformity of the product to the Medical Device Directive:

Annex II.
Annex III and Annex I, or
Annex III and Annex V.

Requires the intervention of a Notified Body.

Full Quality Assurance

Class I (Sterile and Measuring), Class IIa, IIb, and III require the intervention of a Notified Body which will be responsible for auditing the manufacturer's quality system in accordance with the ISO 9001, EN 46000, and ISO 13485 standards. The Notified Body will also determine whether or not the product conforms to the requirements of the Medical Device Directive.

The scope of the ISO 9000 series specifies quality system requirements for design, development, production, installation and servicing. The EN 46000 and ISO 13485 standards are based on the ISO 9001 standard and have been specifically developed to address the quality system in relation to the production of medical devices. All elements, requirements, and provisions adopted by the manufacturer for the quality system must be documented in a systematic and orderly manner. This is done in the form of written measures, procedures and instructions. This documentation must make possible a uniform interpretation of the quality programs, quality plans, quality manuals and quality records.

IV Compliance with the Essential Requirements of the Directive

An important principle in preparing for the CE Marking process is compliance with the essential requirements of the Medical Device Directive. The essential requirements of the Medical Device Directive are contained in *Annex I* of the Directive. They describe, in a general way, the safety objectives of the Directive.

Compliance with the essential requirements, where applicable, is mandatory.

The essential requirements in Annex I are divided into general requirements and specific requirements with regard to the design, construction and information that must be supplied by the manufacturer.

Issues addressed with regard to design and construction include: chemical, physical and biological properties; infection and microbial contamination; construction and environmental properties; and information supplied by the manufacturer on the label and in the instructions for use.

User instructions and labeling

As far as practicable and appropriate, the information needed to use the device safely must be set out on the device itself and/or on the packaging for each unit or, where appropriate, on the sales packaging. If individual packaging of each unit is not practicable, the information must be set out in the leaflet supplied with one or more devices.

Instructions for use must be included in the packaging for every device. By way of exception, instructions for use are not needed for devices in Class I or IIa if they can be used safely without such instructions.

Where appropriate, this information could take the form of symbols and pictograms. Any symbol used must conform to the relevant harmonized standards. In areas for which no standards exist, the symbols and colors must be described in the documentation supplied with the device.

The label must bear the following:

- the name or trade name and address of the manufacturer. If the manufacturer is not established in the European Union, the name and address of the Authorized Representative (See NIST SP 951 *Guide to EU Standards and Conformity Assessment, Page 23)* must also be listed;

- the details strictly necessary for the user to identify the device and the contents of the packaging;

- where appropriate, the word 'STERILE;'

- where appropriate, the batch code, preceded by the word 'LOT,' or the serial number;

- where appropriate, an indication of the date by which the device should be used, in safety, expressed as the year and month;

- where appropriate, an indication that the device is for single use;

- if the device is custom-made, the words 'custom-made device;'

- if the device is intended for clinical investigations, the words 'exclusively for clinical investigations;'

- any special storage and/or handling conditions;

- any special operating instructions;

- any warnings and/or precautions to take;

- year of manufacture for active devices. This indication may be included in the batch or serial number;

- where applicable, method of sterilization; and

- if the intended purpose of the device is not obvious to the user, the manufacturer must clearly state it on the label and in the instructions for use.

The instructions for use must bear the following:

- wherever reasonable and practicable, the devices and detachable components must be identified, where appropriate in terms of batches, to allow all appropriate action to detect any potential risk posed by the devices and detachable components;

- where appropriate, the details included on the label;

- the performances referred to in Section 3 of General Requirements under Annex I and any undesirable side-effects;

- if the device must he installed with or connected to other medical devices or equipment in order to operate as required for its intended purpose, sufficient details of its characteristics to identify the correct devices or equipment to use in order to obtain a safe combination;

- all the information needed to verify whether the device is properly installed and can operate correctly and safely, plus details of the nature and frequency of the maintenance and calibration needed to ensure that the devices operate properly and safely at all times;

- where appropriate, information to avoid certain risks in connection with implantation of the device;

- information regarding the risks of reciprocal interference posed by the presence of the device during specific investigations or treatment;

- the necessary instructions in the event of damage to the sterile packaging and, where appropriate, details of appropriate methods of re-sterilization;

- if the device is reusable, information on the appropriate processes to allow reuse, including cleaning, dis-infection, packaging and, where appropriate, the method of sterilization of the device to be re-sterilized, and any restriction on the number of reuses;

- Where devices are supplied with the intention that they be sterilized before use, the instructions for cleaning and sterilization must be such that, if correctly followed, the device will still comply with the requirements;

- details of any further treatment or handling needed before the device can be used (for example, sterilization, final assembly, etc.);

- in the case of devices emitting radiation for medical purposes, details of the nature, type, intensity and distribution of this radiation;

- the instructions for use must also include details allowing the medical staff to brief the patient on any contra-indications and any precautions to be taken. These details should cover in particular:

    - precautions to be taken in the event of changes in the performance of the device;

    - precautions to be taken as regards exposure, in reasonably foreseeable environmental conditions, to magnetic fields, external electrical influences, electrostatic discharge, pressure or variations in pressure, acceleration, thermal ignition sources, etc.;

    - adequate information regarding the medicinal product or products which the device in question is designed to administer, including any limitations in the choice of substances to be delivered;

    - precautions to be taken against any special, unusual risks related to the disposal of the device;

    - medicinal substances incorporated into the device as an integral part in accordance with Section 7.4; and

    - degree of accuracy claimed for devices with a measuring function.

V. European Harmonized Standards

Since the Medical Device Directive lays down essential requirements in very general terms, standards can be important guides for the manufacturer. Standards interpret the safety objectives and also provide a technical route to compliance.

While compliance with the Medical Device essential requirements is mandatory, the use of *Medical Device Harmonized Standards* is voluntary. However, the Directive instructs the manufacturer in the order in which standards are most likely to assure compliance.

A. Harmonized Standards

The most direct route to compliance through standards is the use of Medical Device Harmonized Standards. A manufacturer who uses Medical Device Harmonized Standards in the design and production of devices is presumed in conformity with the essential requirements of the Directive (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 11*). The use of Harmonized Standards (See list at the end of this report) is the most direct route to compliance with any New Approach Directive.

B. International Standards

Where no Harmonized Standards exist, manufacturers are instructed to use standards that emanate from international standards developing organizations such as the ISO and IEC. (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 16.*)

C. National Standards

The third best choice of the Directive is the use of European national standards, to be used when no Harmonized Standards or International Standards exist.

The principle of applying standards, therefore, is the following:

Medical Device Harmonized Standards that have been developed specifically to deal with the essential requirements of the Medical Device Directive provide an assumption of conformity (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 11*). In their absence, the manufacturer is entitled to comply by using any appropriate specifications that may demonstrate conformity with the safety objectives, or the essential requirements of the Directive. However, the manufacturer must bear the burden of proof that the use of specifications other than Medical Device Harmonized Standards brings the product into conformance.

*Note: Medical Device Harmonized Standards take on the presumption of conformity when they are developed by one of the European Standards Bodies (*See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 10) and published in the Member States as transformed national standards. They are published in the Official Journal of the European Communities for information only.*

Note: In other New Approach Directives, publication in the Official Journal of the European Communities is a condition of presumption of conformity.

VI. Risk Analysis

One of the essential requirements of the Medical Device Directive is that the manufacturer is obliged to conduct a risk assessment (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 25).*

The principles that can be used to evaluate risks can be found in European Standard EN 1441, which addresses risk analysis for medical devices (See the list of *Harmonized Medical Device Standards* at the end of this report).

The standard EN 1441 consists of nine steps, including:

- Identify the product and describe the intended use;
- Identify characteristics which could affect safety;
- Identify possible hazards;
- Estimate the risk for each hazard for both normal conditions and use in case of failure;
- Determine whether the risk is acceptable;
- Determine whether the risk can be reduced;

- If a risk is reduced (for example by a change in design), determine if other hazards have been generated;
- Evaluate all identified hazards; and
- Determine if the device safety is adequate.

VII. Technical File

The manufacturer must compile a Technical File (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 24*). This file contains all the relevant information that is needed to demonstrate that the product meets the essential health and safety requirements of the Medical Device Directive.

The manufacturer must prepare the technical documentation described in *Annex VII*.

The manufacturer or his Authorized Representative must make this documentation, including the Declaration Of Conformity, available to the surveillance authorities (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 34*) for inspection purposes for a period ending at least five years after the last product has been manufactured.

Where neither the manufacturer nor his Authorized Representative are established in the Community, the obligation to keep the technical documentation available must fall to the person(s) who place(s) the product on the Community market.

The technical documentation must include:

- a general description of the product, including any variants planned;
- design drawings, methods of manufacture envisaged and diagrams of components, sub-assemblies, circuits, etc.;
- the descriptions and explanations necessary to understand the above-mentioned drawings and diagrams and the operations of the product;
- the results of the risk analysis and a list of the standards applied in full or in part, and descriptions of the solutions adopted to meet the essential requirements of the Directive if Harmonized Medical Device Standards have not been applied in full;
- in the case of products placed on the market in a sterile condition, description of the methods used; and
- the results of the design calculations and of the inspections carried out, etc.; if the device is connected to other device(s) to operate as intended, proof must be provided that it conforms to the essential requirements when connected to any such device(s) having the characteristics specified by the manufacturer;
- the test reports and, where appropriate, clinical data in accordance with *Annex X;* and
- the label and instructions for use.

VIII. Vigilance system

The manufacturer must institute and keep up to date a systematic procedure to review experience gained from devices in the post-production phase and to implement appropriate means to apply any necessary corrective actions (See *Annex VII* of the Directive*).*

1. **Incidents to be reported by Manufacturers/Authorized Representatives and Users to Competent Authorities**

Incidents are those that led to a death or those which led to a serious deterioration in the state of health of a patient, user, or other person.

A serious deterioration in state of health can include:

- life-threatening illness or injury;
- permanent impairment of a body function or permanent damage to a body structure; or
- a condition necessitating medical or surgical intervention to prevent permanent impairment of a body function or permanent damage to a body structure.

Near Incidents are those which might lead to a death or a serious deterioration in health.

Not all incidents that should be reported involve an actual death or a serious deterioration in health. A Near Incident can be the result of unfortunate circumstances or the intervention of health-care personnel.

It is sufficient that:

- an incident associated with a device happened, and
- the incident was such that, if it occurred again, it might lead to death or serious deterioration in health;

or

- an examination of the device or the information supplied with the device indicated some factor (e.g., a deterioration in characteristics or performance, or a shortcoming in the information) which could lead to an incident involving death or serious deterioration of health.

For a Near Incident to be reported, a possible direct link with the device, or with shortcomings in the information supplied, should be clearly established.

In assessing the link between the device and the incident or Near Incident, the manufacturer/Authorized Representative should take into account:

- the opinion, based on valid evidence, of health-care professionals;
- the results of the manufacturer/Authorized Representative's own preliminary assessment of the incident;
- evidence of previous, similar incidents; and
- other evidence held by the manufacturer.

Malfunction Or Deterioration In The Characteristics and/or Performance Of A Device.

Malfunction or deterioration is a failure of a device to perform in accordance with its intended purpose when used in accordance with the manufacturer's instructions.

Note: A device that shows no malfunction or deterioration, but nevertheless has a characteristic that could lead to an incident, should be reported as a "Near Incident."

Inaccuracies in the instruction leaflet or instructions for use include omissions and deficiencies.

Note: An example of an omission is a failure to warn of a side effect that may be produced by the device working within specification; an example of a deficiency is a lack of clarity which leads, or could lead to, an injury.

Omissions do not include the absence of information that should generally be known by the intended user.

Any inaccuracy in the instructions which caused, or could cause, misuse or incorrect maintenance or adjustment should be reported.

2. Timescale For The Initial Reporting Of An Incident Or Near Incident

The times given below are the maximum elapsed times for determining the relevant facts and making an initial report.

The time runs from the manufacturer (or his distributor or Authorized Representative) first being informed of the incident, to the relevant Competent Authority receiving the notification from the manufacturer.

INCIDENTS: 10 DAYS
NEAR INCIDENTS: 30 DAYS

IX. EC Verification by Notified Body (See NIST SP 951 *Guide to EU Standards and Conformity Assessment, Page 20).*

If the product is a Class I (sterile/measurement function), IIa, IIb, and/or III, the manufacturer will need to prepare for a Notified Body audit in accordance with the following Annexes:

- *Annex II EC Declaration of Conformity: Full Quality Assurance System.*
- *Annex III EC Type Examination.*
- *Annex IV EC Verification (Batch Testing).*

  Certain statistical verification procedures can be applied in those cases where it can be determined that batches are homogeneous. A batch is considered to be homogeneous

when equivalent parts or materials are manufactured and/or tested in the same manner, without interruption, typically on the same day or in the same time period, and produced by the same person, or with the same machine/equipment set-up and fulfills the same specifications.

- *Annex V EC Declaration of Conformity:Production Quality Assurance.*

- *Annex VI EC Declaration of Conformity:Product Quality Assurance.*

X. Authorized Representation and Competent Authority Registration

The Medical Device Directive requires the appointment of an Authorized Representative for Europe in the event the manufacturer is not established within the European Economic Area (EEA). (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 23.*)

The Directive requires that the manufacturer be listed on the label and/or packaging, and in the Instructions and Declaration of Conformity

A non-European resident manufacturer may select an agent, distributor, or a non-commercially involved representative to take up the responsibilities of an Authorized Representative.

The name of the manufacturer and the device must be notified to the Competent Authority in which the manufacturer has his or her registered place of business, the address of his registered place of business, and the description of the devices concerned.

In addition, the manufacturer keeps the Technical File available for review by Competent Authorities (the Department (Ministry) of Health of a Member State), and plays an essential role in vigilance procedures.

XI. CE Marking

CE marking (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 17.*)

The manufacturer is obliged to place the CE Marking on the medical device. *Annex XII* of the Directive instructs the manufacturer on the placing of the CE Marking.

XII. Declaration of Conformity (See NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 26.)*

The manufacturer must draw up a Declaration of Conformity and keep a copy with the technical file. The Declaration of Conformity must contain the following:

- Name and address of the manufacturer and/or his Authorized Representative;
- Product name of the device;
- Reference to the applicable Directive

- Reference to applied Harmonized Standards;
- Where appropriate, references to the specifications with which conformity is declared; and
- Identification of the signatory who has been empowered to enter into commitments on behalf of the manufacturer or his Authorized Representative established within the Community.

For a sample Declaration of Conformity, see NIST SP 951 *A Guide to EU Standards and Conformity Assessment, Page 28*.

FOR FURTHER INFORMATION, PLEASE REFER TO THE FOLLOWING TEXT OF THE DIRECTIVE.

Note: This Directive is from the Web Site http://www.newapproach.org

COUNCIL DIRECTIVE 93/42/EEC
of 14 June 1993
concerning medical devices

THE COUNCIL OF THE EUROPEAN communities,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100a thereof,

Having regard to the proposal from the Commission ([4]),

In co-operation with the European Parliament ([5]),

Having regard to the opinion of the Economic and Social Committee ([6]),

Whereas measures should be adopted in the context of the internal market; whereas the internal market is an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured;

Whereas the content and scope of the laws, regulations and administrative provisions in force in the Member States with regard to the safety, health protection and performance characteristics of medical devices are different; whereas the certification and inspection procedures for such devices differ from one Member State to another; whereas such disparities constitute barriers to trade within the Community;

Whereas the national provisions for the safety and health protection of patients, users and, where appropriate, other persons, with regard to the use of medical devices should be harmonized in order to guarantee the free movement of such devices within the internal market;

Whereas the harmonized provisions must be distinguished from the measures adopted by the Member States to manage the funding of public health and sickness insurance schemes relating directly or indirectly to such devices; whereas, therefore, the provisions do not affect the ability of the Member States to implement the above mentioned measures provided Community law is complied with;

Whereas medical devices should provide patients, users and third parties with a high level of protection and attain the performance levels attributed to them by the manufacturer; whereas, therefore, the maintenance or improvement of the level of protection attained in the Member Stares is one of the essential objectives of this Directive;

Whereas certain medical devices are intended to administer medicinal products within the meaning of Council Directive 65/65/EEC of 26 January 1965 on the approximation of provisions laid down by law, regulation or administrative action relating to proprietary medicinal products ([7]); whereas, in such cases, the placing on the market of the medical device as a general rule is governed by the present Directive and the placing on the market of the medicinal product is governed by Directive 65/65/EEC; whereas if, however, such a device is placed on the market in such a way that the device and the

[4] OJ No C 237, 12. 9. 1991 and OJ No C 251, 28. 9. 1992,p. 40.
[5] OJ No C 150, 31. 5. 1993 and OJ No C 176, 28. 6. 1993.
[6] OJ No C 79, 30. 3. 1992, p. 1.
[7] OJ No 22, 9. 6. 1965, p. 369/65. Directive as last amended by Directive 92/27/EEC (OJ No L 113, 30.4.1992, p. 8).

medicinal product form a single integral unit which is intended exclusively for use in the given combination and which is not reusable, that single-unit product shall be governed by Directive 65/65/EEC; whereas a distinction must be drawn between the above-mentioned devices and medical devices incorporating, *inter alia*, substances which, if used separately, may be considered to be a medicinal substance within the meaning of Directive 65/65/EEC; whereas in such cases, if the substances incorporated in the medical devices are liable to act upon the body with action ancillary to that of the device, the placing of the devices on the market is governed by this Directive; whereas, in this context, the safety, quality and usefulness of the substances must be verified by analogy with the appropriate methods specified in Council Directive 75/318/EEC of 20 May 1975 on the approximation of the laws of the Member States relating to analytical, pharmaco-toxicological and clinical standards and protocols in respect of the testing of proprietary medicinal products ([8]);

Whereas the essential requirements and other requirements set out in the Annexes to this Directive, including any reference to 'minimizing' or 'reducing' risk must be interpreted and applied in such a way as to take account of technology and practice existing at the time of design and of technical and economical considerations compatible with a high level of protection of health and safety;

Whereas, in accordance with the principles set out in the Council resolution of 7 May 1985 concerning a new approach to technical harmonization and standardization ([9]), rules regarding the design and manufacture of medical devices must be confined to the provisions required to meet the essential requirements; whereas, because they are essential, such requirements should replace the corresponding national provisions; whereas the essential requirements should be applied with discretion to take account of the technological level existing at the time of design and of technical and economic considerations compatible with a high level of protection of health and safety;

Whereas Council Directive 90/385/EEC of 20 June 1990 on the approximation of the laws of the Member States relating to active implantable medical devices ([10]) is the first case of application of the new approach to the field of medical devices; whereas in the interest of uniform Community rules applicable -to all medical devices, this Directive is based largely on the provisions of Directive 90/385/EEC; whereas for the same reasons Directive 90/385/EEC must be amended to insert the general provisions laid down in this Directive;

Whereas the electromagnetic compatibility aspects form an integral part of the safety of medical devices; whereas this Directive should contain specific rules on this subject with regard to Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility ([11]);

Whereas this Directive should include requirements regarding the design and manufacture of devices emitting ionizing radiation; whereas this Directive does not affect the authorization required by Council Directive 80/836/Euratom of 15 July 1980 amending the Directives laying down the basic safety standards for the health protection of the general public and

[8] OJ No L 147, 9. 6. 1975, p. 1. Directive as last amended by Directive 91/507/EEC (OJ No L 270, 26.9.1991, p. 32).
[9] OJ No C 136, 4.6.1985, p. 1.
[10] OJ No L 189, 20. 7. 1990, p. 17.
[11] OJ No L 139, 23. 5. 1989, p. 19. Directive as last amended by Directive 92/31/EEC (OJ No L 126, 12.5.1992, p. 11).

workers against the dangers of ionizing radiation ([12]), nor application of Council Directive 84/466/Euratom of 3 September 1984 laying down basic measures for the radiation protection of persons undergoing medical examination or treatment ([13]); whereas Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work ([14]) and the specific directives on the same subject should continue to apply;

Whereas, in order to demonstrate conformity with the essential requirements and to enable conformity to be verified, it is desirable to have harmonized European standards to protect against the risks associated with the design, manufacture and packaging of medical devices; whereas such harmonized European standards are drawn up by private-law bodies and should retain their status as non-mandatory texts; whereas, to this end, the European Committee for Standardization (CEN) and the European Committee for Electrotechnical Standardization (Cenelec) are recognized as the competent bodies for the adoption of harmonized standards in accordance with the general guidelines on cooperation between the Commission and these two bodies signed on 13 November 1984;

Whereas, for the purpose of this Directive, a harmonized standard is a technical specification (European standard or harmonization document) adopted, on a mandate from the Commission, by either or both of these bodies. In accordance with Council Directive 83/189/EEC of 28 March 1983 laying down a procedure for the provision of information r, the field of technical standards and regulations ([15]), and pursuant to the abovementioned general guidelines; whereas with regard to possible amendment of the harmonized standards, the Commission should be assisted by the Committee set up pursuant to Directive 83/189/EEC; whereas the measures to be taken must be defined in line with procedure I, as laid down in Council Decision 87/373/EEC ([16]); whereas, for specific fields, what already exists in the form of European Pharmacopoeia monographs should be incorporated within the framework of this Directive; whereas, therefore, several European Pharmacopoeia monographs may be considered equal to the abovementioned harmonized standards;

Whereas, in Decision 90/683/EEC of 13 December 1990 concerning the modules for the various phases of the conformity assessment procedures which are intended to be used in the technical harmonization directives ([17]), the Council has laid down harmonized conformity assessment procedures; whereas the application of these modules to medical devices enables the responsibility of manufacturers and notified bodies to be determined during conformity assessment procedures on the basis of the type of devices concerned; whereas the details added to these modules are justified by the nature of the verification required for medical devices;

Whereas it is necessary, essentially for the purpose of the conformity assessment procedures, to group the devices into four product classes; whereas the classification rules are based on the vulnerability of the human body taking account of the potential risks associated with the technical design and manufacture of the devices; whereas the conformity assessment procedures for

[12] OJ No L 246, 17. 9. 1980, p. 1. Directive as last amended by Directive 84/467/Euratom (OJ No L 265,
5.10.1984, p. 4).
[13] OJ No L 265, 5. 10. 1984, p. 1.
[14] OJ No L 183, 29. 6. 1989, p. 1.
[15] OJ No L 109, 26. 4. 1983, p. 8. Directive as last amended by Commission Decision 921400/EEC (OJ No L 221, 6. 8. 1992, p. 55).
[16] OJ No L 197. 18. 7. 198'. p. 33.
[17] OJ No L 380, 31. 12. 1990, p. 13.

Class I devices can be, carried out, as a general rule, under the sole responsibility of the manufacturers in view of the low level of vulnerability associated with these products; whereas, for Class IIa devices, the intervention of a notified body should be compulsory at the production stage; whereas, for devices falling within Classes IIb and Ill which constitute a high risk potential, inspection by a notified body is required with regard to the design and manufacture of the devices; whereas Class III is set aside for the most critical devices for which explicit prior authorization with regard to conformity is required for them to be placed on the market;

Whereas in cases where the conformity of the devices can be assessed under the responsibility of the manufacturer the competent authorities must be able, particularly in emergencies, to contact a person responsible for placing the device on the market and established in the Community, whether the manufacturer or another person established in the Community and designated by the manufacturer for the purpose;

Whereas medical devices should, as a general rule, bear the CE mark to indicate their conformity with the provisions of this Directive to enable them to move freely within the Community and to be put into service in accordance with their intended purpose;

Whereas, in the fight against AIDS and in the light of the conclusions of the Council adopted on 16 May 1989 regarding future activities on AIDS prevention and control at Community level ([18]), medical devices used for protection against the HIV virus must afford a high level of protection; whereas the design and manufacture of such products should be verified by a notified body;

Whereas the classification rules generally enable medical devices to be appropriately classified; whereas, in view of the diverse nature of the devices and technological progress in this field, steps must be taken to include amongst the implementing powers conferred on the Commission the decisions to be taken with regard to the proper classification or reclassification of the devices or, where appropriate, the adjustment of the classification rules themselves; whereas since these issues are closely connected with the protection of health, it is appropriate that these decisions should come under procedure IIIa, as provided for in Directive 87/373/EEC;

Whereas the confirmation of compliance with the essential requirements may mean that clinical investigations have to be carried out under the responsibility of the manufacturer; whereas, for the purpose of carrying out the clinical investigations, appropriate means have to be specified for the -protection of public health and public order;

Whereas the protection of health and the associated controls may be made more effective by means of medical device vigilance systems which are integrated at Community level;

Whereas this Directive covers the medical devices referred to in Council Directive 76/764/EEC of 27 July 1976 on the approximation of the laws of the Member States on clinical mercury-in-glass, maximum reading thermometers ([19]); whereas the abovementioned Directive must therefore be repealed; whereas for the same reasons Council Directive 84/539/EEC on 17 September 1984 on the approximation of the laws of the Member Stares relating to electro-medical

[18] OJ No C 185, 22. 7. 1989, p. 8.

[19] OJ No L 262, 27. 9. 1976, p. 139. Directive as last amended by Directive 841414/EEC (OJ No L 228,
25.8.1984, P. 25).

equipment used in human or veterinary medicine ([20]) must be amended,

HAS ADOPTED THIS DIRECTIVE:

Article 1

Definitions, scope

1. This Directive shall apply to medical devices and their accessories. For the purposes of this Directive, accessories shall be treated as medical devices in their own right. Both medical devices and accessories shall hereinafter be termed devices.

2. For the purposes of this Directive, the following definitions shall apply:

(a) 'medical device' means any instrument, apparatus, appliance, material or other article, whether used alone or in combination, including the software necessary for its proper application intended by the manufacturer to be used for human beings for the purpose of:

- diagnosis, prevention, monitoring, treatment Or alleviation of disease,

- diagnosis, monitoring, treatment, alleviation of or compensation for an injury or handicap,

- investigation, replacement or modification of the anatomy or of a physiological process,

- control of conception,

and which does not achieve its principal intended action in or on the human body by pharmacological, immunological or metabolic means, but which may be assisted in its function by such means;

(b) 'accessory' means an article which whilst not being a device is intended specifically by its manufacturer to be used together with a device to enable it to be used in accordance with the use of the device intended by the manufacturer of the device;

(c) 'device used for in vitro diagnosis' means any device which is a reagent, reagent product, kit, instrument, equipment or system, whether used alone or in combination, intended by the manufacturer to be used in vitro for the examination of samples derived from the human body with a view to providing information on the physiological state, state of health or disease, or congenital abnormality thereof;

(d) 'custom-made device' means any device specifically made in accordance with a duly qualified medical practitioner's written prescription which gives, under his responsibility, specific design characteristics and is intended for the sole use of a particular patient.

The abovementioned prescription may also be made out by any other person authorized by virtue of his professional qualifications to do so.

Mass-produced devices which need to be adapted to meet the specific requirements of the medical practitioner or any other professional user are not considered to be custom-made devices;

[20] OJ No L 300, 19. 11. 1984, p. 179. Directive as amended by the Act of Accession of Spain and Portugal.

(e) 'device intended for clinical investigation' means any device intended for use by a duly qualified medical practitioner when conducting investigations as referred to in Section 2.1 of Annex X in an adequate human clinical environment.

For the purpose of conducting clinical investigation, any other person who, by virtue of his professional qualifications, is authorized to carry out such investigation shall be accepted as equivalent to a duly qualified medical practitioner;

(f) 'manufacturer' means the natural or legal person with responsibility for the design, manufacture, packaging and labelling of a device before it is placed on the market under his own name, regardless of whether these operations are carried out by that person himself or on his behalf by a third party.

The obligations of this Directive to be met by manufacturers also apply to the natural or legal person who assembles, packages, processes, fully refurbishes and/or labels one or more ready-made products and/or assigns to them their intended purpose as a device with a view to their being placed on the market under his own name. This subparagraph does not apply to the person who, while not a manufacturer within the meaning of the first subparagraph, assembles or adapts devices already on the market to their intended purpose for an individual patient;

(g) 'intended purpose' means the use for which the device is intended according to the data supplied by the manufacturer on the labelling, in the instructions and/or in promotional materials;

(h) 'placing on the market' means the first making available in return for payment or free of charge of a device other than a device intended for clinical investigation, with a view to distribution and/or use on the Community market, regardless of whether it is new or fully refurbished;

(i) 'putting into service' means the stage at which a device is ready for use on the Community market for the first time for its intended purpose.

3. Where a device is intended to administer a medicinal product within the meaning of Article 1 of Directive 65/65/EEC, that device shall be governed by the present Directive, without prejudice to the provisions of Directive 65/65/EEC with regard to the medicinal product.

If, however, such a device is placed on the market in such a way that the device and the medicinal product form a single integral product which is intended exclusively for use in the given combination and which is not reusable, that single product shall be governed by Directive 65/65/EEC. The relevant essential requirements of Annex I to the present Directive shall apply as far as safety and performance related device features are concerned.

4. Where a device incorporates, as an integral part, a substance which, if used separately, may be considered to be a medicinal product within the meaning of Article 1 of Directive 65/65/EEC and which is liable to act upon the body with action ancillary to that of the device, that device must be assessed and authorized in accordance with this Directive.

5. This Directive does not apply to:

(a) in vitro diagnostic devices;

(b) active implantable devices covered by Directive 90/385/EEC;

(c) medicinal products covered by Directive 65165/EEC;

(d) cosmetic products covered by Directive 76/768/EEC ([21]);

(e) human blood, human blood products, human plasma or blood cells of human origin or to devices which incorporate at the time of placing on the market such blood products, plasma or cells;

(f) transplants or tissues or cells of human origin nor to products incorporating or derived from tissues or cells of human origin;

(g) transplants or tissues or cells of animal origin, unless a device is manufactured utilizing animal tissue which is rendered non-viable or non-viable products derived from animal tissue.

6. This Directive does not apply to personal protective equipment covered by Directive 89/686/EEC. In deciding whether a product falls under that Directive or the present Directive, particular account shall be taken of the principal intended purpose of the product.

7. This Directive is a specific Directive within the meaning of Article 2 (2) of Directive 89/336/EEC.

[21] OJ No L 262, 27. 9. 1976, p. 169. Directive as last amended by Commission Directive 92186/EEC (OJ No L 325, 1 1. I 1. 1992, p. 18).

8. This Directive does not affect the application of Directive 80/836/Euratom, nor of Directive 84/466/Euratom.

Article 2

Placing on the market and putting into service

Member States shall take all necessary steps to ensure that devices may be placed on the market and put into service only if they do not compromise the safety and health of patients, users and, where applicable, other persons when properly installed, maintained and used in accordance with their intended purpose.

Article 3

Essential requirements

The devices must meet the essential requirements set out in Annex I which apply to them, taking account of the intended purpose of the devices concerned.

Article 4

Free movement, devices intended for special purposes

1. Member States shall not create any obstacle to the placing on the market or the putting into service within their territory of devices bearing the CE marking provided for in Article 17 which indicate that they have been the subject of an assessment of their conformity in accordance with the provisions of Article 11.

2. Member States shall not create any obstacle to:

- devices intended for clinical investigation being made available to medical practitioners or authorized persons for that

purpose if they meet the conditions laid down in Article 15 and in Annex VIII,

- custom-made devices being placed on the market and put into service if they meet the conditions laid down in Article 11 in combination with Annex VIII; Class IIa, IIb and Ill devices shall be accompanied by the statement referred to in Annex VIII.

These devices shall not bear the CE marking.

3. At trade fairs, exhibitions, demonstrations, etc. Member States shall not create any obstacle to the showing of devices which do not conform to this Directive, provided that a visible sign clearly indicates that such devices cannot be marketed or put into service until they have been made to comply.

4. Member States may require the information, which must be made available to the user and the patient in accordance with Annex I, point 13, to be in their national language(s) or in another Community language, when a device reaches the final user, regardless of whether it is for professional or other use.

5. Where the devices are subject to other Directives concerning other aspects and which also provide for the affixing of the CE marking, the latter shall indicate that the devices also fulfil the provisions of the other Directives.

However, should one or more of these directives allow the manufacturer, during a transitional period, to choose which arrangements to apply, the CE marking shall indicate that the devices fulfil the provisions only of those directives applied by the manufacturer. In this case, the particulars of these directives, as published in the *Official Journal of the European Communities*, must be given in the documents, notices or instructions required by the directives and accompanying such devices.

Article 5

Reference to standards

1. Member States shall presume compliance with the essential requirements referred to in Article 3 in respect of devices which are in conformity with the relevant national standards adopted pursuant to the harmonized standards the references of which have been publishes in the *Official Journal of the European Communities*; Member States shall publish the references of such national standards.

2. For the purposes of this Directive, reference to harmonized standards also includes the monographs of the European Pharmacopoeia notably on surgical sutures and on interaction between medicinal products and materials used in devices containing such medicinal products, the references of which have been published in the Official Journal of the European Communities.

3. If a Member State or the Commission considers that the harmonized standards do not entirely meet the essential requirements referred to in Article 3, the measures to be taken by the Member States with regard to these standards and the publication referred to in paragraph 1 of this Article shall be adopted by the procedure defined in Article 6 (2).

Article 6

Committee on Standards and Technical Regulations

1. The Commission shall be assisted by the Committee set up by Article 5 of Directive 83/189/EEC.

2. The representative of the Commission shall submit to the Committee a draft of the measures to be taken. The Committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter, if necessary by taking a vote.

The opinion shall be recorded in the minutes; in addition, each Member State shall have the right to ask to have its position recorded in the minutes.

The Commission shall take the utmost account of the opinion delivered by the Committee. It shall inform the Committee of the manner in which its opinion has been taken into account.

Article 7

Committee on Medical Devices

1. The Commission shall be assisted by the Committee set up by Article 6 (2) of Directive 90/385/EEC.

2. The representative of the Commission shall submit to the Committee a draft of the measures to be taken. The Committee shall deliver its opinion on the draft within a time limit which the chairman may lay down according to the urgency of the matter. The opinion shall be delivered by the majority laid down in Article 148 (2) of the Treaty in the case of decisions which the Council is required to adopt on a proposal from the Commission. The votes of the representatives of the Member States within the Committee shall be weighted in the manner set out in that Article. The chairman shall not vote.

The Commission shall adopt the measures envisaged if they are in accordance with the opinion of the Committee.

If the measures envisaged are not in accordance with the opinion of the Committee, or if no opinion is delivered, the Commission shall, without delay, submit to the Council a proposal relating to the measures to be taken. The Council shall act by a qualified majority.

If, on the expiry of a period of three months from the date of referral to the Council, the Council has not acted, the proposed measures shall be adopted by the Commission.

4. The Committee may examine any question connected with implementation of this Directive.

Article 8

Safeguard clause

1 Where a Member State ascertains that the devices referred to in Article 4 (1) and (2) second indent, when correctly installed, maintained and used for their intended purpose, may compromise the health and/or safety of patients, users or, where applicable, other persons, it shall take all appropriate interim measures to withdraw such devices from the market or prohibit or restrict their being placed on the market or put into service. The Member State shall immediately inform the Commission of any such measures, indicating the reasons for its decision and, in particular, whether non-compliance with this Directive is due to:

(a) failure to meet the essential requirements referred to in Article 3;

(b) incorrect application of the standards referred to in Article 5, in so far as it

is claimed that the standards have been applied;

(c) shortcomings in the standards themselves.

2. The Commission shall enter into consultation with the parties concerned as soon as possible. Where, after such consultation, the Commission finds that:

- the measures are justified, it shall immediately so inform the Member State which took the initiative and the other Member States; where the decision referred to in paragraph 1 is attributed to shortcomings in the standards, the Commission shall, after consulting the parties concerned, bring the matter before the Committee referred to in Article 6 (1) within two months if the Member State which has taken the decision intends to maintain it and shall initiate the procedures referred to in Article 6,

- the measures are unjustified, it shall immediately so inform the Member State which took the initiative and the manufacturer or his authorized representative established within the Community.

3. Where a non-complying device bears the CE marking, the competent Member State shall take appropriate action against whomsoever has affixed the mark and shall inform the Commission and the other Member States thereof.

4. The Commission shall ensure that the Member States are kept informed of the progress and outcome of this procedure.

Article 9

Classification

1. Devices shall be divided into Classes I, IIa, IIb and III. Classification shall be carried out in accordance with Annex IX.

2. In the event of a dispute between the manufacturer and the notified body concerned, resulting from the application of the classification rules, the matter shall be referred for decision to the competent authority to which the notified body is subject.

3. The classification rules set out in Annex IX may be adapted in accordance with the procedure referred to in Article 7 (2) in the light of technical progress and any information which becomes available under the information system provided for in Article 10.

Article 10

Information on incidents occurring following placing of devices on the market

1. Member States shall take the necessary steps to ensure that any information brought to their knowledge, in accordance with the provisions of this Directive, regarding the incidents mentioned below involving a Class I, IIa, IIb or Ill device is recorded and evaluated centrally:

(a) any malfunction or deterioration in the characteristics and/or performance of a device, as well as any inadequacy in the labelling or the instructions for use which might lead to or might have led to the death of a patient or user or to a serious deterioration in his state of health;

(b) any technical or medical reason in relation to the characteristics or performance of a device for the

reasons referred to in subparagraph (a), leading to systematic recall of devices of the same type by the manufacturer.

2. Where a Member State requires medical practitioners or the medical institutions to inform the competent authorities of any incidents referred to in paragraph 1, it shall take the necessary steps to ensure that the manufacturer of the device concerned, or his authorized representative established in the Community, is also informed of the incident.

3. After carrying out an assessment, if possible together with the manufacturer, Member States shall, without prejudice to Article 8, immediately inform the Commission and the other Member States of the incidents referred to in paragraph 1 for which relevant measures have been taken or are contemplated.

Article 11

Conformity assessment procedures

1. In the case of devices falling within Class Ill, other than devices which are custom-made or intended for clinical investigations, the manufacturer shall, in order to affix the CE marking, either:

(a) follow the procedure relating to the EC declaration of conformity set out in Annex II (full quality assurance); or

(b) follow the procedure relating to the EC type-examination set our in Annex Ill, coupled with:

(i) the procedure relating to the EC verification set out in Annex IV;

or

(ii) the procedure relating to the EC declaration of conformity set out in Annex V (production quality assurance).

2. In the case of devices falling within Class IIa, other than devices which are custom-made or intended for clinical investigations, the manufacturer shall, in order to affix the CE marking, follow the procedure relating to the EC declaration of conformity set out in Annex VII. coupled with either:

(a) the procedure relating to the EC verification set out in Annex IV;

or

(b) the procedure relating to the EC declaration of conformity set out in Annex V (production quality assurance);

or

(c), the procedure relating to the EC declaration of conformity set out in Annex VI (product quality assurance).

Instead of applying these procedures, the manufacturer may also follow the procedure referred to in paragraph 3 (a).

3. In the case of devices falling within Class IIb, other than devices which are custom-made or intended for clinical investigations, the manufacturer shall, in order to affix the CE marking, either:

(a) follow the procedure relating to the EC declaration of conformity set out in Annex II (full quality assurance); in this case, point 4 of Annex II is not applicable; or

(b) follow the procedure relating to the EC type-examination set out in Annex III, coupled with:

(i) the procedure relating to the EC verification set out in Annex IV;

or

(ii) the procedure relating to the EC declaration of conformity set out in Annex V (production quality assurance);

or

(iii) the procedure relating to the EC declaration of conformity set out in Annex VI (product quality assurance).

4. The Commission shall, no later than five years from the date of implementation of this Directive, submit a report to the Council on the operation of the provisions referred to in Article 10 (1), Article 15 (1), in particular in respect of Class I and Class IIa devices, and on the operation, of the provisions referred to in Annex II, Section 4.3 second and third subparagraphs and in Annex III, Section 5 second and third subparagraphs to this Directive, accompanied, if necessary, by appropriate proposals.

5. In the case of devices falling within Class 1, other than devices which are custom-made or intended for clinical investigations, the manufacturer shall, in order to affix the CE marking, follow the procedure referred to in Annex VII and draw up the EC declaration of conformity required before placing the device on the market.

6. In the case of custom-made devices, the manufacturer shall follow the procedure referred to in Annex VIII and draw up the statement set out in that Annex before placing each device on the market.

Member States may require that the manufacturer shall submit to the competent authority, a list of such devices which have been put into service in their territory.

7. During the conformity assessment procedure for a device, the manufacturer and/or the notified body shall take account of the results of any assessment and verification operations which, where appropriate, have been carried out in accordance with this Directive at an intermediate stage of manufacture.

8. The manufacturer may instruct his authorized representative established in the Community to initiate the procedures provided for in Annexes Ill, IV, VII and viii.

9. Where the conformity assessment procedure involves the intervention of a notified body, the manufacturer, or his authorized representative established in the Community, may apply to a body of his choice within the framework of the tasks for which the body has been notified.

10. The notified body may require, where duly justified, any information or data, which is necessary for establishing and maintaining the attestation of conformity in view of the chosen procedure.

11. Decisions taken by the notified bodies in accordance with Annexes II and III shall be valid for a maximum of five years and may be extended on application, made at a time agreed in the contract signed by both parties, for further periods of five years.

12. The records and correspondence relating to the procedures referred to in paragraphs 1 to 6 shall be in an official language of the Member State in which the

procedures are carried out and/or in another Community language acceptable to the notified body.

13. By derogation from paragraphs 1 to 6, the competent authorities may authorize, on duly justified request, the placing on the market and putting into service, within the territory of the Member State concerned, of individual devices for which the procedures referred to in paragraphs 1 to 6 have not been carried out and the use of which is in the interest of protection of health.

Article 12

Particular procedure for systems and procedure packs

1. By way of derogation from Article 11 this Article shall apply to systems and procedure packs.

2. Any natural or legal person who puts devices bearing the CE marking together within their intended purpose and within the limits of use specified by their manufacturers, in order to place them on the market as a system or procedure pack, shall draw up a declaration by which he states that:

(a) he has verified the mutual compatibility of the devices in accordance with the manufacturers' instructions and has carried out his operations in accordance with these instructions; and

(b) he has packaged the system or procedure pack and supplied relevant information to users incorporating relevant instructions from the manufacturers; and

(c) the whole activity is subjected to appropriate methods of internal control and inspection.

Where the conditions above are not met, as in cases where the system or procedure pack incorporate devices which do not bear a CE marking or where the chosen combination of devices is not compatible in view of their original intended use, the system or procedure pack shall be treated as a device in its own right and as such be subjected to the relevant procedure pursuant to Article 11.

3. Any natural or legal person who sterilized, for the purpose of placing on the market, systems or procedure packs referred to in paragraph 2 or other CE-marked medical devices designed by their manufacturers to be sterilized before use, shall, at his choice, follow one of the procedures referred to in Annex IV, V or VI. The application of the abovementioned Annexes and the intervention of the notified body are limited to the aspects of the procedure relating to the obtaining of sterility. The person shall draw up a declaration stating that sterilization has been carried out in accordance with the manufacturer's instructions.

4. The products referred to in paragraphs 2 and 3 themselves shall not bear an additional CE marking. They shall be accompanied by the information referred to in point 13 of Annex I which includes, where appropriate, the information supplied by the manufacturers of the devices which have been put together. The declaration referred to in paragraphs 2 and 3 above shall be kept at the disposal of competent authorities for a period of five years.

Article 13

Decisions with regard to classification,

derogation clause

1. Where a Member Stare considers that:

(a) application of the classification rules set out in Annex IX requires a decision with regard to the classification of a given device or category of devices;

or

(b) a given device or family of devices should be classified, by way of derogation from the provisions of Annex IX, in another class;

or

(c) the conformity of a device or family of devices should be established, by way of derogation from the provisions of Article 11, by applying solely one of the given procedures chosen from among those referred to in Article 11,

it shall submit a duly substantiated request to the Commission and ask it to take the necessary measures. These measures shall be adopted in accordance with the procedure referred to in Article 7 (2).

2. The Commission shall inform the Member States of the measures taken and, where appropriate, publish the relevant parts of these measures in the *Official Journal of the European Communities.*

Article 14

Registration of persons responsible for placing devices on the market

1. Any manufacturer who, under his own name, places devices on the market in accordance with the procedures referred to in Article 11 (5) and (6) and any other natural or legal person engaged in the activities referred to in Article 12 shall inform the competent authorities of the Member State in which he has his registered place of business of the address of the registered place of business and the description of the devices concerned.

2. Where a manufacturer who places devices referred to in paragraph I on the market under his own name does not have a registered place of business in a Member State, he shall designate the person(s) responsible for marketing them who is (are) established in the community These persons shall inform the competent authorities of the Member State in which they have their registered place of business of the address of the registered place of business and the category of devices concerned.

3. The Member States shall on request inform the other Member States and the Commission of the details referred to in paragraphs 1 and 2.

Article 15

Clinical investigation

1. In the case of devices intended for clinical investigations, the manufacturer, or his authorized representative established in the Community, shall follow the procedure referred to in Annex VIII and notify the competent authorities of the Member States in which the investigations are to be conducted.

2. In the case of devices falling within Class III and implantable and long-term invasive devices falling within Class IIa or IIb, the manufacturer may commence the relevant clinical investigation at the end of a period of *60* days after notification, unless the competent authorities have notified him within that period of a decision to the contrary based on

considerations of public health or public policy.

Member States may however authorize manufacturers to commence the relevant clinical investigations before the expiry of the period of 60 days, in so far as the relevant ethics committee has issued a favourable opinion on the programme of investigation in question.

3. In the case of devices other than those referred to in the second paragraph, Member States may authorize manufacturers to commence clinical investigations, immediately after the date of notification, provided that the ethics committee concerned has delivered a favourable opinion with regard to the investigational plan.

4. The authorization referred to in paragraph 2 second subparagraph and paragraph 3, may be made subject to authorization from the competent authority.

5. The clinical investigations must be conducted in accordance with the provisions of Annex X. The provisions of Annex X may be adjusted in accordance with the procedure laid down in Article 7 (2).

6. The Member States shall, if necessary, take the appropriate steps to ensure public health and public policy.

7. The manufacturer or his representative established in the Community shall keep the report referred to in point 2.3.7 of Annex X at the disposal of the competent Authorities.

8. The provisions of paragraphs I and 2 do not apply where the clinical investigations are conducted using devices which are authorized in accordance with

1) Article 11 to bear the CE marking unless the aim of these investigations is to use the devices for a purpose other than that referred to in the relevant conformity - assessment procedure. The relevant provisions of Annex X remain applicable.

Article 16

Notified bodies

1. The Member States shall notify the Commission and other Member States of the bodies which they have designated for carrying out the tasks pertaining to the procedures referred to in Article 11 and the specific tasks for which the bodies have been designated. The Commission shall assign identification numbers to these bodies, hereinafter referred to as 'notified bodies'.

The Commission shall publish a list of the notified bodies, together with the identification numbers it has allocated to them and the tasks for which they have been notified, in the *Official Journal of the European Communities.* It shall ensure that the list is kept up to date.

2. Member States shall apply the criteria set out in Annex XI for the designation of bodies. Bodies that meet the criteria laid down in the national standards which transpose the relevant harmonized standards shall be presumed to meet the relevant criteria.

3. A Member State that has notified a body shall withdraw that notification if it finds that the body no longer meets the criteria referred to in paragraph 2. It shall immediately inform the other Member States and the Commission thereof.

4. The notified body and the 'manufacturer, or his authorized representative established in the Community, shall lay down, by common

accord, the time limits for completion of the assessment and verification operations referred to in Annexes II to VI.

Article 17

CE marking

1. Devices, other than devices which are custom-made or intended for clinical investigations, considered to meet the essential requirements referred to in Article 3 must bear the CE marking of conformity when they are placed on the market.

2. The CE marking of conformity, as shown in Annex XII, must appear in a visible, legible and indelible form on the device or its sterile pack, where practicable and appropriate, and on the instructions for use. Where applicable, the CE marking must also appear on the sales packaging.

It shall be accompanied by the identification number of the notified body responsible for implementation of the procedures set out in Annexes 11, IV, V and VI.

3. It is prohibited to affix marks or inscriptions which are likely to mislead third parties with regard to the meaning or the graphics of the CE marking. Any other mark may be affixed to the device, to the packaging or to the instruction leaflet accompanying the device provided that the visibility and legibility of the CE marking is not thereby reduced.

Article 18

Wrongly affixed CE marking

Without prejudice to Article 8:

(a) where a Member State establishes that the CE marking has been affixed unduly, the manufacturer or his authorized representative established within the Community shall be obliged to end the infringement under conditions imposed by the Member State;

(b) where non-compliance continues, the Member State must take all appropriate measures to restrict or prohibit the placing on the market of the product in. question or to ensure that it is withdrawn from the market, in accordance with the procedure in Article 8.

Article 19

Decision in respect of refusal or restriction

1. Any decision taken pursuant to this Directive:

(a) to refuse or restrict the placing on the market or the putting into service of a device or the carrying out of clinical investigations;

or

(b) to withdraw devices from the market,

shall state the exact grounds on which it is based. Such decisions shall be notified without delay to the party concerned, who shall at the same time be informed of the remedies available to him under the national law in force in the Member State in question and of the time limits to which such remedies are subject.

2. In the event of a decision as referred to in paragraph 1, the manufacturer, or his authorized representative established in the Community, shall have an opportunity to put forward his viewpoint in advance, unless such consultation is not possible

because of the urgency of the measure to be taken.

Article 20

Confidentiality

Without prejudice to the existing national provisions and practices on medical secrets, Member States shall ensure that all the parties involved in the application of this Directive are bound to observe confidentiality with regard to all information obtained in carrying out their tasks. This does not affect the obligation of Member States and notified bodies with regard to mutual information and the dissemination of warnings, nor the obligations of the persons concerned to provide information under criminal law.

Article 21

Repeal and amendment of Directives

1. Directive 761764/EEC is hereby repealed with effect from I January 1995.

2. In the title and Article 1 of Directive 841539/EEC, 'human or' is deleted.

In Article 2 of Directive 84/539/EEC, the following subparagraph is added to paragraph 1:

If the appliance is at the same time a medical device within the meaning of Directive 93/42/EEC ([22]) and if it satisfies the essential requirements laid down therein for that device, the device shall be deemed to be in conformity with the requirements of this Directive.

3. Directive 90/385/EEC is hereby amended as follows:

1. in Article 1 (2) the following two subparagraphs are added:

(h) 'placing on the market' means the first making available in return for payment or free of charge of a device other than a device intended for clinical investigation, with a view to distribution and/or use on the Community market, regardless of whether it is new or fully refurbished;

(i) ‘manufacturer' means the natural or legal person with responsibility for the design, manufacture, packaging and labelling of a device before it is placed on the market under his own name, regardless of whether these operations are carried out by that person himself or on his behalf by a third parry.

The obligations of this Directive to be met by manufacturers also apply to the natural or legal person who assembles, packages, processes, fully refurbishes and/or labels one or more ready-made products and/or assigns to them their intended purpose as a device with a view to their being placed on the market under his own name. This subparagraph does not apply to the person who, while not a manufacturer within the meaning of the first subparagraph, assembles or adapts devices already on the market to their intended purpose for an individual patient;'

2. in Article 9 the following paragraphs are added:

5. During the conformity assessment procedure for a device, the manufacturer and/or the notified body shall take account of the results of any assessment and verification operations which, where appropriate, have been carried out in accordance with this Directive at an intermediate stage of manufacture.

[22] OJ No L 169, 12. 7. 1993, p. l.

6. Where the conformity assessment procedure involves the intervention of a notified body, the manufacturer, or his authorized representative established in the Community, may apply to a body of his choice within the framework of the tasks for which the body has been notified.

7. The notified body may require, where duly justified, any information or data which is necessary for establishing and maintaining the attestation of conformity in view of the chosen procedure.

8. Decisions taken by the notified bodies in accordance with Annexes 11 and Ill shall be valid for a maximum of five years and may be extended on application, made at a time agreed in the contract signed by both parties, for further periods of five years.

9. By derogation from paragraphs I and 2 the competent authorities may authorize, on duly justified request, the placing on the market and putting into service, within the territory of the Member State concerned, of individual devices for which the procedures referred to in paragraphs I and 2 have not been carried out and the use of which is in the interest of protection of health.';

3. the following Article 9a is inserted

after Article 9:

'Article 9a

1. Where a Member State considers that the conformity of a device or family of devices should be established, by way of derogation from the provisions of Article 9, by applying solely one of the given procedures chosen from among those referred to in Article 9, it shall submit a duly substantiated request to the Commission and ask it to take the necessary measures. These measures shall be adopted in accordance with the procedure referred to in Article 7 (2) of Directive 93/42/EEC ([1]).

[1] OJ No L 169, 12. 7. 1993, p. l.'

2. The Commission shall inform the Member States of the measures taken and, where appropriate, publish the relevant parts of these measures in the *Official Journal of the European Communities.*

4. Article 10 shall be amended as follows:

- the following subparagraph shall be added to paragraph 2:

'Member States may however authorize manufacturers to start the clinical investigations in question before the expiry of the 60-day period, provided that the Ethical Committee concerned has delivered a favourable opinion with respect to the investigation programme in question.',

- the following paragraph shall be inserted:

'2a. The authorization referred to in the second subparagraph of paragraph 2 may be subject to

approval by the competent authority.';

5. the following is added to Article 14:

'In the event of a decision as referred to in the previous paragraph the manufacturer, or his authorized representative established in the Community, shall have an opportunity to put forward his viewpoint in advance, unless such consultation is not possible because of the urgency of the measures to be taken.'

Article 22

Implementation, transitional provisions

1. Member States shall adopt and publish the laws, regulations and administrative provisions necessary to comply with this Directive not later than 1 July 1994. They shall immediately inform the Commission thereof.

The Standing Committee referred to in Article 7 may assume its tasks from the date of notification (1) of this Directive. The Member States may take the measures referred to in Article 16 on notification of this Directive.

When Member States adopt these provisions, these shall contain a reference to this Directive or shall be accompanied by such a reference at the time of their official publication. The procedure for such reference shall be adopted by Member States.

Member States shall apply these provisions with effect from 1 January 1995.

2. Member States shall communicate to the Commission the texts of the provisions of national law which they adopt in the field covered by this Directive.

3. Member States shall take the necessary action to ensure that the notified bodies which are responsible pursuant to Article 11 (1) to (5) for conformity assessment take account of any relevant information regarding the characteristics and performance of such devices, including in particular the results of any relevant tests and verification already carried out under pre-existing national law, regulations or administrative provisions in respect of such devices.

4. Member States shall accept the placing on the market and putting into service of devices which conform to the rules in force in their territory on 31 December 1994 during a period of five years following adoption of this Directive.

In the case of devices which have been subjected to EEC pattern approval in accordance with Directive 761764/EEC, Member States shall accept their being placed on the market and put into service during the period up to 30 June 2004.

Article 23

This Directive is addressed to the Member

States.

Done at Luxembourg, 14 June 1993.

For the Council

The President

J. TRØJBORG

This Directive was notified to the Member States on 29 June 1993.

ANNEX I

ESSENTIAL REQUIREMENTS

I. GENERAL REQUIREMENTS

1. The devices must be designed and manufactured in such a way that, when used under the conditions and for the-purposes intended, they will not compromise the clinical condition or the safety of patients, or the safety and health of users or, where applicable, other persons, provided that any risks which may be associated with their use constitute acceptable risks when weighed against the benefits to the patient and are compatible with a high level of protection of health and safety.

2. The solutions adopted by the manufacturer for the design and construction of the devices must conform to safety principles, taking account of the generally acknowledged state of the art.

   In selecting the most appropriate solutions, the manufacturer must apply the following principles in the following order:

   - eliminate or reduce risks as far as possible (inherently safe design and construction),

   - where appropriate take adequate protection measures including alarms if necessary, in relation to risks that cannot be eliminated,

   - inform users of the residual risks due to any shortcomings of the protection measures adopted.

3. The devices must achieve the performances intended by the manufacturer and be designed, manufactured and packaged in such a way that they are suitable for one or more of the functions referred to in Article 1 (2) (a), as specified by the manufacturer.

4. The characteristics and performances referred to in Sections 1, 2 and 3 must not be adversely affected to such a degree that the clinical conditions and safety of the patients and, where applicable, of other persons are compromised during the lifetime of the device as indicated by the manufacturer, when the device is subjected to the stresses which can occur during normal conditions of use.

5. The devices must be designed, manufactured and packed in such a way that their characteristics and performances during their intended use will not be adversely affected during transport and storage taking account of the instructions and information provided by the manufacturer.

6. Any undesirable side-effect must constitute an acceptable risk when weighed against the performances intended.

II. REQUIREMENTS REGARDING DESIGN AND CONSTRUCTION

7. Chemical, physical and biological properties

7.1. The devices must be designed and manufactured in such a way as to guarantee the characteristics and performances referred to in Section I on the 'General requirements'. Particular attention must be paid to:

- the choice of materials used, particularly as regards toxicity and, where appropriate, flammability,

- the compatibility between the materials used and biological tissues, cells and body fluids, taking account of the intended purpose of the device.

7.2. The devices must be designed, manufactured and packed in such a way as to minimize the risk posed by contaminants and residues to the persons involved in the transport, storage and use of the devices and to the patients, taking account of the intended purpose of the product. Particular attention must be paid to the tissues exposed and to the duration and frequency of exposure.

7.3. The devices must be designed and manufactured in such a way that they can be used safely with the materials, substances and gases with which they enter into contact during their normal use or during routine procedures; if the devices are intended to administer medicinal products they must be designed and manufactured in such a way as to be compatible with the medicinal products concerned according to the provisions and restrictions governing these products and that their performance is maintained in accordance with the intended use.

7.4. Where a device incorporates, as an integral part, a substance which, if used separately, may be considered to be a medicinal product as defined in Article 1 of Directive 65/65/EEC and which is liable to act upon the body with action ancillary to that of the device, the safety, quality and usefulness of the substance must be verified, taking account of the intended purpose of the device, by analogy with the appropriate methods specified in Directive 75/318/EEC.

7.5. The devices must be designed and manufactured in such a way as to reduce to a minimum the risks posed by substances leaking from the device.

7.6. Devices must he designed and manufactured in such a way as to reduce, as much as possible, risks posed by the unintentional ingress of substances into the device taking into account the device and the nature of the environment in which it is intended to be used.

8. Infection and microbial contamination

8.1. The devices and manufacturing processes must be designed in such a way as to eliminate or reduce as far as possible the risk of infection to the patient, user and third

parties. The design must allow easy handling and, where necessary, minimize contamination of the device by the patient or vice versa during use.

8.2. Tissues of animal origin must originate from animals that have been subjected to veterinary controls and surveillance adapted to the intended use of the tissues.

Notified bodies shall retain information on the geographical origin of the animals.

Processing, preservation, testing and handling of tissues, cells and substances of animal origin must he carried out so as to provide optimal security. In particular safety with regard to viruses and other transferable agents must be addressed by implementation of validated methods of elimination or viral inactivation in the course of the manufacturing process.

8.3. Devices delivered in a sterile state must be designed, manufactured and packed in a non-reusable pack and/or according to appropriate procedures to ensure that they are sterile when placed on the market and remain sterile, under the storage and transport conditions laid down, until the protective packaging is damaged or opened.

8.4. Devices delivered in a sterile state must have been manufactured and sterilized by an appropriate, validated method.

8.5. Devices intended to be sterilized must be manufactured in appropriately controlled (c. g. environmental) conditions.

8.6. Packaging systems for non-sterile devices must keep the product without deterioration at the level of cleanliness stipulated and, if the devices are to be sterilized prior to use, minimize the risk of microbial contamination; the packaging system must be suitable taking account of the method of sterilization indicated by the manufacturer.

8.7. The packaging and/or label of the device must distinguish between identical or similar products sold in both sterile and non-sterile condition.

9. **Construction and environmental properties**

9.1. If the device is intended for use in combination with other devices or equipment, the whole combination, including the connection system must be safe and must not impair the specified performances of the devices. Any restrictions on use must be indicated on the label or in the instructions for use.

9.2. Devices must be designed and manufactured in such a way as to remove or minimize as far as is possible:

- the risk of injury, in connection with their physical features, including the volume/pressure ratio, dimensional and where appropriate ergonomic features,

- risks connected with reasonably foreseeable environmental conditions, such as magnetic fields, external electrical influences, electrostatic discharge, pressure, temperature or variations in pressure and acceleration,

- the risks of reciprocal interference with other devices normally used in the investigations or for the treatment given,

- risks arising where maintenance or calibration are not possible (as with implants), from ageing of materials used or loss of accuracy of any measuring or control mechanism.

9.3. Devices must be designed and manufactured in such a way as to minimize the risks of fire or explosion during normal use and in single fault condition. Particular attention must be paid to devices whose intended use includes exposure to flammable substances or to substances which could cause combustion.

10. **Devices with a measuring function**

10.1. Devices with a measuring function must be designed and manufactured in such a way as to provide sufficient accuracy and stability within appropriate limits of accuracy and taking account of the intended purpose of the device. The limits of accuracy must be indicated by the manufacturer.

10.2. The measurement, monitoring and display scale must be designed in line with ergonomic principles, taking account of the intended purpose of the device.

10.3. The measurements made by devices with a measuring function must be expressed in legal units conforming to the provisions of Council Directive 80/181/EEC ([23]).

11. **Protection against radiation**

11.1. General

11.1.1. Devices shall be designed and manufactured in such a way that exposure of patients, users and other persons to radiation shall be reduced as far as possible compatible with the intended purpose, whilst not restricting the application of appropriate specified levels for therapeutic and diagnostic purposes.

11.2. *Intended radiation*

11.2.1. Where devices are designed to emit hazardous levels of radiation necessary for a specific medical purpose, the benefit of which is considered to outweigh the risks inherent in the emission, it must be possible for the user to control the emissions. Such devices shall be designed and manufactured to ensure reproducibility and tolerance of relevant variable parameters.

11.2.2. Where devices are intended to emit potentially hazardous, visible and/or invisible radiation, they must be fitted, where practicable, with visual displays and/or audible warnings of such emissions.

11.3. *Unintended radiation*

[23] OJ No L 39. 15. 2. 1980, p. 40. Directive as last amended by Directive 891617/EEC (OJ No L 357, 7.12.1989, p. 28).

11.3.1. Devices shall be designed and manufactured in such a way that exposure of patients, users and other persons to the emission of unintended, stray or scattered radiation is reduced as far as possible.

11.4. *Instructions*

11.4.1. The operating instructions for devices emitting radiation must give detailed information as to the nature of the emitted radiation, means of protecting the patient and the user and on ways of avoiding misuse and of eliminating the risks inherent in installation.

11.5. *Ionizing radiation*

11.5.1. Devices intended to emit ionizing radiation must be designed and manufactured in such a way as to ensure that, where practicable, the quantity, geometry and quality of radiation emitted can he varied and controlled taking into account the intended use.

11.5.2. Devices emitting ionizing radiation intended for diagnostic radiology shall be designed and manufactured in such a way as to achieve appropriate image and/or output quality for the intended medical purpose whilst minimizing radiation exposure of the patient and user.

11.5.3. Devices emitting ionizing radiation, intended for therapeutic radiology shall be designed and manufactured in such a way as to enable reliable monitoring and control of the delivered dose, the beam type and energy and where appropriate the quality of radiation.

12. **Requirements for medical devices connected to or equipped with an energy source**

12.1. Devices incorporating electronic programmable systems must be designed to ensure the repeatability, reliability and performance of these systems according to the intended use. In the event of a single fault condition (in the system) appropriate means should be adopted to eliminate or reduce as far as possible consequent risks.

12.2. Devices where the safety of the patients depends on an internal power supply must be equipped with a means of determining the state of the power supply.

12.3. Devices where the safety of the patients depends on an external power supply must include an alarm system to signal any power failure.

12.4. Devices intended to monitor one or more clinical parameters of a patient must be equipped with appropriate alarm systems to alert the user of situations which could lead to death or severe deterioration of the patient's state of health.

12.5. Devices must be designed and manufactured in such a way as to minimize the risks of creating electromagnetic fields which could impair the operation of other devices or equipment in the usual environment.

12.6. *Protection against electrical risks*

Devices must be designed and manufactured in such a way as to avoid, as far as possible, the risk of accidental electric shocks during normal use and in single fault condition, provided the devices are installed correctly.

12.7. *Protection against mechanical and thermal risks*

12.7.1. Devices must be designed and manufactured in such a way as to protect the patient and user against mechanical risks connected with, for example, resistance, stability and moving parts.

12.7.2. Devices must be designed and manufactured in such a way as to reduce to the lowest possible level the risks arising from vibration generated by the devices, taking account of technical progress and of the means available for limiting vibrations, particularly at source, unless the vibrations are part of the specified performance.

12.7.3. Devices must be designed and manufactured in such a way as to reduce to the lowest possible level the risks arising from the noise emitted, taking account of technical progress and of the means available to reduce noise, particularly at source, unless the noise emitted is part of the specified performance.

12.7.4. Terminals and connectors to the electricity, gas or hydraulic and pneumatic energy supplies which the user has to handle must be designed and constructed in such a way as to minimize all possible risks.

12.7.5. Accessible parts of the devices (excluding the parts or areas intended to supply beat or reach given temperatures) and their surroundings must not attain potentially dangerous temperatures under normal Use.

12.8. Protection against the risks posed to the patient by energy supplies or substances

12.8.1. Devices for supplying the patient with energy or substances must be designed and constructed in such a way that the flow-rate can be set and maintained accurately enough to guarantee the safety of the patient and of the user.

12.8.2. Devices must be fitted with the means of preventing and/or indicating any inadequacies in the flow-rate which could pose a danger.

Devices must incorporate suitable means to prevent, as far as possible, the accidental release of dangerous levels of energy from an energy and/or substance source.

12.9. The function of the controls and indicators must be clearly specified on the devices.

Where a device bears instructions required for its operation or indicates operating or adjustment parameters by means of a visual system, such information must be understandable to the user and, as appropriate, the patient.

13. **Information supplied by the manufacturer**

13.1. Each device must be accompanied by the information needed to use it safely and to identify the manufacturer, taking account of the training and knowledge of the potential users.

This information comprises the details on the label and the data in the instructions for use.

As far as practicable and appropriate, the information needed to use the device safely must be set our on the device itself and/or on the packaging for each unit or, where appropriate, on the sales packaging. If individual packaging of each unit is not practicable, the information must be set our in the leaflet supplied with one or more devices.

Instructions for use must be included in the packaging for every device. By way of exception, no such instructions for use are needed for devices in Class I or IIa if they can be used safely without any such instructions.

13.2. Where appropriate, this information should take the form of symbols. Any symbol or identification colour used must conform to the harmonized standards. In areas for which no standards exist, the symbols and colours must be described in the documentation supplied with the device.

13.3. The label must bear the following particulars:

(a) the name or trade name and address of the manufacturer. For devices imported into the Community, in view of their distribution in the Community, the label, or the outer packaging, or instructions for use, shall contain in addition the name and address of either the person responsible referred to in Article 14 (2) or of the authorized representative of the manufacturer established within the Community or of the importer established within the Community, as appropriate;

(b) the details strictly necessary for the user to identify the device and the contents of the packaging;

(c) where appropriate, the word 'STERILE';

(d) where appropriate, the batch code, preceded by the word 'LOT', or the serial number;

(e) where appropriate, an indication of the date by which the device should be used, in safety, expressed as the year and month;

(f) where appropriate, an indication that the device is for single use;

(g) if the device is custom-made, the words 'custom-made device';

(h) if the device is intended for clinical investigations, the words 'exclusively for clinical investigations';

(i) any special storage and/or handling conditions;

(j) any special operating instructions;

(k) any warnings and/or precautions to take;

(l) year of manufacture for active devices other than those covered by (c). This indication may be included in the batch or serial number;

(m) where applicable, method of sterilization.

13.4. If the intended purpose of the device is not obvious to the user, the manufacturer must clearly state it on the label and in the instructions for use.

13.5. Wherever reasonable and practicable, the devices and detachable components must be identified, where appropriate in terms of batches, to allow all appropriate action to detect any potential risk posed by the devices and detachable components.

13.6. Where appropriate, the instructions for use must contain the following particulars:

(a) the details referred to in Section 13.3, with the exception of (d) and (c);

(b) the performances referred to in Section 3 and any undesirable side-effects;

(c) if the device must he installed with or connected to other medical devices or equipment in order to operate as required for its intended purpose, sufficient details of its characteristics to identify the correct devices or equipment to use in order to obtain a safe combination;

(d) all the information needed to verify whether the device is properly installed and can operate correctly and safely, plus details of the nature and frequency of the maintenance and calibration needed to ensure that the devices operate properly and safely at all times;

(e) where appropriate, information to avoid certain risks in connection with implantation of the device;

(f) information regarding the risks of reciprocal interference posed by the presence of the device during specific investigations or treatment;

(g) the necessary instructions in the event of damage to the sterile packaging and, where appropriate, details of appropriate methods of destabilization;

(h) if the device is reusable, information on the appropriate processes to allow reuse, including cleaning, disinfection, packaging and, where appropriate, the method of sterilization of the device to be resterilized, and any restriction on the number of reuses.

Where devices are supplied’ with the intention that they be sterilized before. use, the instructions for cleaning and sterilization must be such that, if correctly followed, the device will still comply with the requirements in Section I;

(i) details of any further treatment or handling needed before the device can be used (for example, sterilization, final assembly, etc.);
(j) in the case of devices emitting radiation for medical purposes, details of the nature, type, intensity and distribution of this radiation.

The instructions for use must also include details allowing the medical staff to brief the patient on any contra-indications and any precautions to be taken. These details should cover in particular:

(k) precautions to be taken in the event of changes in the performance of the device;

(l) precautions to be taken as regards exposure, in reasonably foreseeable environmental conditions, to magnetic fields, external electrical influences, electrostatic discharge, pressure or variations in pressure, acceleration, thermal ignition sources, etc.;

(m) adequate information regarding the medicinal product or products which the device in question is designed to administer, including any limitations in the choice 'of substances to be delivered;

(n) precautions to be taken against any special, unusual risks related to the disposal of the device;

(o) medicinal substances incorporated into the device as an integral part in accordance with Section 7.4;

(p) degree of accuracy claimed for devices with a measuring function.

14. Where conformity with the essential requirements must be based on clinical data, as in Section I (6), such data must be established in accordance with Annex X.

ANNEX II

EC DECLARATION OF CONFORMITY

(Full quality assurance system)

1. The manufacturer must ensure application of the quality system approved for the design, manufacture and final inspection of the products concerned, as specified in Section 3 and is subject to audit as laid down in Sections 3.3 and 4 and to Community surveillance as specified in Section 5.

2. The declaration of conformity is the procedure whereby the manufacturer who fulfils the obligations imposed by Section 1 ensures and declares that the products concerned meet the provisions of this Directive which apply to them.

The manufacturer must affix the CE marking in accordance with Article 17 and draw up a written declaration of conformity. This declaration must cover a given number of the products manufactured and be kept by the manufacturer.

3. **Quality system**

3.1. The manufacturer must lodge an application for assessment of his quality system with a notified body. The application must include:

- the name and address of the manufacturer and any additional manufacturing site covered by the quality system,

- all the relevant information on the product or product category covered by the procedure,

- a written declaration that no application has been lodged with any other notified body for the same product-related quality system,

- the documentation on the quality system,

- an undertaking by the manufacturer to fulfil the obligations imposed by the quality system approved,

- an undertaking by the manufacturer to keep the approved quality system adequate and efficacious,

- an undertaking by the manufacturer to institute and keep up to date a systematic procedure to review experience gained from devices in the post-production phase and to implement appropriate means to apply any necessary corrective action. This undertaking must include an obligation for the manufacturer to notify the competent authorities of the following incidents immediately on learning of them:

  (i) any malfunction or deterioration in the characteristics and/or performance of a device, as well as any inadequacy in the instructions for use which might lead

to or might have led to the death of a patient or user or to a serious deterioration in his state of health;

(ii) any technical or medical reason connected with the characteristics or performance of a device leading for the reasons referred to in subparagraph (i) to systematic recall of devices of the same type by the manufacturer.

3.2. Application of the quality system must ensure that the products conform to the provisions of this Directive which apply to them at every stage, from design to final inspection. All the elements, requirements and provisions adopted by the manufacturer for his quality system must be documented in a systematic and orderly manner in the form of written policies and procedures such as quality programmes, quality plans, quality manuals and quality records.

It shall include in particular an adequate description of.

(a) the manufacturer's quality objectives;

(b) the organization of the business and in particular:

- the organizational structures, the responsibilities of the managerial staff and their organizational authority where quality of design and manufacture of the products is concerned,

- the methods of monitoring the efficient operation of the quality system and in particular its ability to achieve the desired quality of design and of product, including control of products which fail to conform;

(c) the procedures for monitoring and verifying the design of the products and in particular:

- a general description of the product, including any variants planned,

- the design specifications, including the standards which will be applied and the results of the risk analysis, and also a description of the solutions adopted to fulfil the essential requirements which apply to the products if the standards referred to in Article 5 are not applied in full,
- the techniques used to control and verify the design and the processes and systematic measures which will be used when the products are being designed,

- if the device is to be connected to other device(s) in order to operate as intended, proof must be provided that it conforms to the essential requirements when connected to any such device(s) having the characteristics specified by the manufacturer,

- a statement indicating whether or not the device incorporates, as an integral part, a substance as referred to in Section 7.4 of Annex I and data on the tests conducted in this connection,

- the clinical data referred to in Annex X,

- the draft label and, where appropriate, instructions for use;

(d) the inspection and quality assurance techniques at the manufacturing stage and in particular:

- the processes and procedures which will be used, particularly as regards sterilization, purchasing and the relevant documents,

- the product identification procedures drawn up amid kept up to date from drawings, specifications or other relevant documents at every stage of manufacture;

(c) the appropriate tests and trials which will be carried our before, during and after manufacture, the frequency at which they will take place, and the test equipment used; it must be possible to trace back the calibration of the test equipment adequately.

3.3. The notified body must audit the quality system to determine whether it meets the requirements referred to in Section 3.2. It must presume that quality systems which implement the relevant harmonized standards conform to these requirements.

The assessment team must include at least one number with past experience of assessments of the technology concerned. The assessment procedure must include an inspection on the manufacturer's premises and, in duly substantiated cases, on the premises of the manufacturer's suppliers and/or subcontractors to inspect the manufacturing processes.

The decision is notified to the manufacturer. It must contain the conclusions of the inspection and a reasoned assessment.

3.4. The manufacturer must inform the notified body which approved the quality system of any plan for substantial changes to the quality system or the product-range covered. The notified body must assess the changes proposed and verify whether after these changes the quality system still meets the requirements referred to in Section 3.2. It must notify the manufacturer of its decision. This decision must contain the conclusions of the inspection and a reasoned assessment.

4. **Examination of the design of the product**

4.1. In addition to the obligations imposed by Section 3, the manufacturer must lodge with the notified body an application for examination of the design dossier relating to the product which he plans to manufacture and which falls into the category referred to in Section 3.1.

4.2. The application must describe the design, manufacture and performances of the product in question. It . must include the documents needed to assess whether the product conforms to the requirements of this 'Directive, as referred to in Section 3.2 (c).

4.3. The notified body must examine the application and, if the product conforms to the relevant provisions of this Directive, issue the application with an EC design-

examination certificate. The notified body may require the application to be completed by further tests or proof to allow assessment of conformity with the requirements of the Directive. The certificate must contain the conclusions of the examination, the conditions of validity, the data needed for identification of the approved design, where appropriate, a description of the intended purpose of the product.

In the case of devices referred to in Annex I, paragraph 7.4, the notified body shall, in view of the aspects addressed in that paragraph, consult one of the competent bodies established by the Member States in accordance with Directive 65165/EEC before taking a decision.

The notified body will give due consideration to the views expressed in this consultation when making its decision. It will convey its final decision to the competent body concerned.

4.4. Changes to the approved design must receive further approval from the notified body which issued the EC design-examination certificate wherever the changes could affect conformity with the essential requirements of the Directive or with the conditions prescribed for use of the product. The applicant shall inform the notified body which issued the EC design-examination certificate of any such changes made to the approved design. This additional approval must take the form of a supplement to the EC design-examination certificate.

5. **Surveillance**

5.1. The aim of surveillance is to ensure that the manufacturer duly fulfils the obligations imposed by the approved quality system.

5.2. The manufacturer must authorize the notified body to carry out all the necessary inspections and supply it with all relevant information, in particular:

- the documentation on the quality system,

- the data stipulated in the part of the quality system relating to design, such as the results of analyses, calculation tests, etc.,

- the data stipulated in the part of the quality system relating to manufacture, such as inspection reports and rest data, calibration.: data, qualification reports of the personnel concerned, etc.

5.3. The notified body must periodically carry out appropriate inspections and assessments to make sure that the manufacturer applies the approved quality system and must supply the manufacturer with an assessment report.

5.4. In addition, the notified body may pay unannounced visits to the manufacturer. At the time of such visits, the notified body may, where necessary, carry out or ask for tests in order to check that the quality system is working properly. It must provide the manufacturer with an inspection report and, if a test has been carried out, with a rest report.

6. Administrative provisions

6.1. The manufacturer must, for a period ending at least five years after the last product has been manufactured, keep at the disposal of the national authorities:

- the declaration of conformity,
- the documentation referred to in the fourth indent of Section 3.1,
- the changes referred to in Section 3.4,
- the documentation referred to in Section 4.2, and
- the decisions and reports from the notified body as referred to in Sections 3.3, 4.3, 4.4, 5.3 and 5.4.

6.2. The notified body must make available to the other notified bodies and the competent authority, on request, all relevant information concerning quality system approvals issued, refused or withdrawn.

6.3. In respect of devices subject to the procedure in Section 4, when neither the manufacturer nor his authorized representative is established in the Community, the obligation to keep available the technical documentation shall fall to the person responsible for placing the device on the Community market or the importer referred to in Annex I, Section 13.3 (a).

7. Application to devices in Classes IIa and IIb

In line with Article 11 (2) and (3), this Annex may apply to products in Classes IIa and IIb. Section 4, however, does not apply.

ANNEX III

EC TYPE-EXAMINATION

1. EC type-examination is the procedure whereby a notified body ascertains and certifies that a representative sample of the production covered fulfils the relevant provisions of this Directive.

2. The application includes:

- the name and address of the manufacturer and the name and address of the authorized representative if the application is lodged by the representative,

- the documentation described in Section 3 'needed to assess the conformity of the representative sample of the production in question, hereinafter referred to as the 'type', with the requirements of this Directive. The applicant must make a 'type' available to the notified body. The notified body may request other samples as necessary,

- a written declaration that no application has been lodged with any other notified body for the same
type.

3. The documentation must allow an understanding of the design, the manufacture and the performances of the product and must contain the following items in particular:

- a general description of the type, including any variants planned,

- design drawings, methods of manufacture envisaged, in particular as regards sterilization, and diagrams of components, sub-assemblies, circuits, etc.,

- the descriptions and explanations necessary to understand the abovementioned drawings and diagrams and the operation of the product,

- a list of the standards referred to in Article 5, applied in full or in part, and descriptions of the solutions adopted to meet the essential requirements if the standards referred to in Article 5 have not been applied in full,

- the results of the design calculations, risk analysis, investigations, technical tests, etc. carried out,

- a statement indicating whether or not the device incorporates, as an integral part, a substance as referred to in Section 7.4 of Annex I and data on the tests conducted in this connection,

- the clinical data referred to in Annex X,

- the draft label and, where appropriate, instructions for use.

4. The notified body must:

4.1. examine and assess the documentation and verify that the type has been manufactured in conformity with that documentation; it must also record the items designed in conformity with the applicable provisions of the standards referred to in Article 5, as well as the items not designed on the basis of the relevant provisions of the abovementioned standards;

4.2. carry out or arrange for the appropriate inspections and the tests necessary to verify whether the solutions adopted by the manufacturer meet the essential requirements of this Directive if the standards referred to in Article 5 have not been applied; if the device is to be connected to other device(s) in order to operate as intended, proof must be provided that it conforms to the essential requirements when connected to any such device(s) having the characteristics specified by the manufacturer;

4.3. carry out or arrange for the appropriate inspections and the tests necessary to verify whether, if the manufacturer has chosen to apply the relevant standards, these have actually been applied;

4.4. agree with the applicant on the place where the necessary inspections and rests will be carried out.

5. If the type conforms to the provisions of this Directive, the notified body issues the applicant with an EC type-examination certificate. The certificate must contain the name and address of the manufacturer, the conclusions of the inspection, the conditions of validity and the data needed for identification of the type approved. The relevant parts of the documentation must be annexed to the certificate and a copy kept by the notified body.

In the cast of devices referred to in Annex I paragraph 7.4, the notified body shall, in view of the aspects addressed in that paragraph, consult one of the competent bodies established by the Member States in accordance with Directive 65165/EEC before taking a decision.

The notified body will give due consideration to the views expressed in this consultation when making its decision. It will convey its final decision to the competent body concerned.

6. The applicant must inform the notified body which issued the EC type-examination certificate of any significant change made to the approved product.

Changes to the approved product must receive further approval from the notified body which issued the EC type-examination certificate wherever the changes may affect conformity with the essential requirements or with the conditions prescribed for use of the product. This new approval must, where appropriate, take the form of a supplement to the initial EC type-examination certificate.

7. **Administrative provisions**

7.1. The notified body must make available to the other notified bodies on request, all relevant information on EC type-examination certificates and supplements issued, refused or withdrawn.

7.2. Other notified bodies may obtain a copy of the EC type-examination certificates and/or the supplements thereto. The Annexes to the certificates must be made available to other notified bodies on reasoned application, after the manufacturer has been informed.

7.3. The manufacturer or his authorized representative must keep with the technical documentation copies of EC type-examination certificates and their additions for a period ending at least five years after the last device has been manufactured.

7.4. When neither the manufacturer nor his authorized representative is established in the Community, the obligation to keep available the technical documentation shall fall to the person responsible for placing the device on the Community market or the importer referred to in Annex I, Section 13.3 (a).

ANNEX IV

EC VERIFICATION

1. EC verification is the procedure whereby the manufacturer or his authorized representative established in the Community ensures and declares that the products which have been subject to the procedure set out in Section 4 conform to the type described in the EC type-examination certificate and meet the requirements of this Directive which apply to them.

2. The manufacturer must take all the measures necessary to ensure that the manufacturing process produces products which conform to the type described in the EC type-examination certificate and to the requirements of the Directive which apply to them. Before the start of manufacture, the manufacturer must prepare documents defining the manufacturing process, in particular as regards sterilization where necessary, together with all the routine, preestablished provisions to he implemented to ensure homogeneous production and, where appropriate, conformity of the products with the type described in the EC type-examination certificate and with the requirements of this Directive which apply to them. The manufacturer must affix the CE marking in accordance with Article 17 and draw up a declaration of conformity.

   In addition, for products placed on the market in sterile condition, and only for those aspects of the manufacturing process designed to secure and maintain sterility, the manufacturer must apply the provisions of Annex V, Sections 3 and 4.

3. The manufacturer must undertake to institute and keep up to date a systematic procedure to review experience gained from devices in the post-production phase and to implement appropriate means to apply any necessary corrective action. This undertaking must include an obligation for the manufacturer to notify the competent authorities of the following incidents immediately on learning of them:

   (i) any malfunction or deterioration in the characteristics and/or performance of a device, as well as any inadequacy in the labelling or the instructions for use which might lead to or might have led to the death of a patient or user or to a serious deterioration in his stare of health;

   (ii) any technical or medical reason connected with the characteristics or performance of a device for the reasons referred to in subparagraph (i) leading to systematic recall of devices of the same type by the manufacturer.

4. The notified body must carry out the appropriate examinations and tests in order to verify the conformity of the product with the requirements of the Directive either by examining and testing every product as specified in Section 5 or by examining and testing products on a statistical basis as specified in Section 6, as the manufacturer decides.

   The aforementioned checks do not apply to those aspects of the manufacturing process designed to secure sterility.

5. **Verification by examination and testing of every product**

5.1. Every product is examined individually and the appropriate tests defined in the relevant standards referred to in Article 5 or equivalent tests must be carried out in order to verify, where appropriate, the conformity of the products with the EC type described in the type-examination certificate and with the requirements of the Directive which apply to them.

5.2. The notified body must affix, or have affixed its identification number to each approved product and must draw up a written certificate of conformity relating to the tests carried out.

6. **Statistical verification**

6.1. The manufacturer must present the manufactured products in the form of homogeneous batches.

6.2. A random sample is taken from each batch. The products which make up the sample are examined individually and the appropriate tests defined in the relevant standards referred to in Article 5 or equivalent tests must be carried out to verify, where appropriate, the conformity of the products with the type described in the EC type-examination certificate and with the requirements of the Directive which apply to them in order to determine whether to accept or reject the batch.

6.3. Statistical control of products will be based on attributes, entailing a sampling system ensuring a limit quality corresponding to a probability of acceptance of 5%, with a nonconformity percentage of between 3 and 7%. The sampling method will be established by the harmonized standards referred to in Article 5, taking account of the specific nature of the product categories in question.

6.4. If the batch is accepted, the notified body affixes or has affixed its identification number to each product and draws up a written certificate of conformity relating to the tests carried out. All products in the batch may he put on the market except any in the sample which failed to conform.

If a batch is rejected, the competent notified body must take appropriate measures to prevent the batch from being placed on the market. In the event of frequent creation of batches, the notified body may suspend the statistical verification.

The manufacturer may, on the responsibility of the notified body, affix the notified body's identification number during the manufacturing process.

7. **Administrative provisions**

The manufacturer or his authorized representative must, for a period ending at least five years after the last product has been manufactured, make available to the national authorities:

- the declaration of conformity,

- the documentation referred to in Section 2,

- the certificates referred to in Sections 5.2 and 6.4,

- where appropriate, the type-examination certificate referred to in Annex Ill-

8. **Application to devices in Class lIa**

In line with Article 11 (2), this Annex may apply to products in Class IIa, subject to the following exemptions:

8.1. in derogation from Sections I and 2, by virtue of the declaration of conformity the manufacturer ensures and declares that the products in Class lIa are manufactured in conformity with the technical documentation referred to in Section 3 of Annex VII and meet the requirements of this Directive which apply to them;

8.2. in derogation from Sections 1, 2, 5 and 6, the verifications conducted by the notified body are intended to confirm the conformity of the products in Class IIa with the technical documentation referred to in Section 3 of Annex VII.

ANNEX V

EC DECLARATION OF CONFORMITY

(Production quality assurance)

1. The manufacturer must ensure application of the quality system approved for the manufacrure of the products concerned and carry out the final inspection, as specified in Section 3, and is subject to the Community surveillance referred to in Section 4.

2. The declaration of conformity is the part of the procedure whereby the manufacturer who fulfils the obligations imposed by Section I ensures and declares that the products concerned conform to the type described in the EC type-examination certificate and meets the provisions of this Directive which apply to them.

   The manufacturer must affix the CE marking in accordance with Article 17 and draw up a written declaration of conformity. This declaration must cover a given number of identified specimens of the products manufactured and must be kept by the manufacturer.

3. Quality system

3.1. The manufacturer must lodge an application for assessment of his quality system with a notified body. The application must include:

   - the name and address of the manufacturer,

   - all the relevant information on the product or product category covered by the procedure,

   - a written declaration that no application has been lodged with any other notified body for the same products,

   - the documentation on the quality system,

   - an undertaking to fulfil the obligations imposed by the quality system is approved,

   - an undertaking to maintain the practicability and effectiveness of the approved quality system,

   - where appropriate, the technical documentation on the types approved and a copy of the EC type-examination certificates,

   - an undertaking by the manufacturer to institute and keep up to date a systematic procedure to review experience gained from devices in the post-production phase and to implement appropriate means to apply any necessary corrective action. This undertaking must include an obligation for the manufacturer to notify the competent authorities of.the following incidents immediately on learning of them:

(i) any malfunction or deterioration in the characteristics and/or performance of a device, as well as any inadequacy in the lab ' ailing or the instructions for use which might lead to or might have led to the death of a patient or user or to a serious deterioration in his state of health;

(ii) any technical or medical reason connected with the characteristics or performance of a device for the reasons referred to in subparagraph (i) above leading to a systematic recall of devices of the same type by the manufacturer.

3.2. Application of the quality system must ensure that the products conform to the type described in the EC type-examination certificate.

All the elements, requirements and provisions adopted by the manufacturer for his quality system must be documented in a systematic and orderly manner in the form of written policy statements and procedures. This quality system documentation must permit uniform interpretation of the quality policy and procedures such as quality). programmes, plans, manuals and records.

It must include in particular an adequate description of:

(a) the manufacturer's quality objectives;

(b) the organization of the business and in particular:

- the organizational structures, the responsibilities of the managerial staff and their organizational authority where manufacture of the products is concerned,

- the methods of monitoring the efficient operation of the quality system and in particular its ability to achieve the desired quality of product, including control of products which fail to conform;

(c) the inspection and quality assurance techniques at the manufacturing stage and in particular:

- the processes and procedures which will be used, particularly as regards sterilization, purchasing and the relevant documents,

- the product identification procedures drawn up and kept up to date from drawings, specifications or other relevant documents at every stage of manufacture;

(d) the appropriate tests and trials to be carried out before, during and after manufacture, the frequency with which they will take place, and the test equipment used; it must be possible adequately to trace back the calibration of the test equipment.

3.3. The notified body must audit the quality system to determine whether it meets the requirements referred to in Section 3.2. It must presume that quality systems which implement the relevant harmonized standards conform to these requirements.

The assessment team must include at least one member with past experience of assessments of the technology concerned. The assessment procedure must include an inspection on the manufacturer's premises and, in duly substantiated cases, on the premises of the manufacturer's suppliers to inspect the manufacturing processes.

The decision must be notified to the manufacturer after the final inspection and contain the conclusions of the inspection and a reasoned assessment.

3.4. The manufacturer must inform the notified -body which approved the quality system of any plan for substantial changes to the quality system.

The notified body must assess the changes proposed and verify whether after these changes the quality system still meets the requirements referred to in Section 3.2.

After the abovementioned information has been received, the decision is notified to the manufacturer. It must contain the conclusions of the inspection and a reasoned assessment.

4. **Surveillance**

4.1. The aim of surveillance is to ensure that the manufacturer duly fulfils the obligations imposed by the approved quality system.

4.2. The manufacturer authorizes the notified body to carry out all the necessary inspections and must supply it with all relevant information, in particular:

- the documentation on the quality system,

- the data stipulated in the part of the quality system relating to manufacture, such as inspection reports and rest data, calibration data, qualification reports of the personnel concerned, etc.

4.3. The notified body must periodically carry out appropriate inspections and assessments to make sure that the manufacturer applies the approved quality system and supply the manufacturer with an assessment report.

4.4. In addition, the notified body may pay unannounced visits to the manufacturer. At the time of such visits, the notified body may, where necessary, carry out or ask for tests in order to check that the quality system is working properly. It must provide the manufacturer with an inspection report and, if a test has been carried out, with a rest report.

5. **Administrative provisions**

5.1. The manufacturer must, for a period ending at least five years after the last product has been manufactured, make available to the national authorities:

- the declaration of conformity,

- the documentation referred to in the fourth indent of Section 3.1,

- the changes referred to in Section 3.4,

- the documentation referred to in the seventh indent of Section 3.1,

- the decisions and reports from the notified body as referred to in Sections 4.3 and 4.4,

- where appropriate, the type-examination certificate referred to in Annex III.

5.2. The notified body must make available to the other notified bodies, on request, all relevant information concerning the quality system approvals issued, refused or withdrawn.

6. Application to devices in Class IIa

In line with Article 11 (2), this Annex may apply to products in Class IIa, subject to the following exemption:

6.1. in derogation from Sections 2, 3.1 and 3.2, by virtue of the declaration of conformity the manufacturer ensures and declares that the products in Class lIa are manufactured in conformity with the technical documentation referred to in Section 3 of Annex VII and meet the requirements of this Directive which apply to them.

ANNEX VI

EC DECLARATION OF CONFORMITY

(Product quality assurance)

1. The manufacturer must ensure application of the quality system approved for the final inspection and testing of the product, as specified in Section 3 and must be subject to the surveillance referred to in Section 4.

   In addition, for products placed on the market in sterile condition, and only for those aspects of the manufacturing process designed to secure and maintain sterility, the manufacturer must apply the provisions of Annex V, Sections 3 and 4.

2. The declaration of conformity is the part of the procedure whereby the manufacturer who fulfils the obligations imposed by Section 1 ensures and declares that the products concerned conform to the type described in the EC type-examination certificate and meet the provisions of this Directive which apply to them.

   The manufacturer affixes the CE marking in accordance with Article 17 and draws up a written declaration of conformity. This declaration must cover a given number of identified specimens of the products manufactured and be kept by the manufacturer. The CE marking must be accompanied by the identification number of the notified body which performs the tasks referred to in this Annex.

3. **Quality system**

3.1. The manufacturer lodges an application for assessment of his quality system with a notified body.

   The application must include:

   - the name and address of the manufacturer,

   - all the relevant information on the product or product category covered by the procedure,

   - a written declaration specifying that no application has been lodged with any other notified body for the same products,

   - the documentation on the quality system,

   - an undertaking by the manufacturer to fulfil the obligations imposed by the quality system approved,

   - an undertaking by the manufacturer to keep the approved quality system adequate and efficacious,

- where appropriate, the technical documentation on the types approved and a copy of the EC type-examination certificates,

- an undertaking by the manufacturer to institute and keep up to date a systematic procedure to review experience gained from devices in the post-production phase and to implement appropriate means to apply any necessary corrective action. This undertaking must include an obligation for the manufacturer to notify the competent authorities of the following incidents immediately on learning of them:

(i) any malfunction or deterioration in the characteristics and/or performance of a device, as well as any inadequacy in the labelling or the instructions for use which might lead to or might have led to the death of a patient or user or to a serious deterioration in his stare of health;

(ii) any technical or medical reason connected with the characteristics or the performance of a device for the reasons referred to in subparagraph (i) leading to a systematic recall of devices of the same type by the manufacturer.

3.2. Under the quality system, each product or a representative sample of each batch is examined and the appropriate tests defined in the relevant standards referred to in Article 5 or equivalent tests are carried out to ensure that the products conform to the type described in the EC type-examination certificate and fulfil the provisions of this Directive which apply to them. All the elements, requirements and provisions adopted by the manufacturer must be documented in a systematic and orderly manner in the form of written measures, procedures and instructions. This quality system documentation must permit uniform interpretation of the quality programmes, quality plans, quality manuals and quality records.

It must include in particular an adequate description of:

- the quality objectives and the organizational structure, responsibilities and powers of the managerial staff with regard to product quality,

- the examinations and tests that will be carried our after manufacture; it must he possible to trace back the calibration of the test equipment adequately,

- the methods of monitoring the efficient operation of the quality system

- the quality records, such as reports concerning inspections, tests, calibration and the qualifications of the staff concerned, etc.
The aforementioned checks do not apply to those aspects of the manufacturing process designed to secure sterility.

3.3. The notified body audits the quality system to determine whether it meets the requirements referred to in section 3.2. It must presume that quality systems which implement the relevant harmonized standards conform to these requirements.

The assessment team must include at least one member with past experience of assessments of the technology concerned. The assessment procedure must include an

inspection on the manufacturer's premises and, in duly substantiated cases, on the premises of the manufacturer's suppliers to inspect the manufacturing processes.

The decision must be notified to the manufacturer. It must contain the conclusions of the inspection and a reasoned assessment.

3.4. The manufacturer must inform the notified body which approved the quality system of any plan for substantial changes to the quality system.

The notified body must assess the changes proposed and verify whether after these changes the quality system will still meet the requirements referred to in Section 3.2.

After receiving the abovementioned information it must notify the manufacturer of its decision. This decision must contain the conclusions of the inspection and a reasoned assessment.

4. **Surveillance**

4.1. The aim of surveillance is to ensure that the manufacturer duly fulfils the obligations imposed by the approved quality system.

4.2. The manufacturer must allow the notified body access for inspection purposes to the inspection, testing and storage locations and supply it with all relevant information, in particular:
- the documentation on the quality system,

- the technical documentation,

- the quality records, such as inspection reports, test data, calibration data, qualification reports of the staff concerned, etc.

4.3. The notified body must periodically carry out appropriate inspections and assessments to make sure that the manufacturer applies the quality system and -must supply the manufacturer with an assessment report.

4.4. In addition, the notified body may pay unannounced visits to the manufacturer. At the time of such visits, the notified body may, where necessary, carry out or ask for tests in order to check that the quality system is working properly and that the production conforms to the requirements of the Directive which apply to it. To this end, an adequate sample of the final products, taken on site by, the notified body, must be examined and the appropriate tests defined in the relevant standards referred to in Article 5 or equivalent tests must be carried out. Where one or more of the samples fails to conform, the notified body must take the appropriate measures.

It must provide the manufacturer with an inspection report and, if a test has been carried out, with a rest report.

5. **Administrative provisions**

5. 1. The manufacturer must, for a period ending at least five years after the last product has been manufactured, make available to the national authorities:

- the declaration of conformity,

- the documentation referred to in the seventh indent of Section 3.1,

- the changes referred to in Section 3.4,

- the decisions and reports from the notified body.as referred to in the final indent of Section 3.4 and in Sections 4.3 and 4.4,

- where appropriate, the certificate of conformity referred to in Annex Ill.

5.2. The notified body must make available to the other notified bodies, on request, all relevant information concerning the quality system approvals issued, refused or withdrawn.

6. Application to devices in Class IIa In line with Article 11 (2), this I s Annex may apply

to products in Class IIa, subject to this derogation:

6.1. by derogation from Sections 2, 3.1 and 3.2 by virtue of the declaration of conformity the manufacturer ensures and declares that the products in Class IIa are manufactured in conformity with the technical documentation referred to in Section 3 of Annex VII and meet the requirements of this Directive which apply to them.

ANNEX VII

EC DECLARATION OF CONFORMITY

1. The EC declaration of conformity is the procedure whereby the manufacturer or his authorized representative established in the Community who fulfils the obligations imposed by Section 2 and, in the case of products placed on the market in a sterile condition and devices with a measuring function, the obligations imposed by Section 5 ensures and declares that the products concerned meet the provisions of this Directive which apply to them.

2. The manufacturer must prepare the technical documentation described in Section 3. The manufacturer or his authorized representative established in the Community must make this documentation, including the declaration of conformity, available to the national authorities for inspection purposes for a period ending at least five years after the last product has been manufactured.

   Where neither the manufacturer nor his authorized representative are established in the Community, this obligation to keep the technical documentation available must fall to the person(s) who place(s) the product on the Community market.

3. The technical documentation must allow assessment of the conformity of the product with the requirements of the Directive. It must include in particular:

   - a general description of the product, including any variants planned,

   - design drawings, methods of manufacture envisaged and diagrams of components, sub-assemblies, circuits, etc.,

   - the descriptions and explanations necessary to understand the above mentioned drawings and diagrams and the operations of the product,

   - the results of the risk analysis and a list of the standards referred to in Article 5, applied in full or in part, and descriptions of the solutions adopted to meet the essential requirements of the Directive if the standards referred to in Article 5 have not been applied in full,

   - in the case of products placed on the market in a sterile condition, description of the methods used,

   - the results of the design calculations and of the inspections carried out, etc.; if the device is to he connected to other device(s) in order to operate as intended, proof must he provided that it conforms to the essential requirements when connected to any such device(s) having the characteristics specified by the manufacturer,

   - the test reports and, where appropriate, clinical data in accordance with Annex X,

   - the label and instructions for use.

4. The manufacturer shall institute and keep up to date a systematic procedure to review experience gained from devices in the post-production phase and to implement appropriate means to apply any necessary corrective actions, taking account of the nature and risks in relation to the product. He shall notify the competent authorities of the following incidents immediately on learning of them:

   (i) any malfunction or deterioration in the characteristics and/or performance of a device, as well as any inadequacy in the labelling or the instructions for use which might lead to or might have led to the death of a patient or user or to a serious deterioration in his state of health;

   (ii) any technical or medical reason connected with the characteristics on the performance of a device for the reasons referred to in subparagraph (i) leading to systematic recall of devices of the same type by the manufacturer.

5. With products placed on the market in sterile condition and Class I devices with a measuring function, the manufacturer must observe not only the provisions laid down in this Annex but also one of the procedures

   referred to in Annex IV, V or VI. Application of the abovementioned Annexes and the intervention by the notified body is limited to:

   - in the case of products placed on the market in sterile condition, only the aspects of manufacture concerned with securing and maintaining sterile conditions,

   - in the case of devices with a measuring function, only the aspects of manufacture concerned with the conformity, of the products with the metrological requirements.

   Section 6.1. of this Annex is applicable.

6. Application to devices in Class lIa

   In line with Article 11 (2), this Annex may apply to products in Class lIa, subject to the following derogation:

6.1. where this Annex is applied in conjunction with the procedure referred to in Annex IV, V or VI, the declaration of conformity referred to in the abovementioned Annexes forms a single declaration. As regards the declaration based on this Annex, the manufacturer must ensure and declare that the product design meets the provisions of this Directive which apply to it.

ANNEX VIII

STATEMENT CONCERNING DEVICES FOR SPECIAL PURPOSES

1 . For custom-made devices or for devices intended for clinical investigations the manufacturer or his authorized representative established in the Community must draw up the statement containing the information stipulated in Section 2.

2. The statement must contain the following information:

2.1. for custom-made devices:

- data allowing identification of the device in question,

- a statement that the device is intended for exclusive use by a particular patient, together with the name of the patient,

- the name of the medical practitioner or other authorized person who made out the prescription and, where applicable, the name of the clinic concerned,

- the particular features of the device as specified in the relevant medical prescription,

- a statement that the device in question conforms to the essential requirements set out in Annex I and, where applicable, indicating which essential requirements have not been fully met, together with the grounds;

2.2. for devices intended for the clinical investigations covered by Annex X:

- data allowing identification of the device in question,

- an investigation plan stating in particular the purpose, scientific, technical or medical grounds, scope and number of devices concerned,

- the opinion of the ethics committee concerned and details of the aspects covered by its opinion,

- the name of the medical practitioner or other authorized person and of the institution responsible for the investigations,

- the place, starting date and scheduled duration for the investigations,

- a statement that the device in question conforms to the essential requirements apart from the aspects covered by the investigations and that, with regard to these aspects, every precaution has been taken to protect the health and safety of the patient.

3. The manufacturer must also undertake to keep available for the competent national authorities:

3.1. for custom-made devices, documentation allowing an understanding of the design, manufacture and performances of the product, including the expected performances, so as to allow assessment of conformity with the requirements of this Directive.

The manufacturer must take all the measures necessary to ensure that the manufacturing process produces products which are manufactured in accordance with the documentation mentioned in the first paragraph;

3.2. for devices intended for clinical investigations, the documentation must contain:

- a general description of the product,

- design drawings, methods of-manufacture envisaged, in particular as regards sterilization, and diagrams of components, sub-assemblies, circuits, etc.,

- the descriptions and explanations necessary to understand the abovementioned drawings and diagrams and the operation of the product,

- the results of the risk analysis and a list of the standards referred to in Article 5, applied in full or in part, and descriptions of the solutions adopted to meet the essential requirements of this Directive if the standards referred to in Article 5 have not been applied,

- the results of the design calculations, and of the inspections and technical rests carried out, etc.

The manufacturer must take all the measures necessary to ensure that the manufacturing process produces products which are manufactured in accordance with the documentation referred to in the first paragraph of this Section.

The manufacturer must authorize the assessment, or audit where necessary, of the effectiveness of these measures.

4. The information contained in the declarations concerned by this Annex should be kept for a period of time of at least five years.

ANNEX IX

CLASSIFICATION CRITERIA

1. DEFINITIONS

1. **Definitions for the classification rules**

1. 1. *Duration*

Transient

Normally intended for continuous use for less than 60 minutes.

Short term

Normally intended for continuous use for not more than 30 days.

Long term

Normally, intended for continuous use for more than 30 days.

1.2. *Invasive devices*

Invasive device

A device which, in whole or in part, penetrates inside the body, either through a body orifice or through the surface of the body.

Body orifice

Any natural opening in the body, as well as the external surface of the eyeball, or any permanent artificial opening, such as a stoma.

Surgically invasive device

An invasive device which penetrates inside the body through the surface of the body, with the aid or in the context of a surgical operation.
For the purposes of this Directive devices other than those referred to in the previous subparagraph and which produce penetration other than through an established body orifice, shall be treated as surgically invasive devices.

Implantable device

Any device which is intended:

- to be totally introduced into the human body or,

- to replace an epithelial surface or the surface of the eye, by surgical intervention which

is intended to remain in place after the procedure.

Any device intended to be partially introduced into the human body through surgical intervention . and intended to remain in place after the procedure for at least 30 days is also considered an implantable device.

1.3. *Reusable surgical instrument*

Instrument intended for surgical use by cutting, drilling, sawing, scratching, scraping, clamping, retracting, clipping or similar procedures, without connection to any active medical device and which can be reused after appropriate procedures have been carried out.

1.4. *Active medical device*

Any medical device operation of which depends on a source of electrical energy or any source of power other than that directly generated by the human body or gravity and which acts by converting this energy. Medical devices intended to transmit energy, substances or other elements between an active medical device and the patient, without any significant change, are not considered to he active medical devices.

1.5. *Active therapeutical device*

Any active medical device, whether used alone or in combination with other medical devices, to support, modify, replace or restore biological functions or structures with a view to treatment or alleviation of an illness, injury or handicap.

1.6. *Active device for diagnosis*

Any active medical device, whether used alone or in combination with other medical devices, to supply information for detecting, diagnosing, monitoring or treating physiological conditions, states of health, illnesses or congenital deformities.

1.7. *Central circulatory system*

For the purposes of this Directive, 'central circulatory system' means the following vessels.

Arteriae pulmonales, aorta ascendens, arteriae coronariae, arteries carotis communis, arteries carotis externa, arteries carotis interna, arteriae cerebrates, truncus brachicephalicits, venae cordis, venae pulmonales, vena cava superior, vena cava inferior.

1.8. *Central nervous system*

For the purposes of this Directive, 'central nervous system' means brain, meninges and spinal cord.

II. IMPLEMENTING RULES

2. **Implementing rules**

2.1. Application of the classification rules shall be governed by the intended purpose of the devices.

2.2. If the device is intended to be used in combination with another device, the classification rules shall apply separately to each of the devices. Accessories are classified in their own right separately from the device with which they are used.

2.3. Software, which drives a device or influences the use of a device, fails automatically in the same class.

2.4. If the device is not intended to be used solely or principally in a specific part of the body, it must be considered and classified on the basis of the most critical specified use.

2.5. If several rules apply to the same device, based on the performance specified for the device by the manufacturer, the strictest rules resulting in the higher classification shall apply.

III. CLASSIFICATION

1. Non-invasive devices

1.1. Rule 1

All non-invasive devices are in Class I, unless one of the rules set out hereinafter applies.

1.2. Rule 2

All non-invasive devices intended for channelling or storing blood, body liquids or tissues, liquids or gases for the purpose of eventual infusion, administration or introduction into the body are in Class IIa:

- if they may be connected to an active medical device in Class IIa or a higher class,

- if they are intended for use for storing or channelling blood or other body liquids or for storing organs, parts of organs or body tissues,

in all other cases they are in Class 1.

1.3. Rule 3

All non-invasive devices intended for modifying the biological or chemical composition of blood, other body liquids or other liquids intended for infusion into the body are in Class llb, unless the treatment consists of filtration, centrifugation or exchanges of gas, heat, in which case they are in Class IIa.

1.4. Rule 4

All non-invasive devices which come into contact with injured skin:

- are in Class I if they are intended to be used as a mechanical barrier, for compression or for absorption of exudates,

- are in Class IIb if they are intended to be used principally with wounds which have breached the dermis and can only heal by secondary intent,

- are in Class IIa in all other cases, including devices principally intended to manage the micro-environment of a wound.

2. Invasive devices

2.1. Rule 5

All invasive devices with respect to body orifices, other than surgically invasive devices and which are not intended for connection to an active medical device:

- are in Class I if they are intended for transient use,

- are in Class lIa if they are intended for short-term use, except if they are used in the oral cavity as far as the pharynx, in an car canal up to the car drum or in a nasal cavity, in which case they are in Class I,

- are in Class IIb if they are intended for long-term use, except if they are used in the oral cavity as far as the pharynx, in an ear canal up to the car drum or in a nasal cavity and are not liable to be absorbed by the mucous membrane, in which case they are in Class IIa.

All invasive devices with respect to body orifices, other than surgically invasive devices, intended for connection to an active medical device in Class lIa or a higher class, are in Class IIa.

2.2. Rule 6

All surgically invasive devices intended for transient use are in Class lIa unless they arc:

- intended specifically to diagnose, monitor or correct a defect of the heart or of the central circulatory system through direct contact with these parts of the body, in which case they are in Class III,

- reusable surgical instruments, in which case they are in Class I,

- intended to supply energy in the form of ionizing radiation in which case they are in Class lIb,

- intended to have a biological effect or to he wholly or mainly absorbed in which case they are in Class IIb,

- intended to administer medicines by means of a delivery system, if this is done in a manner that is potentially hazardous taking account of the mode of application, in which they are in Class IIb.

2.3. Rule 7

All surgically invasive devices intended for short-term use are in Class IIa unless they are intended:

- either specifically to diagnose, monitor or correct a defect of the heart or of the central circulatory system through direct contact with these parts of the body, in which case they are in Class III,

- or specifically for use in direct contact with the central nervous system, in which case they are in Class III,

- or to supply energy in the form of ionizing radiation in which case they are in Class IIb,

- or to have a biological effect or to be wholly or mainly absorbed in which cast they are in Class III,

- or to undergo chemical change in the body, except if the devices are placed in the teeth, or to administer medicines, in which case they are in Class IIb.

2.4. Rule 8

All implantable devices and long-term surgically invasive devices are in Class IIb unless they are intended:

- to be placed in the teeth, in which cast they are in Class IIa,

- to be used in direct contact with the heart, the central circulatory system or the central nervous system, in which case they are in Class Ill,

- to have a biological effect or to be wholly or mainly absorbed, in which cast they are in Class Ill,

- or to undergo chemical change in the body, except if the devices are placed in the teeth, or to administer medicines, in which case they are in Class 111.

3. Additional rules applicable to active devices

3.1. Rule 9

All active therapeutic devices intended to administer or exchange energy are in Class lIa unless their characteristics are such that they may administer or exchange energy to or from the human body in a potentially hazardous way, taking account of the nature, the density and site of application of the energy, in which cast they are in Class IIb.

All active devices intended to control or monitor the performance of active therapeutic devices in Class IIb, or intended directly to influence the performance of such devices are in Class IIb.

3.2. Rule 10

Active devices intended for diagnosis are in Class IIa:

- if they are intended to supply energy which will be absorbed by the human body, except for devices used to illuminate the patient's body, in the visible spectrum,

- if they are intended to image in vivo distribution of radiopharrnaccuticals,

- if they are intended to allow direct diagnosis or monitoring of vital physiological processes, unless they are specifically intended for monitoring of vital physiological parameters, where the nature of variations is such that it could result in immediate danger to the patient, for instance variations in cardiac performance, respiration, activity of CNS in which case they are in Class IIb.

Active devices intended to emit ionizing radiation and intended for diagnostic and therapeutic interventional radiology including devices which control or monitor such devices, or which directly influence their performance, are in Class IIb.

Rule 11

All active devices intended to administer and/or remove medicines, body liquids or other substances to or from the body are in Class lIa, unless this is done in a manner:

- that is potentially hazardous, taking account of the nature of the substances involved, of the part of the body concerned and of the mode of application in which case they are in Class IIb.

3.3. Rule 12

All other active devices are in Class I.

4. Special Rules

4.1. Rule 13

All devices incorporating, as an integral part, a substance which, if used separately, can he considered to be a medicinal product, as defined in Article 1 of Directive 65/65/EEC,

and which is liable to act on the human body with action ancillary to that of the devices, are in Class III.

4.2, Rule 14

All devices used for contraception or the prevention of the transmission of sexually transmitted diseases are in Class IIb, unless they are implantable or long term invasive devices, in which case they are in Class III.

4.3. Rule 15

All devices intended specifically to be used for disinfecting, cleaning, rinsing or, when appropriate, hydrating contact lenses are in Class IIb.

All devices intended specifically to be used for disinfecting medical devices are in Class IIa.

This rule does not apply to products that are intended to clean medical devices other than contact lenses by means of physical action.

4.4. Rule 16

Non-active devices specifically intended for recording of X-ray diagnostic images are in Class IIa.

4.5. Rule 17

All devices manufactured utilizing animal tissues or derivatives rendered non-viable are Class III except where such devices are intended to come into contact with intact skin only.

5. Rule 18

By derogation from other rules, blood bags are in Class IIb.

ANNEX X

CLINICAL EVALUATION

1. General provisions

1. 1. As a general rule, confirmation of conformity with the requirements concerning the characteristics and performances referred to in Sections 1 and 3 of Annex I under the normal conditions of use of the device and ' he evaluation of the undesirable side-effects must be based on clinical data in particular in the case of implantable devices and devices in Class Ill. Taking account of any relevant harmonized standards, where appropriate, the adequacy of the clinical data must be based on:

1. 1. 1. either a compilation of the relevant scientific literature currently available on the intended purpose of the device and the techniques employed as well as, if appropriate, a written report containing a critical evaluation of this compilation;

1.1.2. or the results of all the clinical investigations made, including those carried out in conformity with Section 2.

1.2. All the data must remain confidential, in accordance with the provisions of Article 20.

2. Clinical investigations

2.1. Objectives

The objectives of clinical investigation are:

- to verify that, under normal conditions of use, the performance of the devices conform to those referred to in Section 3 of Annex I, and

- to determine any undesirable side-effects, under normal conditions of use, and assess whether they constitute risks when weighed against the intended performance of the device.

2.2. Ethical considerations

Clinical investigations must he carried out in accordance with the Helsinki Declaration adopted by the 18th World Medical Assembly in Helsinki, Finland, in 1964, as last amended by the 41st World Medical Assembly in Hong Kong in 1989. It is mandatory that all measures relating to the protection of human subjects are carried out in the spirit of the Helsinki Declaration. This includes every step in the clinical investigation from first consideration of the need and justification of the study to publication of the results.

2.3. Methods

2.3.1. Clinical investigations must be performed on the basis of an appropriate plan of investigation reflecting the latest scientific and technical knowledge and defined in such a way as to confirm or refute the manufacturer's claims for the device; these investigations must include an adequate number of observations to guarantee the scientific validity of the conclusions.

2.3.2. The procedures used to perform the investigations must be appropriate to the device under examination.

2.3.3. Clinical investigations must be performed in circumstances similar to the normal conditions of use of the device.

2.3.4. All the appropriate features, including those involving the safety and performances of the device, and its effect on patients must be examined.

2.3.5. All adverse incidents such as those specified in Article 10 must be fully recorded and notified to the competent authority.

2.3.6. The investigations must be performed under the responsibility of a medical practitioner or another authorized qualified person in an appropriate environment.

The medical practitioner or other authorized person must have access to the technical and clinical data regarding the device.

2.3.7. The written report, signed by the medical practitioner or other authorized person responsible, must contain critical evaluation of all the data collected during the clinical investigation.

ANNEX XI

CRITERIA TO BE MET FOR THE DESIGNATION OF NOTIFIED BODIES

1. The notified body, its Director and the assessment and verification staff shall not be the designer, manufacturer, supplier, installer or user of the devices which they inspect, nor the authorized representative of any of these persons. They may not be directly involved in the design, construction, marketing or maintenance of the devices, nor represent the parties engaged in these activities. This in no way precludes the possibility of exchanges of technical information between the manufacturer and the body.

2. The notified body and its staff must carry our the assessment and verification operations with the highest degree of professional integrity and the requisite competence in the field of medical devices and must be free from all pressures and inducements, particularly financial, which might influence their judgment or the results of the inspection, especially from persons or groups of persons with an interest in the results of the verifications.

   Should the notified body subcontract specific tasks connected with the establishment and verification of the facts, it must first ensure that the subcontractor meets the provisions of the Directive and, in particular, of this Annex. The notified body shall keep at the disposal of the national authorities the relevant documents assessing the subcontractor's qualifications and the work carried out by the subcontractor under this Directive.

3. The notified body must be able to carry out all the task, assigned to such bodies by one of Annexes II to VI and for which it has been notified, whether these tasks are carried out by the body itself or on its responsibility. In particular, it must have the necessary staff and possess the facilities needed to perform properly the technical and administrative tasks entailed in assessment and verification. It must also have access to the equipment necessary for the verifications required.

4. The notified body must have:

   - sound vocational training covering all the assessment and verification operations for which the body has been designated,
   - satisfactory knowledge of the rules on the inspections which they carry our and adequate experience of such inspections,

   - the ability required to draw up the certificates, records and reports to demonstrate that the inspections have been carried our.

5. The impartiality of the notified body must be guaranteed. Their remuneration must not depend on the number of inspections carried out, nor on the results of the inspections.

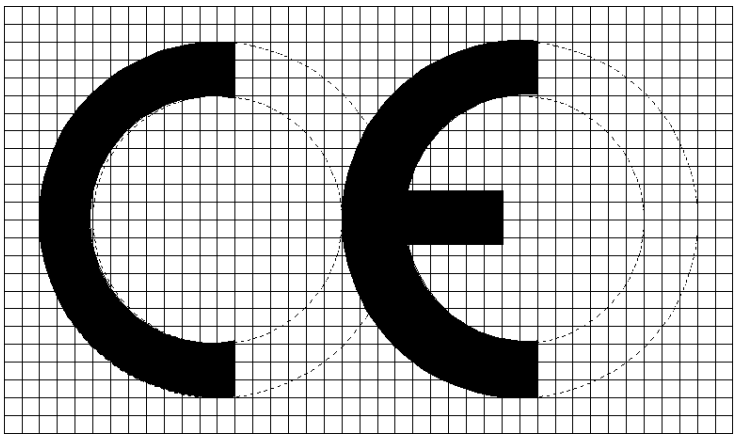
6. The body must take out civil liability insurance, unless liability is assumed by the State under domestic legislation or the Member State itself carries out the inspections directly.

7. The staff of the notified body are bound to observe professional secrecy with regard to all information gained in the course of their duties (except vis-à-vis the competent administrative authorities of the State in which their activities are carried out) pursuant to this Directive or any provision of national law putting it into effect.

ANNEX XII

CE MARKING OF CONFORMITY

The CE conformity marking shall consist of the initials 'CE' taking the following form:



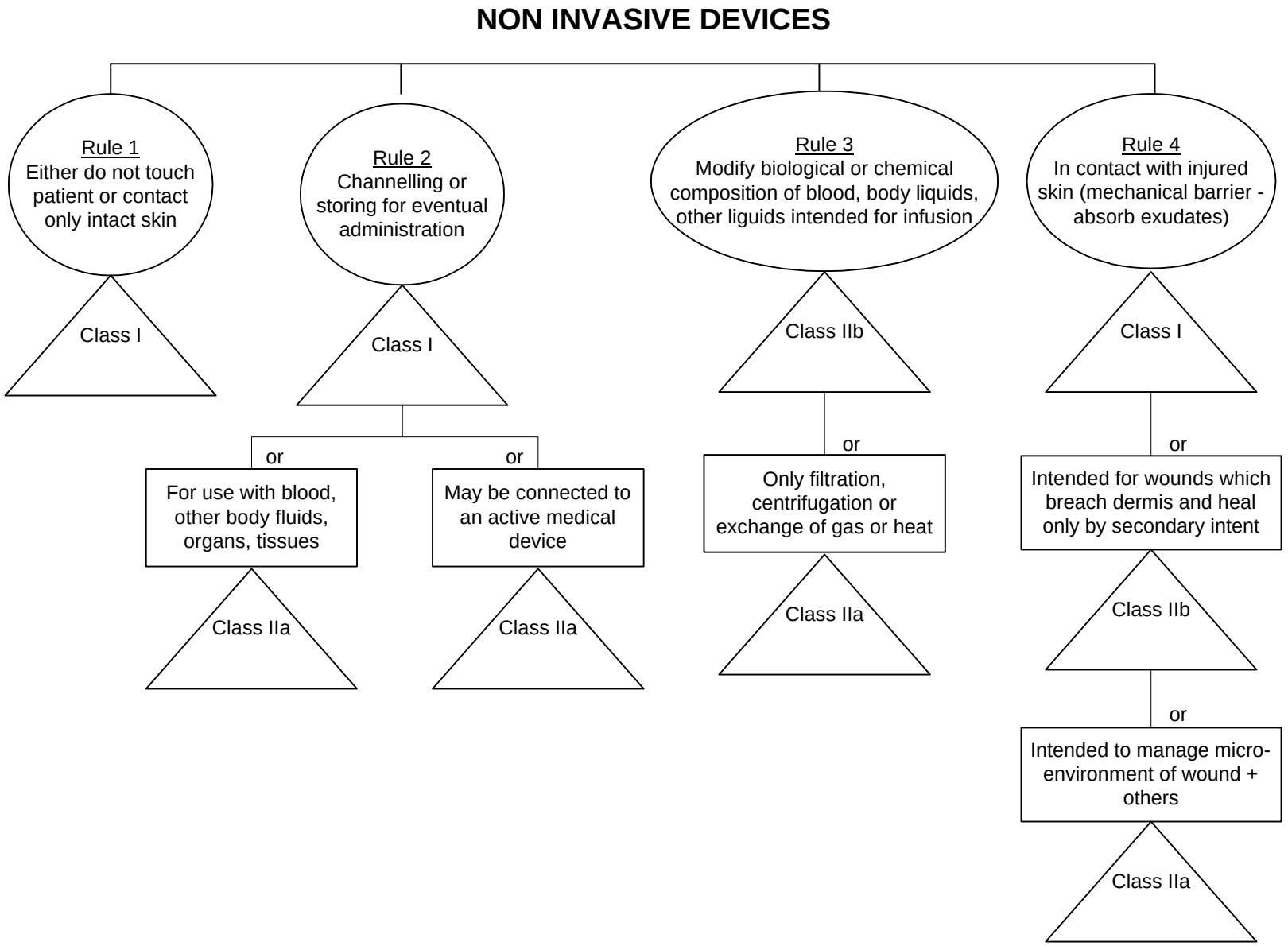
- If the marking is reduced or enlarged the proportions given in the above graduated drawing must be respected.

- The various components of the CE marking must have substantially the same vertical dimension, which may not be less than 5 mm.

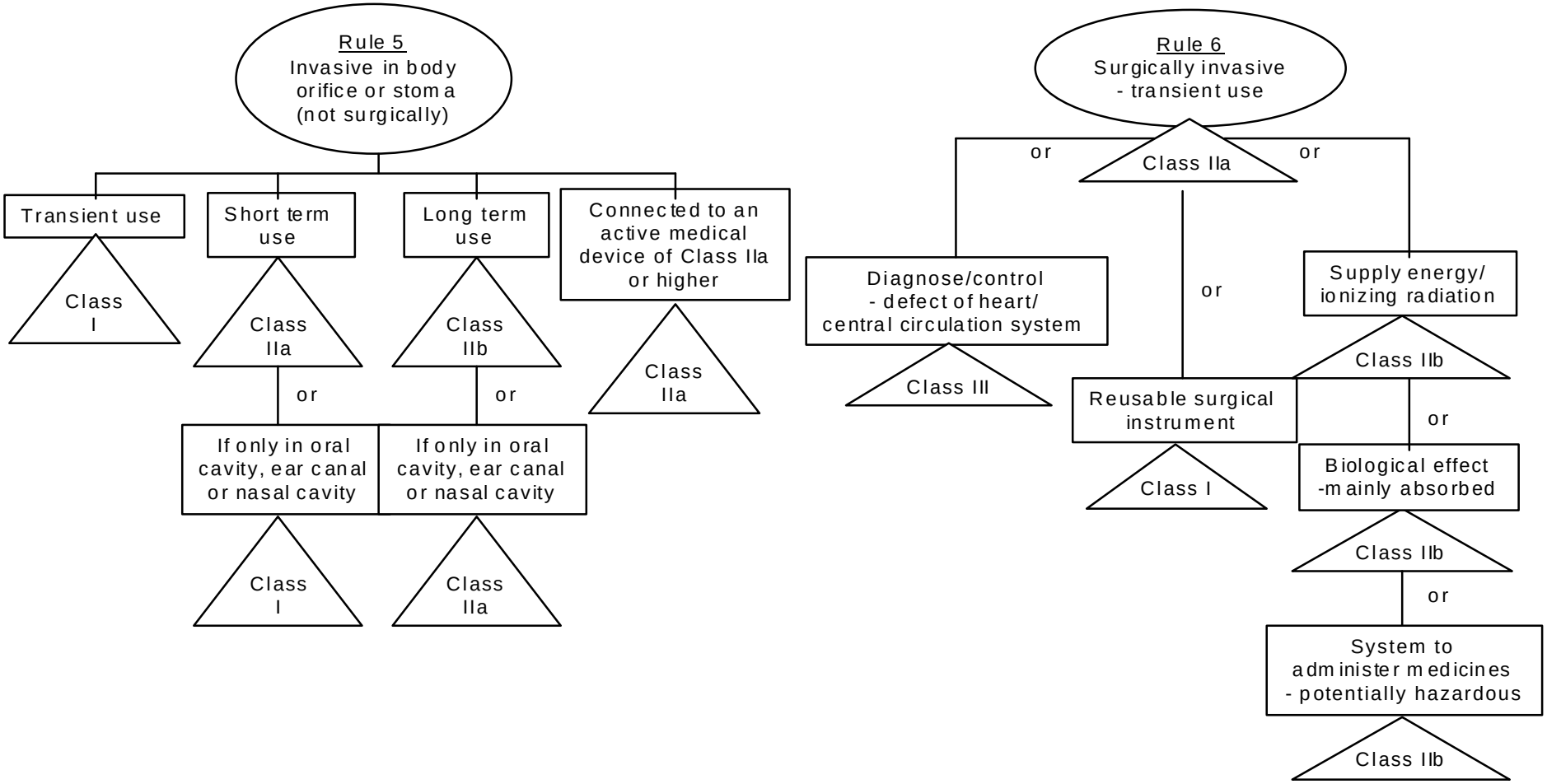
This minimum dimension may be waived for small-scale devices.

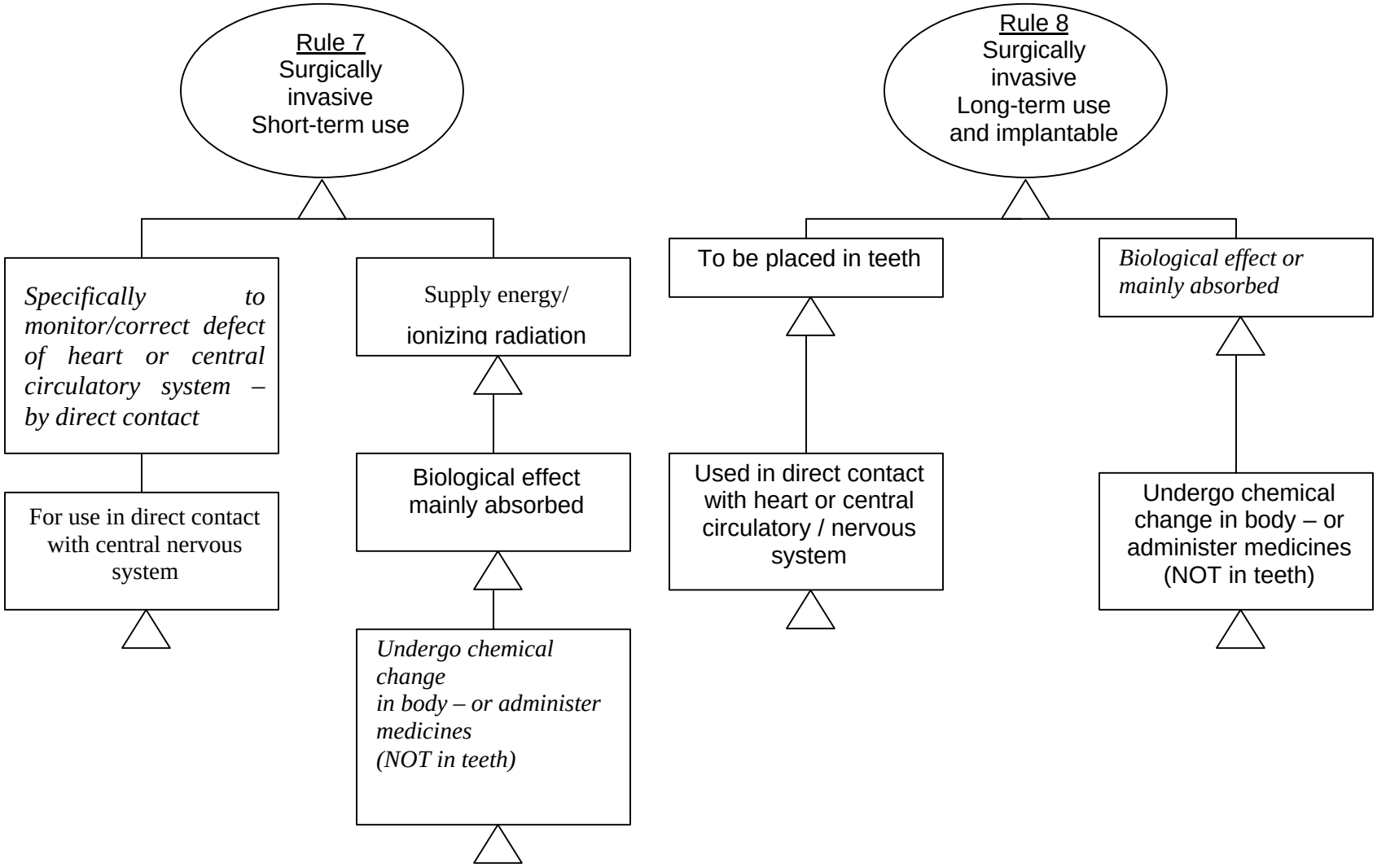
Medical devices classification guidance chart

Source: European Commission MEDDEV 2.4/1-rev.6, December 1999

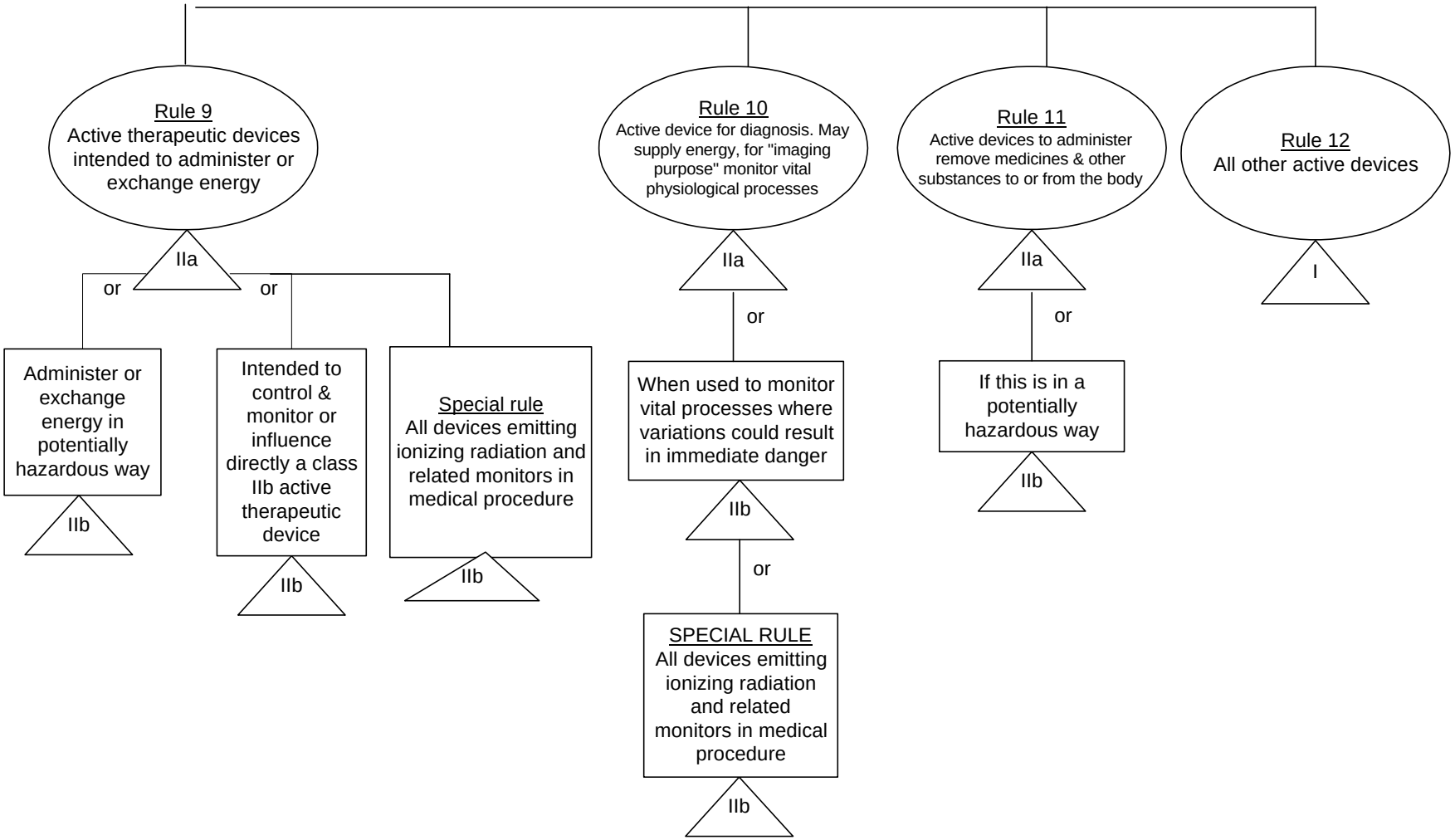


INVASIVE DEVICES




Rule 7
Surgically invasive
Short-term use
Specifically to monitor/correct defect of heart or central circulatory system – by direct contact
For use in direct contact with central nervous system
Supply energy/ ionizing radiation
Biological effect mainly absorbed
Undergo chemical change in body – or administer medicines (NOT in teeth)
Rule 8
Surgically invasive
Long-term use and implantable
To be placed in teeth
Used in direct contact with heart or central circulatory / nervous system
Biological effect or mainly absorbed
Undergo chemical change in body – or administer medicines (NOT in teeth)

ACTIVE DEVICES



General Medical Devices Harmonized Standards

Note: This list of General Medical Devices Harmonized Standards is from the Web Site: http://www.newapproach.org

European Standards Bodies	Standard reference	Titles	Ratification date	Publication OJ
CEN	EN 285	Sterilization - Steam sterilizers - Large sterilizers	1996	C 181 of 1999-06-26
CEN	EN 455-1	Medical gloves for single use - Part 1 : Requirements and testing for absence of holes	1993	C 181 of 1999-06-26
CEN	EN 455-2	Medical gloves for single use - Part 2 : Requirements and testing for physiological properties	1995	C 181 of 1999-06-26
CEN	EN 455-3	Medical gloves for single use – Part 3: Requirements and testing for biological evaluation	1999	C 293 of 2000-10-14
CEN	EN 475	Medical devices. Electrically generated alarm signals	1995	C 181 of 1999-06-26
CEN	EN 540	Clinical investigation of medical devices for humans	1993	C 181 of 1999-06-26
CEN	EN 550	Sterilization of medical devices - Validation and routine control of ethylene oxide sterilisation	1994	C 181 of 1999-06-26
CEN	EN 552	Sterilization of medical devices - Validation and routine control of sterilisation by irradiation	1994	C 181 of 1999-06-26
CEN	EN 552 A1	Sterilization of medical devices - Validation and routine control of sterilisation by irradiation	1994 1999	C 288 of 1999-10-09
CEN	EN 554	Sterilization of medical devices - Validation and routine control of sterilisation by moist heat	1994	C 181 of 1999-06-26
CEN	EN 556	Sterilization of medical devices - requirements for medical devices to be labelled sterile	1994	C 181 of 1999-06-26
CEN	EN 600	Natural rubber latex male condoms	1996	C 181 of 1999-06-26
CEN	EN 724	Guidance on the application of EN 29001 and EN 46001 and of EN 29002 and EN 46002 for non-active medical devices	1994	C 181 of 1999-06-26
CEN	EN 737-1	Medical gas pipeline systems - Part 1: Terminal units for compressed medical gases and vacuum	1998	C 181 of 1999-06-26
CEN	EN 737-2	Medical gas pipeline systems - Part 2: Anaesthetic gas scavening disposal systems - Basic requirements	1998	C 181 of 1999-06-26
CEN	EN 737-2/A1	Medical gas pipeline systems – Part 2:	1998	C 293 of

		Anaesthetic gas scavenging disposal systems - Basic requirements	1999	2000-10-14
CEN	EN 737-3	Medical gas pipeline systems - Part 3: Pipelines for compressed medical gases and vacuum	1998	C 227 of 1999-08-10
CEN	EN 737-3/A1	Medical gas pipeline systems - Part 3: Pipelines for compressed medical gases and vacuum	1998 1999	C 293 of 2000-10-14
CEN	EN 737-4	Medical gas pipeline systems - Part 4: Terminal units for anaesthetic gas scavenging systems	1998	C 181 of 1999-06-26
CEN	EN 738-1	Pressure regulators for use with medical gases – Part 1: pressure regulators and pressure regulators with flow metering devices	1997	C 181 of 1999-06-26
CEN	EN 738-2	Pressure regulators for use with medical gases - Part 2: Manifold and line pressure regulators	1998	C 293 of 2000-10-14
CEN	EN 738-3	Pressure regulators for use with medical gases - Part 3: Pressure regulators integrated with cylinder valves	1998	C 293 of 2000-10-14
CEN	EN 738-4	Pressure regulators for use with medical gases - Part 4: Low-pressure regulators intended for incorporation into medical equipment	1998	C 293 of 2000-10-14
CEN	EN 739	Low pressure hose assemblies for use with medical gases	1998	C 181 of 1999-06-26
CEN	EN 740	Anaesthetic workstations and their modules – Particular requirements	1998	C 227 of 1999-08-10
CEN	EN 793	Particular requirements for safety of medical supply units	1997	C 181 of 1999-06-26
CEN	EN 794-1	Lung ventilators - Part 1 : particular requirements for critical care ventilators	1997	C 181 of 1999-06-26
CEN	EN 794-2	Lung ventilators - Part 2 : particular requirements for home care use	1997	C 181 of 1999-06-26
CEN	EN 794-3	Medical electrical equipment - Lung ventilators - Part 3: Particular requirements for emergency and transport ventilators	1998	C 181 of 1999-06-26
CEN	EN 864	Medical electrical equipment : Capnometers for use with humans. Particular requirements	1996	C 181 of 1999-06-26
CEN	EN 865	Pulse oximeters - Particular requirements	1997	C 181 of 1999-06-26
CEN	EN 867-2	Non-biological systems for use in sterilizers - Part 2 : process indicators (class A)	1997	C 181 of 1999-06-26
CEN	EN 867-3	Non-biological systems for use in sterilizers - Part 3 : specification for class B indicators for use in the Bowie and Dick test	1997	C 181 of 1999-06-26
CEN	EN 868-1	Packaging materials and systems for medical devices which are to be sterilized - Part 1 : general requirements and test methods	1997	C 181 of 1999-06-26

CEN	EN 980 A1	Graphical symbols for use in the labelling of medical devices	1996 1999	C 293 of 2000-10-14
CEN	EN 1041	Information supplied by the manufacturer with medical devices	1998	C 181 of 1999-06-26
CEN	EN 1060-1	Non-invasive sphygmomanometers - Part 1 : general requirement	1995	C 181 of 1999-06-26
CEN	EN 1060-2	Non-invasive sphygmomanometers - Part 2 : supplementary requirements for mechanical sphygmomanometers	1995	C 181 of 1999-06-26
CEN	EN 1060-3	Non-invasive sphygmomanometers - Part 3 : supplementary requirements for electromechanical blood pressure measuring systems	1997	C 181 of 1999-06-26
CEN	EN 1089-3	Transportable gas cylinders - Cylinder identification - Part 3 : colour coding	1997	C 181 of 1999-06-26
CEN	EN 1089-3/A1	Transportable Gas cylinders – Gas cylinder identification – Part 3: Colour coding	1997 1998	C 293 of 2000-10-14
CEN	EN 1174-1	Sterilization of medical devices - Estimation of the population of micro-organisms on product - Part 1: requirements	1996	C 181 of 1999-06-26
CEN	EN 1174-2	Sterilization of medical devices - Estimation of the population of micro-organisms on product - Part 2: guidance	1996	C 181 of 1999-06-26
CEN	EN 1174-3	Sterilization of medical devices - Estimation of the population of micro-organisms on product - Part 3: guide to the methods for validation of microbiological techniques	1996	C 181 of 1999-06-26
CEN	EN 1280-1	Agent specific filling systems for anaesthetic vaporizers - Part 1 : rectangular keyed filling systems	1997	C 181 of 1999-06-26
CEN	EN 1281-1	Anaesthetic and respiratory equipment - Conical connectors - Part 1 : cones and sockets	1997	C 181 of 1999-06-26
CEN	EN 1281-1 Amendment1	Anaesthetic and respiratory equipment - Conical connectors - Part 1 : cones and sockets	1997 1998	C 181 of 1999-06-26
CEN	EN 1281-2	Anaesthetic and respiratory equipment - Conical connectors - Part 2 : screw-threaded weight-bearing connectors (ISO 5356-2:1987 modified)	1995	C 181 of 1999-06-26
CEN	EN 1282-1	Anaesthetic and respiratory equipment - Tracheostomy tubes - Part 1 : tubes for use in adults	1996	C 181 of 1999-06-26
CEN	EN 1282-2	Tracheostomy tubes - Part 2 : paediatric tubes	1997	C 181 of 1999-06-26
CEN	EN 1422	Sterilisers for medical purposes – ethylene oxide sterilisers – requirements and test methods	1997	C 181 of 1999-06-26
CEN	EN 1441	Medical devices – risk analysis	1997	C 181 of 1999-06-26

CEN	EN 1618	Catheters other than intravascular catheters – test methods for common properties	1997	C 181 of 1999-06-26
CEN	EN 1639	Dentistry - Medical devices for dentistry - Instruments	1996	C 181 of 1999-06-26
CEN	EN 1640	Dentistry - Medical devices for dentistry - Equipment	1996	C 181 of 1999-06-26
CEN	EN 1641	Dentistry - Medical devices for dentistry - Materials	1996	C 181 of 1999-06-26
CEN	EN 1642	Dentistry - Medical devices for dentistry - Dental implants	1996	C 181 of 1999-06-26
CEN	EN 1707	Conical fittings with a 6% (Luer) taper for syringes, needles and certain other medical equipment - Lock fittings	1996	C 181 of 1999-06-26
CEN	EN 1782	Tracheal tubes and connectors	1998	C 181 of 1999-06-26
CEN	EN 1819	Laryngoscopes for tracheal intubation – particular requirements	1997	C 181 of 1999-06-26
CEN	EN 1820	Anaesthetic reservoir bags	1997	C 181 of 1999-06-26
CEN	EN 1865	Specifications for stretchers and other patient handling equipment used in road ambulances	1999	C 293 of 2000-10-14
CEN	EN 1985	Walking aids - General requirements and test methods	1998	C 227 of 1999-08-10
CEN	EN ISO 4135	Anaesthesiology - Vocabulary (ISO 4135:1995)	1996	C 181 of 1999-06-26
CEN	EN ISO 8185	Humidifiers for medical use - General requirements for humidification systems	1997	C 181 of 1999-06-26
CEN	EN ISO 8359	Oxygen concentrators for medical use - Safety requirements	1996	C 181 of 1999-06-26
CEN	EN ISO 9703-3	Anaesthesia and respiratory care alarm signals - Part 3: Guidance on application of alarms (ISO 9703-3:1998)	1998	C 227 of 1999-08-10
CEN	EN ISO 10079-1	Medical suction equipment - Part 1 : electrically powered suction equipment - Safety requirements (ISO 10079-1:1991, including technical corrigendum 1:1992 and technical corrigendum 2:1993) Medical suction equipment – Part 1: Electrically powered suction equipment – Safety requirements (ISO 10079-1:1999)	1996 1999	C 181 of 1999-06-26 C 293 of 2000-10-14
CEN	EN ISO 10079-2	Medical suction equipment - Part 2 : manually powered suction equipment - (ISO 10079-2:1992) Medical suction equipment – Part 2: Manually powered suction equipment (ISO 10079-2:1999)	1996 1999	C 181 of 1999-06-26 C 293 of 2000-10-14
CEN	EN ISO 10079-3	Medical suction equipment - Part 3 : suction equipment powered from vacuum or	1996	C 181 of 1999-06-26

		pressure source (ISO 10079-3:1992) Medical suction equipment – Part 3: Suction equipment powered from a vacuum or pressure source (ISO 10079-3:1999)	1999	C 293 of 2000-10-14
CEN	EN ISO 10535	Hoists for the transfer of disabled persons - Requirements and test methods (ISO 10535:1998)	1998	C 293 of 2000-10-14
CEN	EN ISO 10555-1	Sterile, single-use intravascular catheters - Part 1 : general requirements (ISO 10555-1:1995)	1996	C 181 of 1999-06-26
CEN	EN ISO 10555-1/A1	Sterile, single-use intra-vascular catheters – Part 1: General requirements (ISO 10555-1:1996/Amd 1:1999)	1996 1999	C 293 of 2000-10-14
CEN	EN ISO 10993-1	Biological evaluation of medical devices - Part 1: Evaluation and testing (ISO 10993-1:1997)	1997	C 181 of 1999-06-26
CEN	EN ISO 10993-5	Biological evaluation of medical devices - Part 5: Tests for in vitro cytotoxicity (ISO 10993-5:1999)	1999	C 288 of 1999-10-09
CEN	EN ISO 10993-9	Biological evaluation of medical devices – Part 9: Framework for identification and quantification of potential degradation products (ISO 10993-9:1999)	1999	C 227 of 1999-08-12
CEN	EN ISO 10993-10	Biological evaluation of medical devices - Part 10 : tests for irritation and sensitisation (ISO 10993-10:1995)	1995	C 181 of 1999-06-26
CEN	EN ISO 10993-12	Biological evaluation of medical devices - Part 12 : sample preparation and reference materials (ISO 10993-12:1996)	1996	C 181 of 1999-06-26
CEN	EN ISO 10993-13	Biological evaluation of medical devices - Part 13: Identification and quantification of degradation products from polymeric medical devices (ISO 10993-13:1998)	1998	C 227 of 1999-08-12
CEN	EN ISO 10993-16	Biological evaluation of medical devices – Part 16: toxicokinetic study design for degradation products and leachables (ISO 10993-16:1997)	1997	C 181 of 1999-06-26
CEN	EN ISO 11196	Anaesthetic gas monitors (ISO 11196:1995 including technical corrigendum 1:1997)	1997	C 181 of 1999-06-26
CEN	EN ISO 11990	Optics and optical instruments – Lasers and laser-related equipment – Determination of laser resistance of tracheal tube shafts (ISO 11990:1999)	1999	C 293 of 2000-10-14
CEN	EN 12006-1	Non active surgical implants – Particular requirements for cardiac and vascular implants – Part 1: Heart valve substitutes	1999	C 293 of 2000-10-14
CEN	EN 12006-2	Non active surgical implants - Particular requirements for cardiac and vascular implants - Part 2: Vascular prostheses including cardiac valve conduits	1998	C 181 of 1999-06-26
CEN	EN 12006-3	Non active surgical implants - Particular	1998	C 227 of

		requirements for cardiac and vascular implants - Part 3: Endovascular devices		1999-08-10
CEN	EN 12010	Non active surgical implants - Joint replacement implants - Particular requirements	1998	C 181 of 1999-06-26
CEN	EN 12011	Instrumentation to be used in association with non-active surgical implants - General requirements	1998	C 181 of 1999-06-26
CEN	EN 12182	Technical aids for disabled persons – General requirements and test methods	1999	C 293 of 2000-10-14
CEN	EN 12183	Manually propelled wheelchairs – Requirements and test methods	1999	C 227 of 1999-08-10
CEN	EN 12184	Electrically powered wheelchairs, scooters and their chargers – Requirements and test methods	1999	C 227 of 1999-08-10
CEN	EN 12218	Rail systems for supporting medical equipment	1998	C 293 of 2000-10-14
CEN	EN 12342	Breathing tubes intended for use with anaesthetic apparatus and ventilators	1998	C 181 of 1999-06-26
CEN	EN 12470-1	Clinical thermometers – Part 1: Metallic liquid-in-glass thermometers with maximum device	2000	C 293 of 2000-10-14
CEN	EN 12470-3	Clinical thermometers – Part 3: Performance of compact electrical thermometers (non-predictive and predictive) with maximum device	2000	C 293 of 2000-10-14
CEN	EN 12523	External limb prostheses and external orthoses – Requirements and test methods	1998	C 227 of 1999-08-10
CEN	EN 12563	Non-active surgical implants - Joint replacement implants - Specific requirements for hip joint replacement implants	1998	C 227 of 1999-08-10
CEN	EN 12564	Non-active surgical implants - Joint replacement implants - Specific requirements for knee joint replacement implants	1998	C 227 of 1999-08-10
CEN	EN 12598	Oxygen monitors for patient breathing mixtures – Particular requirements	1999	C 227 of 1999-08-10
CEN	EN ISO 12870	Ophtalmic optics - Spectacle frames - General requirements and test methods	1997	C 181 of 1999-06-26
CEN	EN 13220	Flow-metering devices for connection to terminal units of medical gas pipeline systems	1998	C 293 of 2000-10-14
CEN	EN ISO 14160	Sterilization of single-use medical devices incorporating materials of animal origin - Validation and routine control of sterilization by liquid chemical sterilants	1998	C 181 of 1999-06-26
CEN	EN ISO 14534	Ophthalmic optics - Contact lenses and contact lens care products - Fundamental requirements	1997	C 181 of 1999-06-26
CEN	EN ISO 14602	Non-active surgical implants - Implants for Osteosynthesis - Particular requirements	1998	C 181 of 1999-06-26

CEN	EN ISO 14630	Non-active surgical implants - General requirements	1997	C 181 of 1999-06-26
CEN	EN ISO 14889	Ophthalmic optics – spectacle lenses – fundamental requirements for uncut finished lenses (ISO 14889:1997)	1997	C 181 of 1999-06-26
CEN	EN ISO 15004	Ophthalmic instruments – fundamental requirements and test methods (ISO 594-1: 1986)	1997	C 181 of 1999-06-26
CEN	EN 20594-1	Conical fittings with a 6% (Luer) taper for syringes, needles and certain other medical equipment - Part 1 : General requirements (ISO 594-1:1986)	1993	C 181 of 1999-06-26
CEN	EN 20594-1 A1	Conical fittings with a 6% (Luer) taper for syringes, needles and certain other medical equipment - Part 1: General requirements (ISO 594-1:1986)	1993,1997	C 227 of 1999-08-10
CEN	EN 27740	Instruments for surgery, scalpels with detachable blades, fitting dimensions (ISO 7740:1985)	1992	C 181 of 1999-06-26
CEN	EN 27740 A1	Instruments for surgery, scalpels with detachable blades, fitting dimensions (ISO 7740:1985)	1992,1997	C 227 of 1999-08-10
CEN	EN 30993-3	Biological evaluation of medical devices - Part 3 : tests for genotoxicity, carcinogenicity and reproductive toxicity (ISO 10993-3:1992)	1993	C 181 of 1999-06-26
CEN	EN 30993-4	Biological evaluation of medical devices - Part 4 : selection of tests for interactions with blood (ISO 10993-4:1992)	1993	C 181 of 1999-06-26
CEN	EN 30993-5	Biological evaluation of medical devices - Part 5 : tests for cytotoxicity - in vitro methods (ISO 10993-5:1992)	1993	C 181 of 1999-06-26
CEN	EN 30993-6	Biological evaluation of medical devices - Part 6: Tests for local effects after implantation (ISO 10993-6:1994)	1994	C 181 of 1999-06-26
CEN	EN 30993-7	Biological evaluation of medical devices - Part 7: ethylene oxide sterilisation residuals (ISO 10993-7:1995)	1995	C 293 of 2000-10-14
CEN	EN 30993-11	Biological evaluation of medical devices - Part 11: tests for systemic toxicity (ISO 10993-11:1993)	1995	C 181 of 1999-06-26
CEN/ CENELEC	EN 46001	Quality systems - Medical devices - Particular requirements for the application of EN ISO 9001	1995	C 181 of 1999-06-26
CEN/ CENELEC	EN 46002	Quality systems - Medical devices - Particular requirements for the application of EN ISO 9002	1995	C 181 of 1999-06-26
CEN/ CENELEC	EN 46003	Quality systems - Medical devices - Particular requirements for the application of EN ISO 9003	1999	C 293 of 2000-10-14
CENELEC	EN 50103	Guidance on the application of EN 29001 and EN 46001 and of EN 29002 and EN	1994	C 181 of 1999-06-26

		46002 for the active (including active implantable) medical device industry		
CENELEC	EN 60601-1	Medical electrical equipment. Part 1: General requirements for safety - IEC 601-1:1988	1990	C 181 of 1999-06-26
CENELEC	Amendment A1 to EN 60601-1	Medical electrical equipment. Part 1: General requirements for safety - IEC 601-1:1988/A1:1991	1992	C 181 of 1999-06-26
CENELEC	Amendment A2 to EN 60601-1	Medical electrical equipment. Part 1: General requirements for safety - IEC 601-1:1988/A2:1995 + corrigendum June 1995	1995	C 181 of 1999-06-26
CENELEC	Amendment A13 to EN 60601-1	Medical electrical equipment. Part 1: General requirements for safety	1995	C 181 of 1999-06-26
CENELEC	EN 60601-1-1	Medical electrical equipment. Part 1: General requirements for safety - 1. Collateral standard: Safety requirements for medical electrical systems - IEC 601-1-1:1992	1993	C 181 of 1999-06-26
CENELEC	Amendment A1 to EN 60601-1-1	Medical electrical equipment . Part 1: General requirements for safety - 1. Collateral standard: Safety requirements for medical electrical systems IEC 601-1-1:1992/A1:1995	1995	C 181 of 1999-06-26
CENELEC	EN 60601-1-2	Medical electrical equipment - Part 1: General requirements for safety - 2. Collateral standard: Electromagnetic compatibility - Requirements and tests IEC 601-1-2: 1993	1993	C 181 of 1999-06-26
CENELEC	EN 60601-1-3	Medical electrical equipment. Part 1: General requirements for safety - 3: Collateral standard: General requirements for radiation protection in diagnostic X-ray equipment. IEC 601-1-3:1994	1994	C 181 of 1999-06-26
CENELEC	EN 60601-1-4	Medical electrical equipment - Part 1: General requirements for safety - 4. Collateral standard: Programmable electrical medical systems - IEC 60601-1-4:1996	1996	C 181 of 1999-06-26
CENELEC	EN 60601-2-2	Medical electrical equipment. Part 2: Particular requirements for the safety of high frequency surgical equipment - IEC 601-2-2:1991	1992	C 181 of 1999-06-26
CENELEC	EN 60601-2-3	Medical electrical equipment. Part 2: Particular requirements for the safety of short-wave therapy equipment - IEC 601-2-3:1991	1992	C 181 of 1999-06-26
CENELEC	EN 60601-2-7	Medical electrical equipment -- Part 2-7: Particular requirements for the safety of high-voltage generators of diagnostic X-ray generators (IEC 60601-2-7:1998) Amendment A1:1997 to EN 60601-2-8:1997	1998	C 288 of 1999-10-09

		(IEC 60601-2-8:1987 /A1:1997)		
CENELEC	EN 60601-2-9	Medical electrical equipment -- Part 2: Particular requirements for the safety of patient contact dosemeters used in radiotherapy with electrically connected radiation detectors (IEC 60601-2-9:1996)	1996	C 288 of 1999-10-09
CENELEC	EN 60601-2-11	Medical electrical equipment -- Part 2: Particular requirements for the safety of gamma beam therapy equipment (IEC 60601-2-11:1997)	1997	C 288 of 1999-10-09
CENELEC	EN 60601-2-16	Medical electrical equipment -- Part 2-16: Particular requirements for the safety of haemodialysis, haemodiafiltration an haemofiltration equipment (IEC 60601-2-16: 1998)	1998	C 288 of 1999-10-09
CENELEC	EN 60601-2-17	Medical electrical equipment. Part 2: Particular requirements for the safety of remote-controlled automatically-driven gamma-ray after-loading equipment IEC 601-2-17:1989	1996	C 181 of 1999-06-26
CENELEC	Amendment A1 to EN 60601-2-17	Medical electrical equipment. Part 2: Particular requirements for the safety of remote-controlled automatically-driven gamma-ray after-loading equipment. IEC 601-2-17:1989/A1:1996	1996	C 181 of 1999-06-26
CENELEC	EN 60601-2-18	Medical electrical equipment -- Part 2: Particular requirements for the safety of endoscopic equipment (IEC 60601-2-18:1996)	1996	C 288 of 1999-10-09
CENELEC	EN 60601-2-19	Medical electrical equipment -- Part 2: Particular requirements for the safety of baby incubators (IEC 60601-2-19:1990) Amendment A1:1996 to EN 60601-2-19:1996 (IEC 60601-2-19:1990/A1:1996)	1996	C 288 of 1999-10-09
CENELEC	EN 60601-2-20	Medical electrical equipment -- Part 2: Particular requirements for the safety of transport incubators (IEC 60601-2-20:1990 + A1:1996)	1996	C 288 of 1999-10-09
CENELEC	EN 60601-2-21	Medical electrical equipment -- Part 2: Particular requirements for the safety of infant radiant warmers (IEC 601-2-21:1994) Amendment A1:1996 to EN 60601-2-21:1994 (IEC 60601-2-21:1994/A1:1996)	1994	C 288 of 1999-10-09
CENELEC	EN 60601-2-22	Medical electrical equipment . Part 2: Particular requirements for the safety of diagnostic and therapeutic laser equipment. IEC 601-2-22:1995	1995	C 181 of 1999-06-26
CENELEC	EN 60601-2-23	Medical electrical equipment -- Part 2: Particular requirements for the safety	1997	C 288 of 1999-10-09

		of transcutaneous partial pressure monitoring equipment (IEC 60601-2-23:1993)		
CENELEC	EN 60601-2-24	Medical electrical equipment -- Part 2: Particular requirements for the safety of infusion pumps and controllers (IEC 60601-2-24:1998)	1998	C 288 of 1999-10-09
CENELEC	EN 60601-2-25	Medical electrical equipment. Part 2: Particular requirements for the safety of electrocardiographs. IEC 601-2-25:1993	1995	C 181 of 1999-06-26
CENELEC	EN 60601-2-26	Medical electrical equipment. Part 2: Particular requirements for the safety of electroencephalographs. IEC 601-2-26:1994	1994	C 181 of 1999-06-26
CENELEC	EN 60601-2-27	Medical electrical equipment. Part 2: Particular requirements for the safety of electrocardiographic monitoring equipment - IEC 601-2-27:1994	1994	C 181 of 1999-06-26
CENELEC	EN 60601-2-28	Medical electrical equipment. Part 2: Particular requirements for the safety of X-ray source assemblies and X-ray tube assemblies for medical diagnosis. IEC 601-2-28:1993	1993	C 181 of 1999-06-26
CENELEC	EN 60601-2-29	Medical electrical equipment -- Part 2: Particular requirements for the safety of radiotherapy simulators (IEC 60601-2-29:1993) Amendment A1:1996 to EN 60601-2-29:1995 (IEC60601-2-29:1993/A1:1996)	1995	C 288 of 1999-10-09
CENELEC	EN 60601-2-30	Medical electrical equipment. Part 2: Particular requirements for the safety of automatic cycling indirect blood pressure monitoring equipment . IEC 601-2-30:1995	1995	C 181 of 1999-06-26
CENELEC	EN 60601-2-31	Medical electrical equipment. Part 2: Particular requirements for the safety of external cardiac pacemakers with internal power source. IEC 601-2-31:1994	1994	C 181 of 1999-06-26
CENELEC	EN 60601-2-32	Medical electrical equipment. Part 2: Particular requirements for the safety of associated equipment of X-ray equipment - IEC 601-2-32:1994	1994	C 181 of 1999-06-26
CENELEC	EN 60601-2-33	Medical electrical equipment. Part 2: Particular requirements for the safety of magnetic resonance equipment for medical diagnosis. IEC 601-2-33:1995	1995	C 181 of 1999-06-26
CENELEC	EN 60601-2-34	Medical electrical equipment. Part 2: Particular requirements for the safety of direct blood-pressure monitoring equipment - IEC 601-2-34:1994	1995	C 181 of 1999-06-26
CENELEC	EN 60601-2-35	Medical electrical equipment -- Part 2: Particular requirements for the safety of blankets, pads and mattresses, intended	1996	C 288 of 1999-10-09

		for heating in medical use (IEC 60601-2-35:1996)		
CENELEC	EN 60601-2-36	Medical electrical equipment -- Part 2: Particular requirements for the safety of equipment for extracorporeally induced lithotripsy (IEC 60601-2-36:1997)	1997	C 288 of 1999-10-09
CENELEC	EN 60601-2-38	Medical electrical equipment -- Part 2-38: Particular requirements for the safety of electrically operated hospital beds (IEC 60601-2-38:1996)	1996	C 288 of 1999-10-09
CENELEC	EN 60601-2-40	Medical electrical equipment -- Part 2-40: Particular requirements for the safety of electromyographs and evoked response equipment (IEC 60601-2-40:1998)	1998	C 288 of 1999-10-09
CENELEC	EN 60645-1	Audiometers. Part 1 : pure-tone audiometers - IEC 645-1:1992 + corrigendum Feb. 1993	1994	C 181 of 1999-06-26
CENELEC	EN 60645-2	Audiometers. Part 2: Equipment for speech audiometry. IEC 645-2:1993	1996	C 181 of 1999-06-26
CENELEC	EN 60645-3	Audiometers. Part 3 : auditory test signals of short duration for audiometric and neuro-otological purposes - IEC 645-3:1994	1994	C 181 of 1999-06-26
CENELEC	EN 60645-4	Audiometers. Part 4 : equipment for extended high-frequency audiometry. IEC 645-4:1994	1994	C 181 of 1999-06-26