D2RS

Digital Remote Controlled Table with dynamic flat panel detector

Preface to the user's manual

SOFTWARE VERSIONS
Shell software:
Control board software:
Control Console software:

STEPHANIX
10 rue Jean Moulin, Z.I. du Bayon
42150 LA RICAMARIE
FRANCE
Tel: 00 33 4 77 47 81 60
Fax: 00 33 4 77 37 55 19

D2RS

Please read the whole documentation before using the medical device

REVISIONS HISTORY

Revision	Date	Reason for change
0	30 January 2015	First edition Of reorganisation of the manuals

The manufacturer constantly strives to improve its products and, therefore, reserves the right to deliver, without prior notice, machines whose characteristics differ from those described here: nonetheless, these machines are still guaranteed to comply with regulations in force.

INDEX

CE 0120

The CE mark on the system indicates that the unit is in compliance with the European Directive 93/42/CEE of the 14/06/93 concerning the medical devices

Original language of document: FRENCH

Preface to the user's manual

1 - SYSTEM INFORMATION

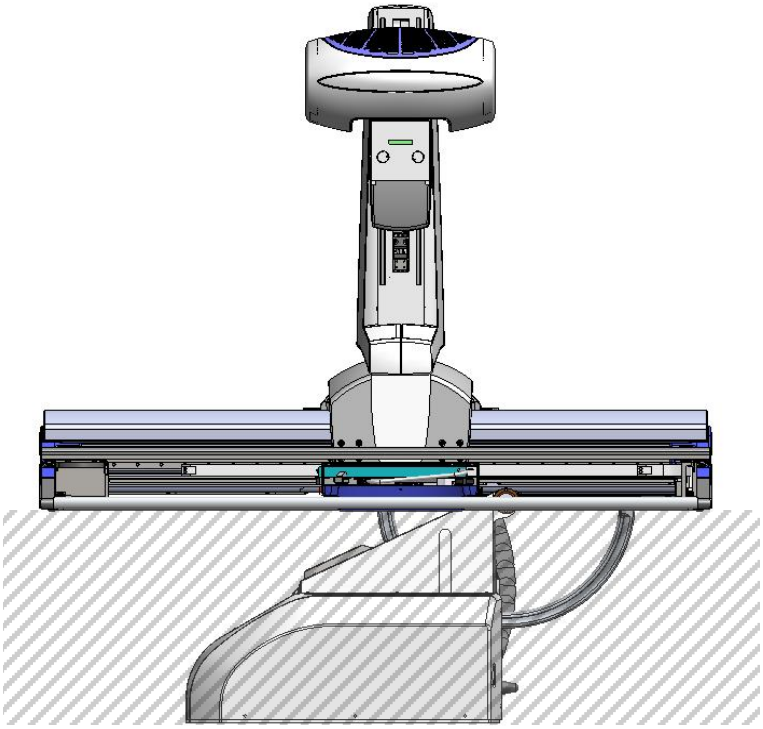
1 – 1 System configuration

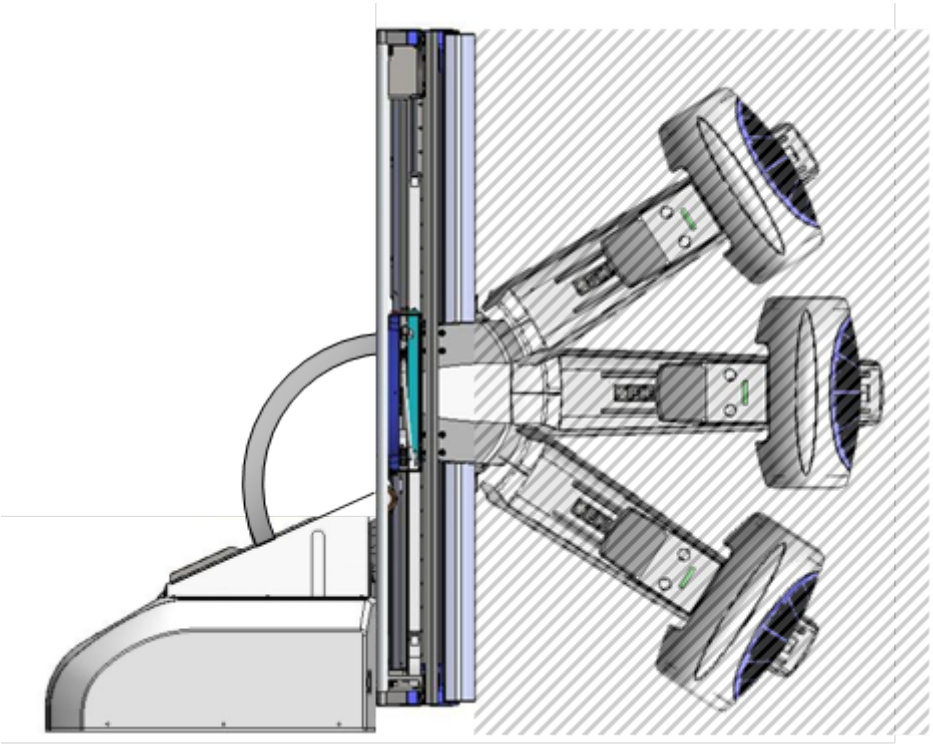
System elements	Type	Brand	Title of corresponding user manual
Remote controlled Table	D2RS	STEPHANIX	Digital Remote Controlled Table with dynamic flat panel detector USER'S MANUAL Preface to the user's manual
Console	Console C-D²RS	STEPHANIX	
Secondary console	Secondary console C2-D²RS	STEPHANIX	
Collimator	R225 ACS	RALCO	
X-ray tube	RTM101 with C100XT housing	IAE	Tube documentation – RTM101 Tube assembly documentation – C100XT X-ray tube assembly
	RTC600 with C100XT housing	IAE	Tube documentation – RTC600 Tube assembly documentation – C100XT X-ray tube assembly
	RTC700 with C100XT housing	IAE	Tube documentation – RTC700 Tube assembly documentation – C100XT X-ray tube assembly
	RTC1000 with C100XT housing	IAE	Tube documentation – RTM101 Tube assembly documentation – C100XT X-ray tube assembly
Generator	N50HF	STEPHANIX	Operation HF Series generators Generator Console for CXDI Control Software RF
	N65HF	STEPHANIX	
	N80HF	STEPHANIX	

System elements	Type	Brand	Title of corresponding user manual
Digital system	Computer PC unit	ATEMATION	Installation guide
	Computer Screen	EIZO	Installation manuel
	CCS_RF software (user interface)	CANON	CXDI Controller RF Operation Manual
	CXDI-50RF Flat Panel Detector (FPD)	CANON	Dynamic/Static DR CXDI-50RF User's Manual For System Integrator's Reference
	Power box	CANON	Dynamic/Static DR Power Box (PB-4) User's Manual For System Integrator's Reference
Transformer (for UL version)	01240802	LUPUS ELECTRO	NA

1 – 2 Mechanical safety

Since the table moves, some areas around the table should always be kept clear of any equipment. It is the operator's responsibility to make sure that there is no obstacle to the movements of the table.
The dangerous areas are dashed on the drawings below.





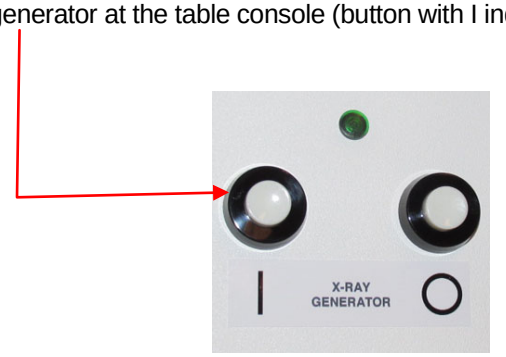
Preface to the user's manual

1 – 3 System switch on and off

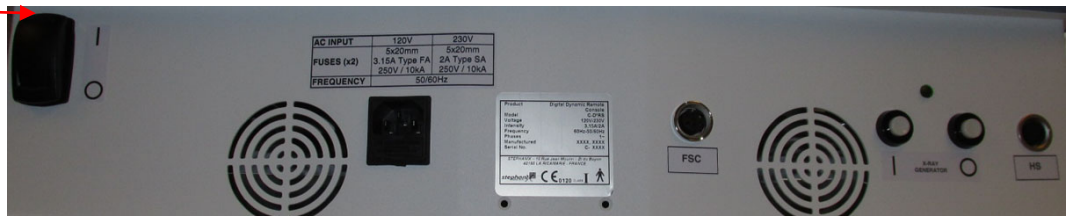
- Switch ON

Note: it is important to respect the order of startup.

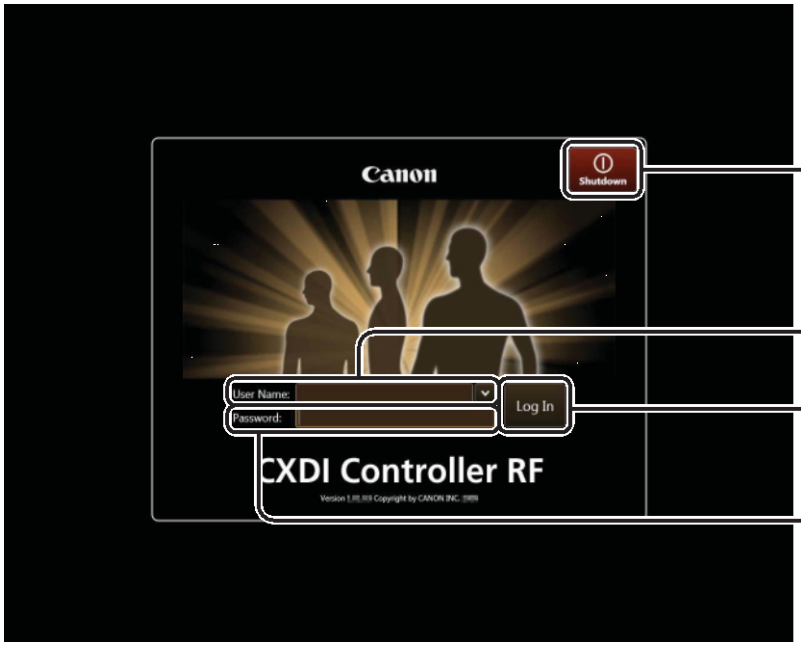
- Switch ON the Power buttons on wall « Table and Generator » (red light indicators)
- Switch ON the generator at the table console (button with I indication behind the table console)



- Switch ON the table at the table console (button behind the table console, one pressure up is enough)



- Turn on the PC (and the screen) that will automatically start acquisition software
- Enter the password when requested



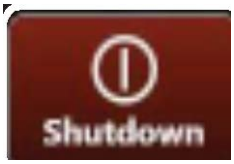
- Remember to check that the detector is turned on (blue LED on the detector)
- The system is now ready to use (no heating or calibration required, except x-ray tube warm-up)

Warning: Beware; the error messages should never be ignored. Indeed, ignoring an error message can have serious consequences, such as loss of patient images.

- Switch OFF

- Start by turning OFF the User interface software
  To do this, go to settings

Then, "Turn off" (red button at the top right)



The computer turns off then alone.

- Switch OFF the table console with the same button as the switching on, but this time by making a downward pressure.

- Switch OFF the generator at the table console (button with O indication behind the table console)

- Finish by switching OFF the Power buttons on wall « Table and Generator » (green light indicators).

For more details concerning switching on / OFF for each element of the system, please refer to corresponding chapters in user's manuals of table, generator interface and digital system

1 – 4 Cleaning and disinfection

☞ ***Warning: Turn off the equipment and disconnect the electrical supply before starting any cleaning or disinfection operations.***

GENERAL CLEANING INSTRUCTIONS:

For any equipment, always clean painted or enameled parts by means of a soft and clean cotton cloth. Dampen the cloth with tepid water and/or mild detergent. Then, you should wipe the equipment with a dry cotton cloth.

Do not use any abrasive powder, nor organic solvents, neither liquid detergent containing solvents (petrol, alcohol, stain removers) which could damage the materials.

Do not immerse equipment parts that enclose electrical components. You should rather use a soft dampened cloth, taking care not to allow liquids to enter the equipment.

GENERAL DISINFECTION INSTRUCTIONS:

In order to prevent any patient contamination, after each procedure, always clean parts of the equipment which were in contact with the patient with a bacterial, germicidal and antiviral solution.

If the room containing the equipment needs to be disinfected with an atomizer, it is recommended to follow these specific instructions:

- Switch all the equipment parts OFF.
- Allow them to cool down.
- Cover them with a plastic sheet

When the disinfectant mist has subsided, the plastic sheet may be removed and the equipment be disinfected by wiping.

Methods of disinfection used must conform to legal regulations and guidelines regarding disinfection and explosion protection.

SPECIFIC INSTRUCTIONS:

REMOTE CONTROL TABLE

In order to clean chromium-plated parts, wipe them with a soft dry cotton cloth. If you want to polish them, use car wax.

Do not use any corrosive or abrasive polishes.

The equipment, accessories and cables can be disinfected by wiping them with rag dampened with a disinfecting solution

In any case, the remote controlled system is never to be exposed to any disinfecting gas.

Disinfection by spraying should be banned since the disinfectant may enter the equipment.

If disinfectants which form explosive mixtures of gases are used, these gases must have evaporated before switching on the equipment again.

RX GENERATOR

Clean the equipment frequently, particularly if corroding chemicals are present.

NEVER ATTEMPT TO CLEAN ANY PART OF THE UNIT WHEN IT IS SWITCHED ON.

DO NOT REMOVE ANY COVER, DISASSEMBLE OR MANIPULATE INTERNAL COMPONENTS IN THE UNIT.

Never use anything other than soap and water to clean plastic surfaces. Other cleaners may damage the plastic.

Never use any corrosive, abrasive or solvent detergents or polishes.

Disinfection by spraying is not recommended because the disinfectant may enter the X-Ray generator.

If disinfectants which form explosive mixtures of gases are used, these gases must have evaporated before switching on the equipment again.

SCREENS AND PC CABINET

External surfaces should be wiped to remove any foreign material that may have accumulated.
Painted surfaces should be cleaned using a clean cloth slightly moistened with a good mild cleaner and polish acceptable for such use.
Use a clean, soft cloth to wipe off any dirt or dust on the outside of the cabinet.

FLAT PANEL DETECTOR

COVER

When the instrument is going to be cleaned, be sure to turn OFF the power of each instrument, and unplug the power cable from the AC outlet.
Never use alcohol, benzine, thinner or any other flammable cleaning agents. Otherwise, fire or electric shock may result.
Clean the cover by the following procedure if it is dirty.

(1) Turn OFF the power of the power box.
Shut down the image capture computer, and press side "0" of the power switch.

(2) Turn OFF the power of each instrument.
Turn OFF the power of each instrument if connected.

(3) Unplug the power cables.
Unplug the power cables of each instrument from the AC outlet.

(4) Wipe the cover using neutral detergent.
Wipe the cover with a piece of cloth soaked in neutral detergent diluted in water and wrung dry.

(5) Wipe out neutral detergent.
Wipe the cover with a piece of cloth soaked in water and wrung dry whenever neutral detergent has been used.

CFRP (Carbon Fiber Reinforced Plastic) Plate of the Detector Unit

Wipe the CFRP plate of the detector unit with ethanol or glutaraldehyde solution to disinfect it each time a different patient uses the instrument, in order to prevent infection.
If the optional grid unit is being used, disinfect its surface.
Please consult a specialist for the procedure for disinfection.
If you are using disinfectant other than those specified above, or you are mixing another disinfectant with ethanol, please also consult a specialist, because they may harm the CFRP plate and grid unit.
Disinfect the CFRP plate of the detector unit each time a different patient uses the instrument. If the optional grid unit is being used, disinfect its surface.

1 – 5 Environmental Specifications

Component Of the System	TRANSPORT AND STORAGE					
	Temperature		Relative humidity (non condensing)		Atmospheric pressure	
	MIN.	MAX	MIN	MAX	MIN	MAX
Table console	-20°C	+60°C	10%	75%	700hPa	1060hPa
Table	-20°C	+60°C	10%	75%	700hPa	1060hPa
Collimator	-40°C	+75°C	30%	75%	700hPa	1060hPa
X-ray tube	-10°C	+80°C		80%	700hPa	1050hPa
Generator	-40°C	+70°C	10%	100%	500hPa	1060hPa
Detector	-30°C	+60°C	10%	60%	700hPa	1060hPa
Power box	0°C	+40°C	30%	85%	700hPa	1060hPa

Component Of the System	IN-USE					
	Temperature		Relative humidity (non condensing)		Atmospheric pressure	
	MIN.	MAX	MIN	MAX	MIN	MAX
Table console	+10°C	+35°C	30%	75%	700hPa	1060hPa
Table	+10°C	+35°C	30%	75%	700hPa	1060hPa
Collimator	+10°C	+40°C	30%	75%	700hPa	1060hPa
X-ray tube	+5°C	+40°C		80%	700hPa	1050hPa
Generator	+10°C	+35°C	30%	75%	700hPa	1060hPa
Detector	+5°C	+35°C	30%	75%	700hPa	1060hPa
Power box	+5°C	+35°C	30%	75%	700hPa	1060hPa

Transport conditions

The merchandises travel at the recipient's risks.

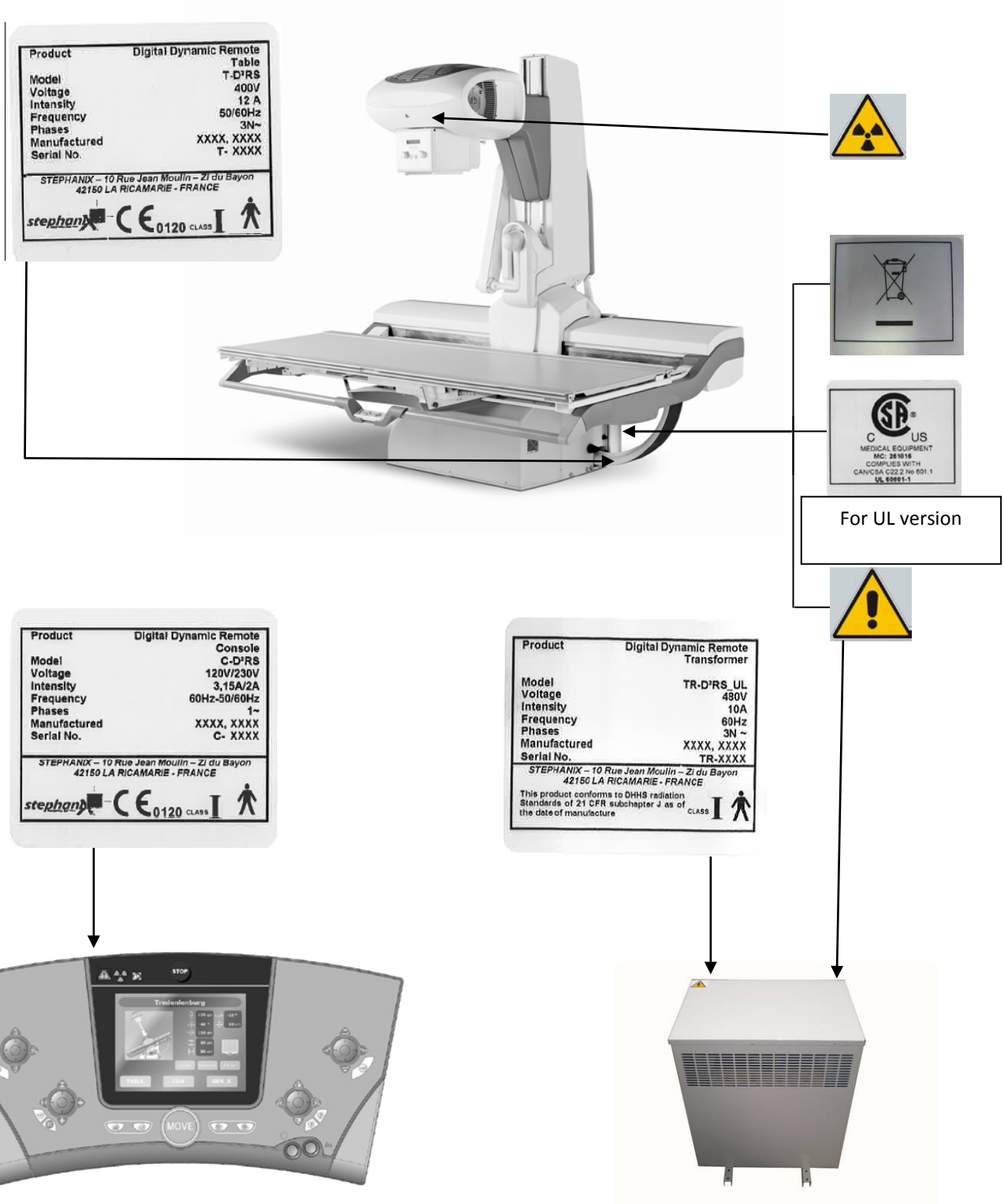
Any dispute for losses or damage caused during the transport shall be mentioned in presence of the carrier during the delivery and indicated on the delivery notice.

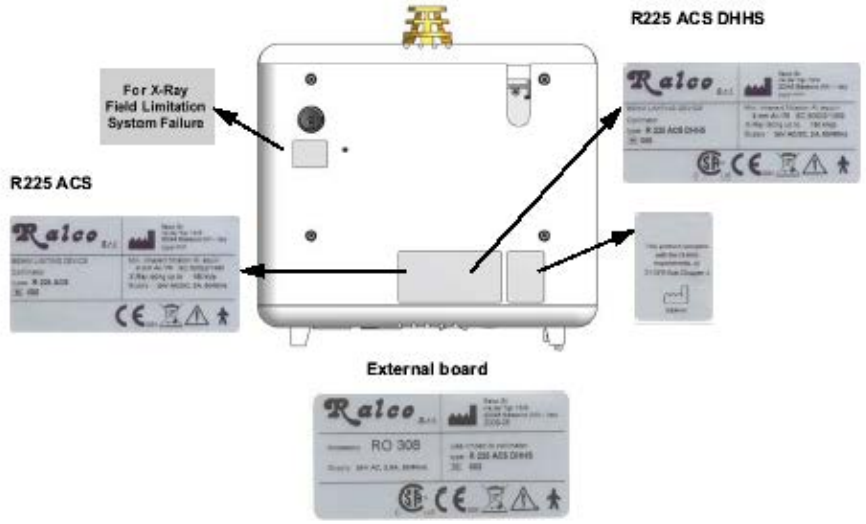
Packaging made by the manufacturer mustn't be used in any case for any other purpose that transport.

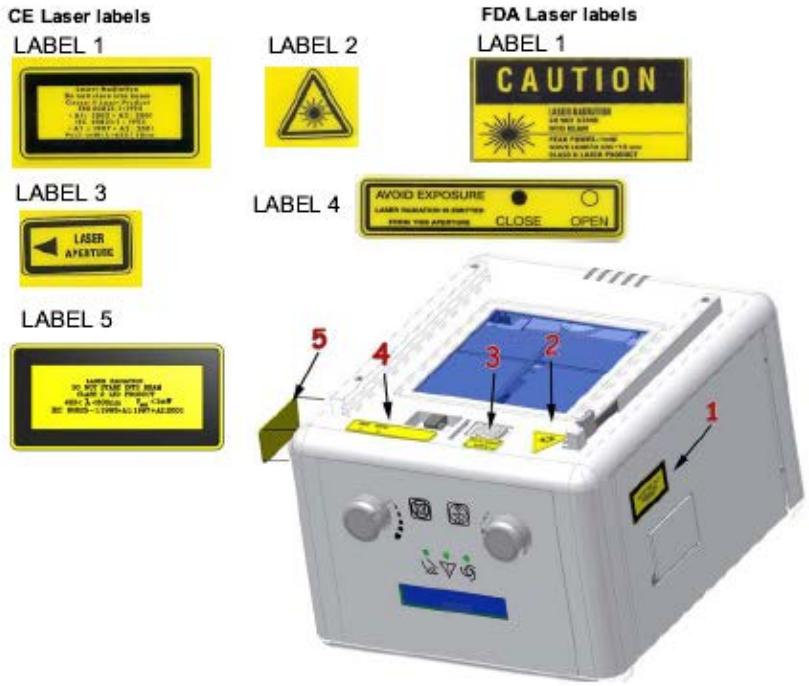
2 - LABELLING

Labels identify the different components of the table (see examples below) according to the requirements of international standards.

Note: the control cabinet components are integrated into the table







LABEL 1:
CAUTION, LASER RADIATION, DO NOT LOOK AT THE BEAM DIRECTLY

LABEL 2:
Warns of the danger of the laser beam

LABEL 3:
Indicates the OPENING from where the LASER beam goes out.

LABEL 4:
AVOID ANY LASER RADIATION EMITTED FROM THAT OPENING
CLOSED OPEN

LABEL 5:
CAUTION, LASER RADIATION, DO NOT LOOK AT THE BEAM DIRECTLY

Preface to the user's manual

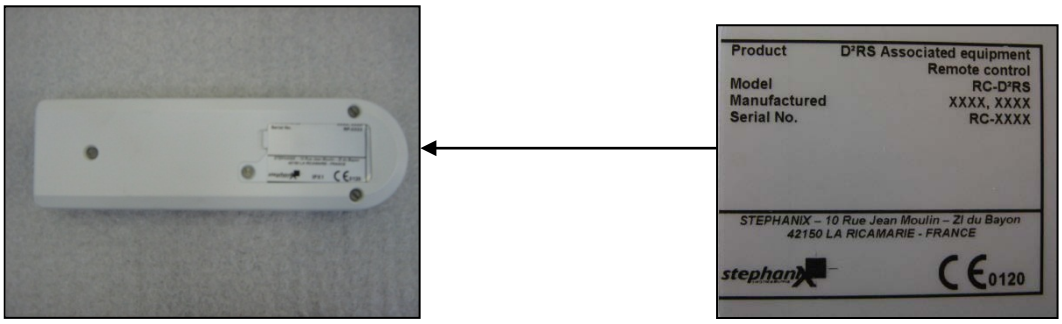
CAUTION

Use only the following accessories provided by the manufacturer:

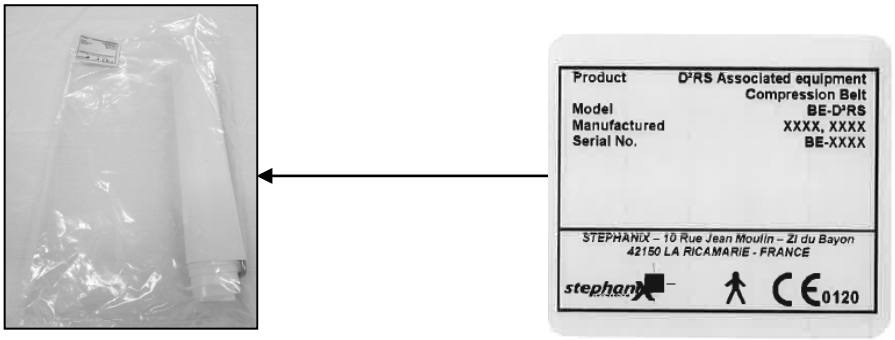
STANDARD ACCESSORIES:
Remote Control; Compression belt and winches; footrest; stool; handles; double fluoroscopy pedal

OPTIONAL ACCESSORIES:
Triple fluoroscopy pedal; cup-holder; pair of shoulder rests; pair of gynaecology stirrups; retaining bar; compression ladle; compression plexi; IV-Pole; Multi FPD lateral support; 1m ruler for stitching; Ruler support for stitching; 10cm ruler for measuring; secondary console

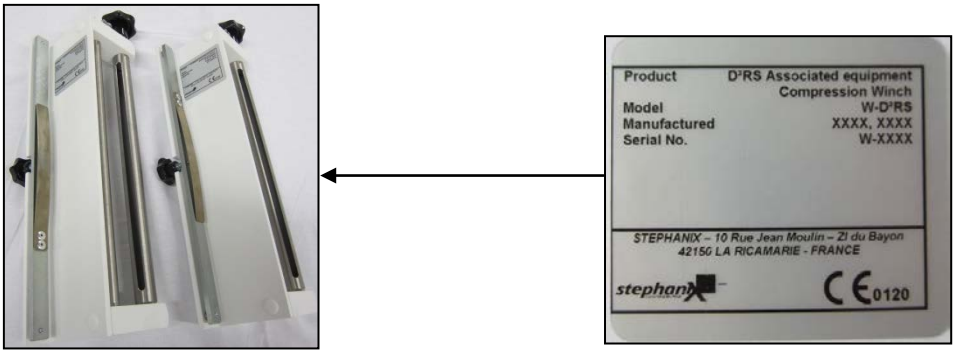
Remote control



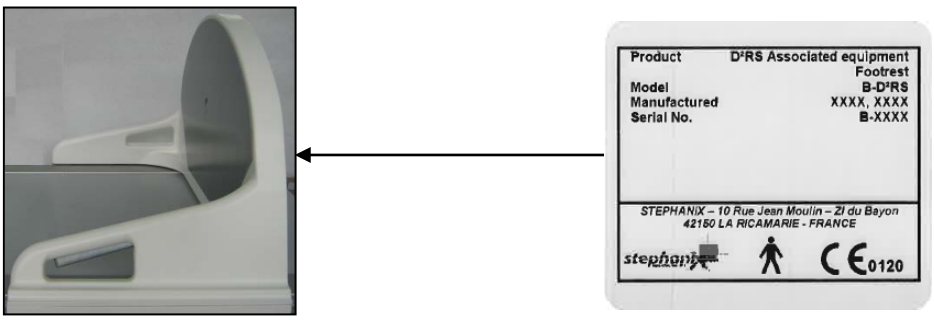
Compression belt *(label on packing)*



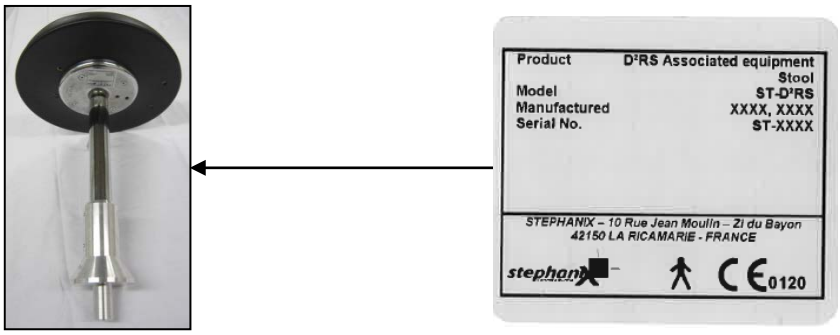
Compression winches



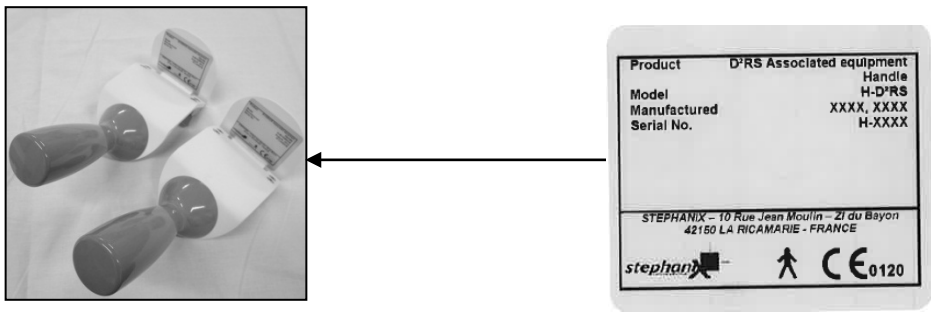
Footrest



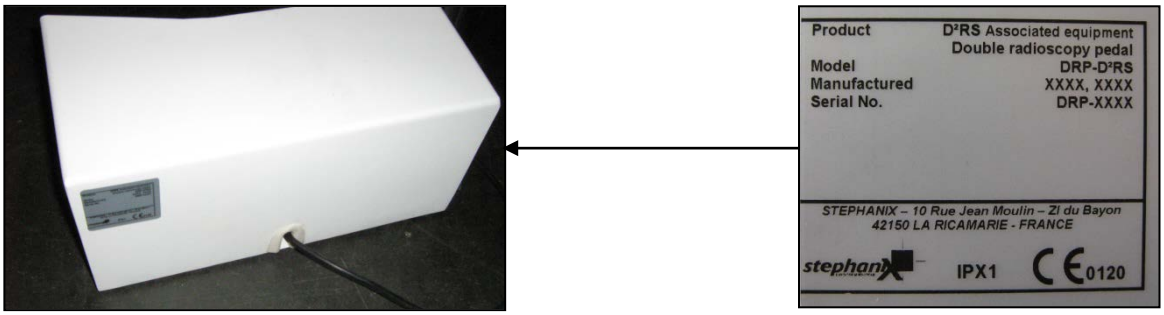
Stool



Handles



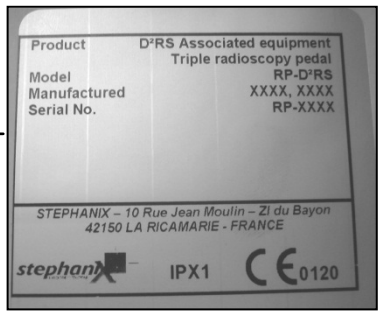
Double fluoroscopy pedal



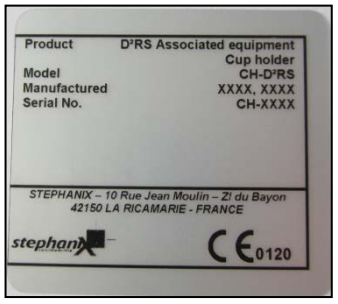
OPTIONAL ACCESSORIES:

Triple fluoroscopy pedal

For versions with CINE functionality

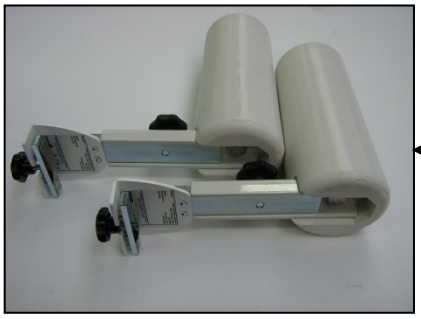


Cup holder *(label on packing)*



Note: use a plastic cup holder only and do not fill more than 250 ml of liquid, that is to say an approximate weight of 250 g

Pair of shoulder rests



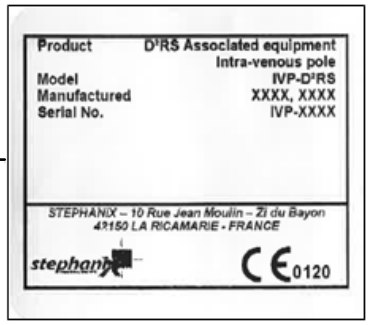
Pair of gynaecology stirrups

Retaining Bar

Compression ladle

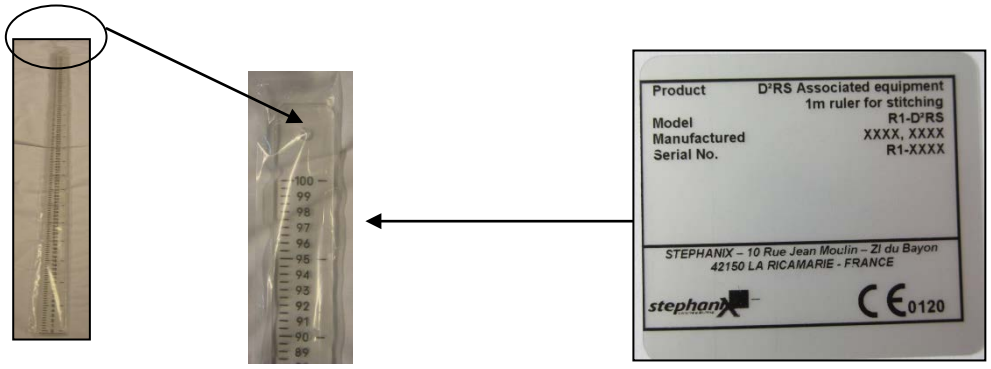
Compression plexi

IV-Pole

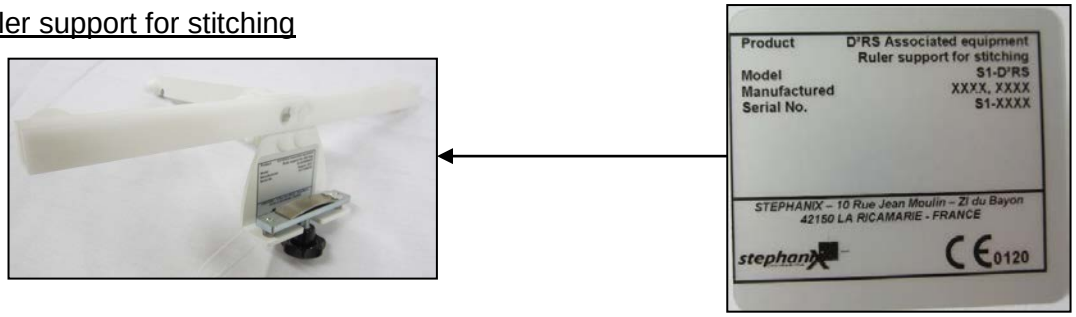


Multi FPD lateral support

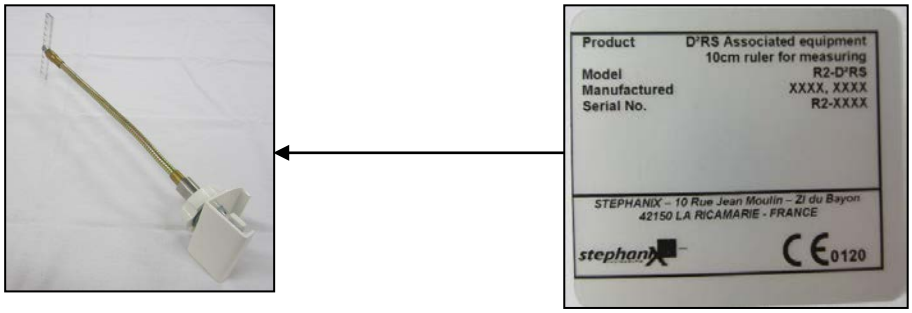
1m ruler for stitching *(label on packing)*



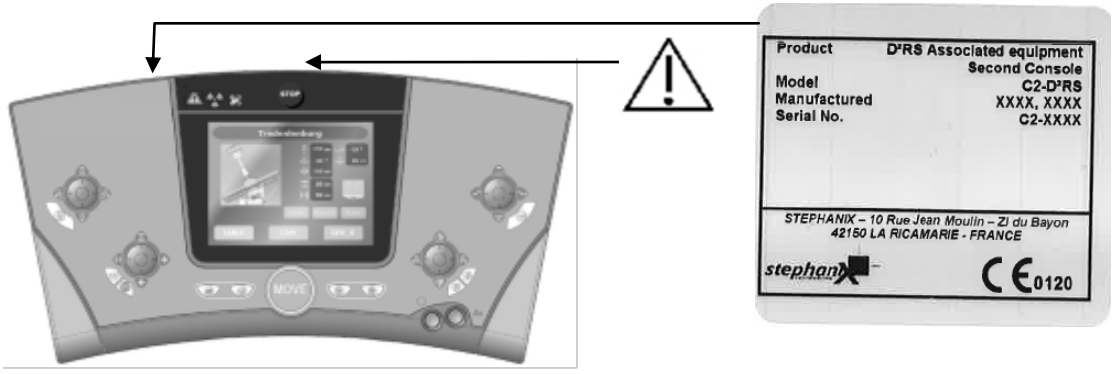
Ruler support for stitching



10cm ruler for measuring



Secondary console



3 - RADIOPROTECTION AND IMAGING PERFORMANCE

3 – 1 Introduction

Risks:

Risks associated with ionizing radiation depend on the dose delivered during an examination but also the accumulation of dose during several successive examinations. The purpose of radiation protection is to prevent or reduce these risks.

Nature of hazard:

The user is faced with the risks associated with ionizing radiation. Therefore, if the user does not respect safety regulations put in place, he can be exposed to a radiation hazard

Precautions:

Two main rules regarding radiation protection are daily implemented: justification and optimization.

The justification lies in the fact that, as with any medical procedure, the benefit must be greater than the risk. Although the risk of low doses is not demonstrated, caution is to consider that they can be responsible. Therefore the achievement of examination with ionizing radiation is well thought out and weighed.

The optimization of doses is the role of the users who need the least radiation necessary to obtain an examination to answer questions.

3 – 2 Minimizing the possibility of exposing patients to radiation, optimising the radiation dose delivered to the patient and the operators

To minimize the exposition of the patient to radiation, the following should be observed :

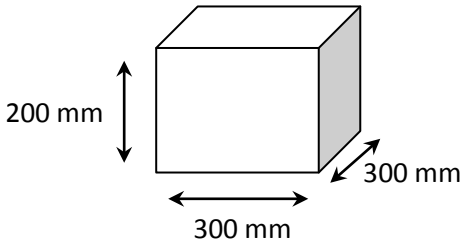
- collimate the radiated field to the minimum possible value.
- provide the patient with the best possible protection by using specific screens in leaded rubber if exposures are to be executed next to the patient genital organs.
- If the presence of a doctor or auxiliary personal near the patient during the X ray exams is required, they must wear the specific protective garments (lead apron, gloves, thyroid shield, etc).
- If the presence of a doctor or auxiliary personal near the patient during the X ray exams is required, they must occupy only the significant zone of occupancy (see also the specific zone of occupancy section.
- wear your personal dosimeter.
- keep a proper distance from the X ray beam: The exposure should be done from the control desk which is normally placed behind a leaded shield, in this way the necessary distance to ensure an adequate protection is respected.

There are many ways to optimize the radiation delivered to the patient. Some General guidelines are:

- use the proper anti-scatter grid depending on the SID.
- use the spatial filters provided in the collimator

3 – 3 Quantitative information

- For all the intended uses of the medical equipment, the radiation quantity delivered by the system is available to the user in terms of Dose Area Product (DAP) and AirKerma. The unit for the DAP in the system is mGy.cm².
The unit for the Air Kerma is mGy.
This value is visible on the screen of the imaging system, next to the radiologic image. Depending on the imaging system, the accumulated DAP (also called Total DAP) and the accumulated Air Kerma are shown for the whole exam. In case of a static exposure (RAD exposure), the DAP for this exposure can also be shown, depending on the imaging system. More details about where the DAP and Total Dap is shown on the screen can be found in the imaging system user manual.
- A test object can be used to simulate an average patient. The object's total dimensions are:



The material used should be PMMA layers. If this is not available, you can use a plastic container filled with water (same thickness). When PMMA is used, the 20 cm thickness can be obtained by piling up several layers of PMMA.

- To measure the radiation quantity for the specified test object, proceed as follow:
For static RAD exposure:
Place the test object in the X-ray beam.
Set SID to 110 cm.
Start a new exam.
Set the collimator to get 20*20 cms on the phantom entrance surface. Make sure that all three AEC chambers are selected and no spatial filter is set in the collimator. Set the exposure parameter to 70 kV.
Make a RAD exposure.
Read the Air Kerma displayed on the imaging system's screen.

For dynamic fluororoscopic exposure:
Place the test opbject in the Xray beam.
Set SID to 110 cms.
Start a new exam.
Set the collimator to get 20*20 cms on the phantom entrance surface. Make sure that ABS is turned ON and no spatial filter is set in the collimator. Set exposure parameter to 15 fps
Make a fluoroscopic exposure for 20 seconds.
Read the Accumulated Air Kerma displayed on the imaging system's screen.

- In the above testing conditions, the displayed accumulated Air Kerma should be less than 10 mGy for RAD and less than 13 mGy for fluoroscopy.

- The main exposure settings having an impact on the radiation quantity delivered by the system are:
  - the SID: the shorter the SID, the higher the dose.
  - loading factors: the lower they are, the lower the dose will be. This is especially true for kVs
  - fluoro mode of operation: Q-Detail should be kept OFF to keep the radiation quantity as low as possible. When Q-Detail is OFF, lowering the frame rate ("fps") will lead to a lower radiation quantity. When Q-Detail is turned ON, the radiation quantity will be the same regardless of the fps setting.

3 – 4 Dose indication

The indications of the dose, as expressed in chapter 2 of this annex, are made on the imaging system screen. Usually, these indications are made on the corners of the Xray image. Refer to the specific imaging system user manual for more information.

3 – 5 Clinical protocols

Upon installation and training, clinical protocols are preset in the system for body parts. These are set in order to get the best compromise between image quality and dose reduction. They constitute a recommendation to be applied directly. However, if needed, they can be modified by people who have been trained and have knowledge of the system. If such modifications are needed, contact the application specialist.

3 – 6 Automatic exposure control (AEC)

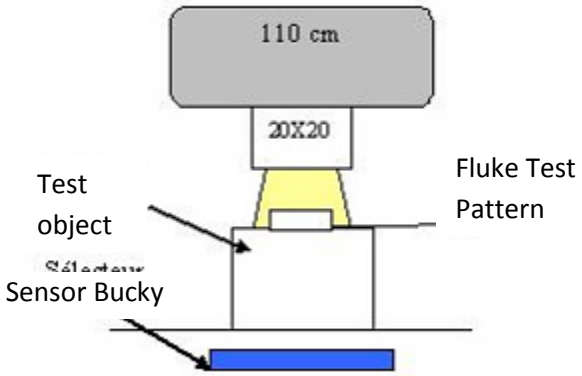
The system is provided with AEC for radiography operation.
The nominal shortest irradiation time using AEC is 2 ms.
A way for the user to check the functioning of the AEC is by:

1. Insert a 1mm Cu plate on the rails at the Xrays output of the collimator
2. Set the exposure kV to 60 kV
3. Open collimator to 43 cm * 36 cm
4. Set SID to 110 cm
5. Turn ON all 3 AEC.
6. Set backup time to 40 ms
7. Make a RAD exposure

The AEC must stop the exposure. In other words, there should be no error 50 (Backup Timer) message on the generator interface.

3 – 7 System Performance

The following procedure allows assessing the system performance.
For Static imaging (RAD):
Put 25mmAl or 20cm of PPMA in the center of the field, with the FLUKE Biomedical test pattern (ref 1-800-850-4608, 15x5cm) above at 45°.
Put SID at the lowest point. Collimation at 20cm side, 70kV to get a minimum dose level of EI = 250

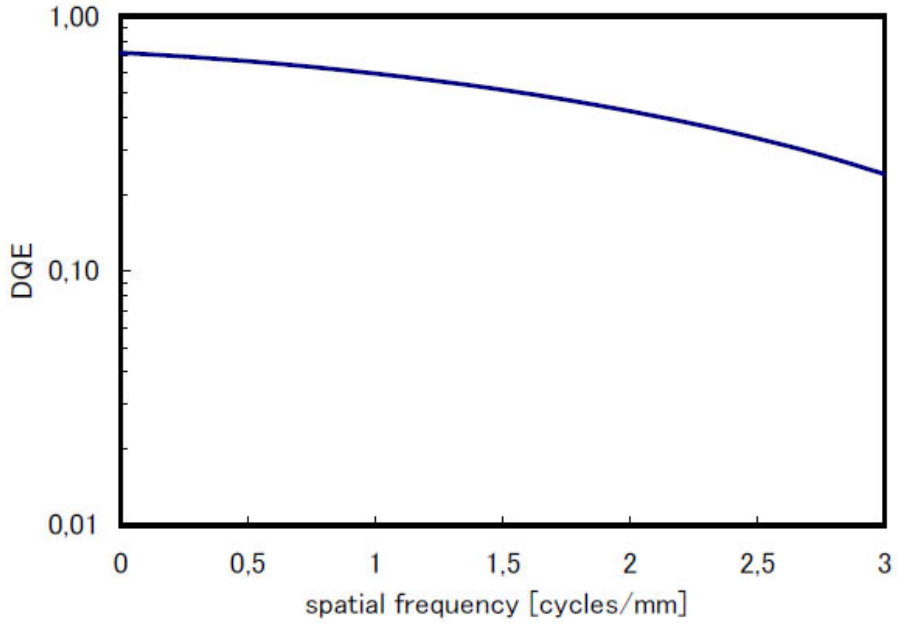


Use the small focus and do an exposure after selecting the middle cell on the AEC.
The visualization must be done in diagnostic console (not on the acquisition computer).
Identify the last group of lines that can be distinguished.
You should be able to identify a resolution of at least 2 pl/mm.
For Fluoroscopic image:
Required equipment: test pattern FLUKE Biomedical 1-800-850-4608 (15*5 cm).
Center the test pattern on the patient support, placed at 45° on the table top
SID set to 110 cms.
Work in auto fluoro if possible, the most used mode
Collimate the closest to the test pattern
Work in the standard conditions with minimum kV without added filters
Make a fluoro and identify the first group of lines merged on the screen
Depending on the chosen zoom, the minimum spatial resolution you should be able to read is:

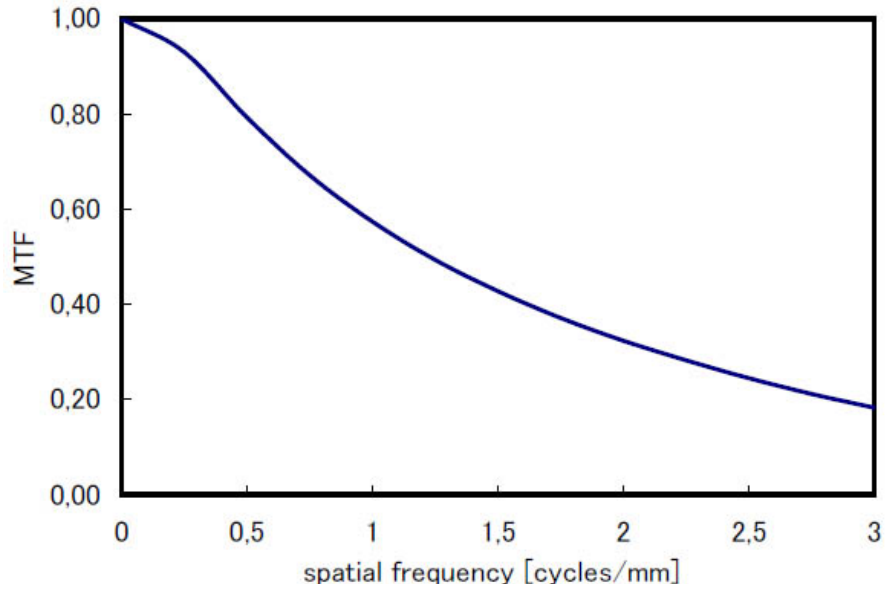
Zoom	minimum spatial resolution
35X43	**0,71**
35X35	**0,90**
30X30	**1,00**
23X23	**1,40**

The digital X-ray image receptor integrated in the system contributes to the imaging performance. They are given here as pixel pitch, Detective Quantum Efficiency (DQE), Modulation Transfer Function (MTF) and fill factor:

- Pixel Pitch = 160 µm
- DQE:



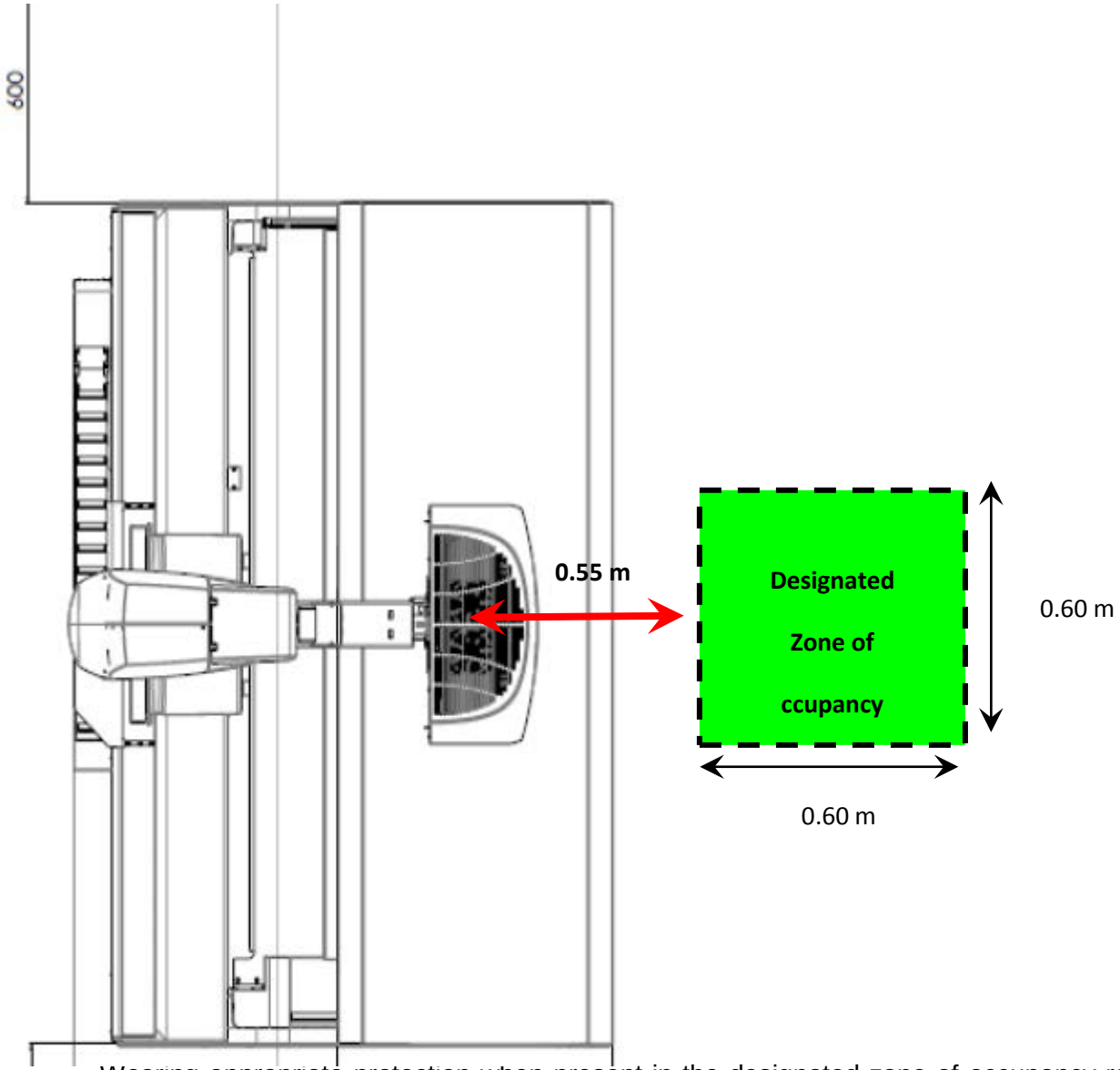
- MTF :
- Fill factor : 90%



3 – 8 Designated significant zones of occupancy

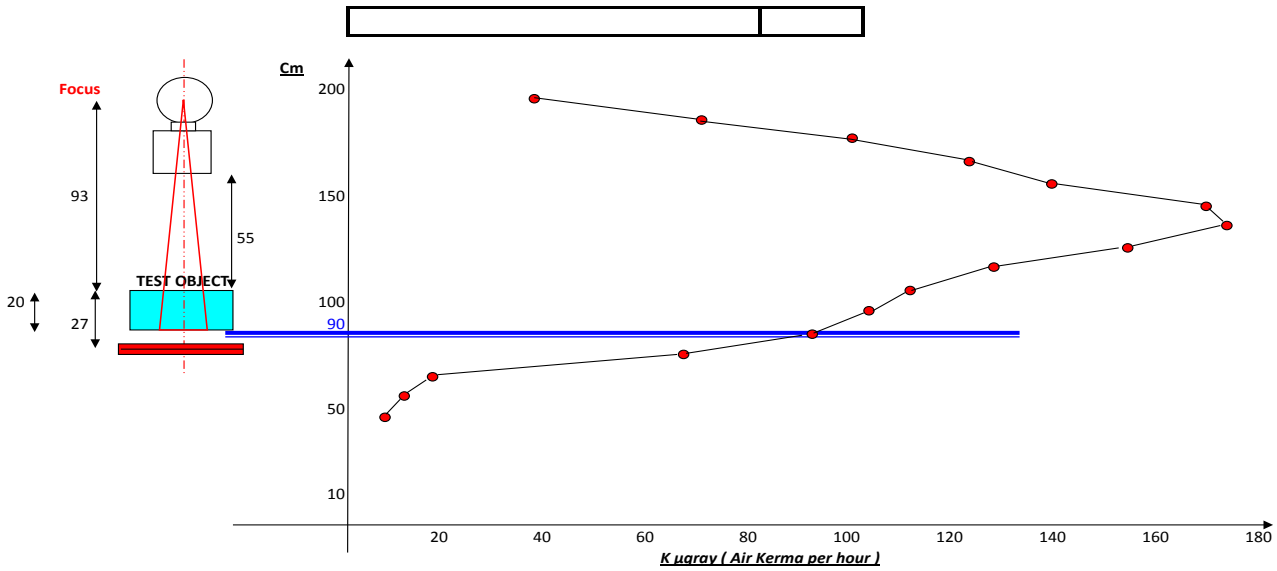
Some examinations, including but not limited to :
- Hysterography
- Arthrography of joints such as shoulder, knee, wrist…

may require the operator or staff to be close to the patient.
In this case, the operator or staff should work from the following designated significant zones of occupancy:



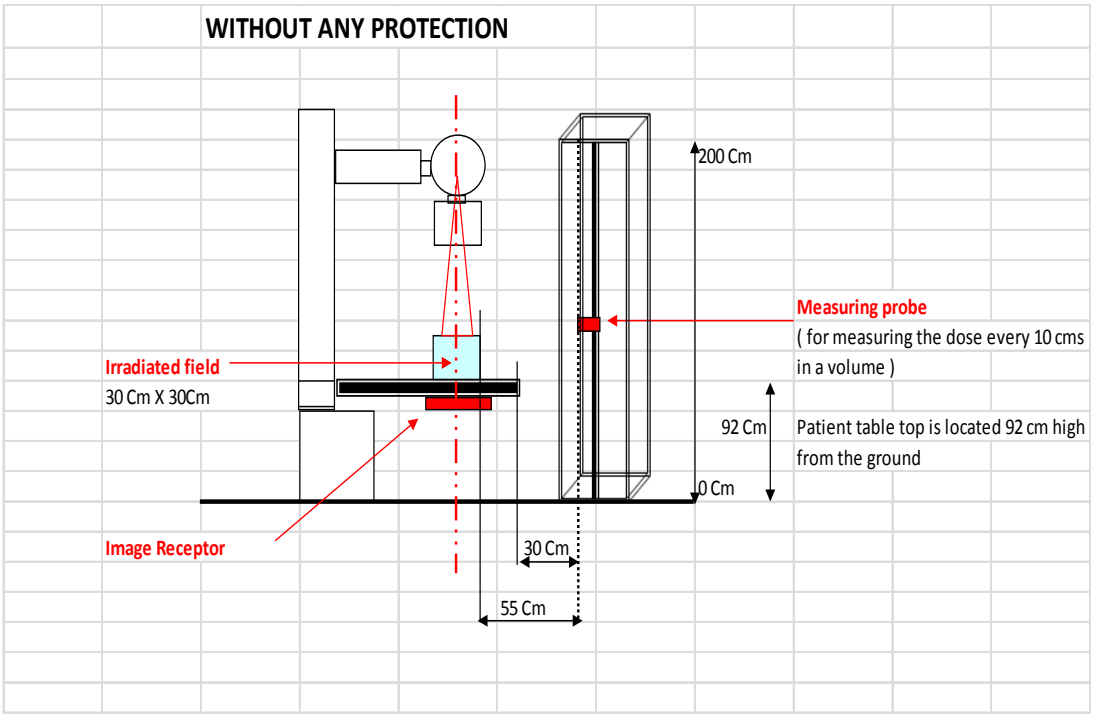
Wearing appropriate protection when present in the designated zone of occupancy reduces greatly the stray radiation received. Such protection includes leaded gloves, thyroid protection, apron etc.
Also note that the use of the optional second console in room should be done within the significant zone of occupancy, or a greater distance from the x-ray beam.
The measures given in the next pages were made with no protection and with a "120 KV-Pb/Ie.0.5 mm" apron.

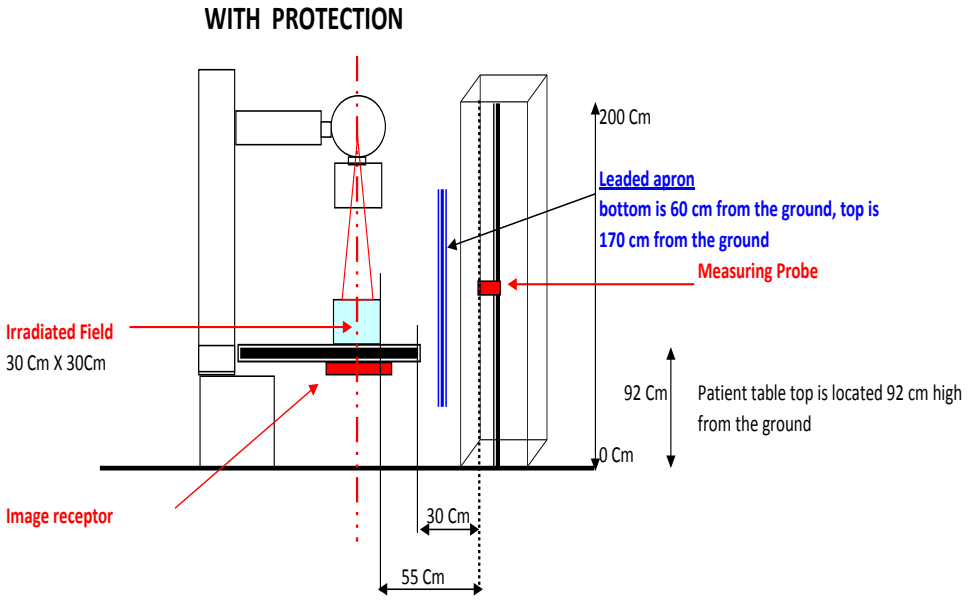
The profile of stray radiation in the significant zone of occupancy is as follows:



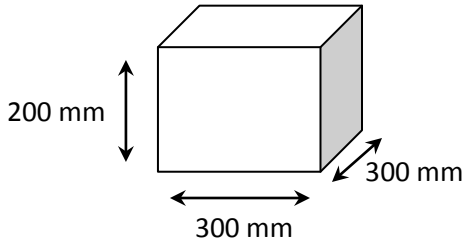
			Without Protection			With protection	
			Radiography	Radioscopy	TOTAL	Radiography	
	200	1,580	39,5			0,01	0,25
	190	2,680	67			0,01	0,25
	180	3,850	96,25			0,01	0,25
	170	4,490	112,25	8,9	121,15	0,012	0,3
	160	5,125	128,125	10,67	138,795	0,014	0,35
	150	6,243	156,075	12,6	168,675	0,017	0,425
MAX	140	6,320	158	13,2	171,2	0,022	0,55
	130	5,563	139,075	11,9	150,975	0,022	0,55
	120	4,574	114,35	10,15	124,5	0,006	0,15
	110	4,010	100,25	7,9	108,15	0,006	0,15
	100	3,820	95,5	7,56	103,06	0,006	0,15
	90	3,300	82,5	6,6	89,1	0,006	0,15
	80	2,370	59,25	5,23	64,48	0,006	0,15
	70	0,700	17,5			NS	NS
	60	0,517	12,925			NS	NS
	50	0,425	10,625			NS	NS
	40	0,250	6,25			NS	NS
	30	0,060	1,5			NS	NS
	20	0,022	0,55			NS	NS
	10	0,012	0,3			NS	NS

This profile was established using the following test arrangement:





Test Object:
30cm*30cm*20cm PMMA cube:



Irradiated field: 30cm *30cm
Radiography loading factors:

- 80 kV
- 400 mA
- Large Focus
- AEC ON
- 16 mAs

Radioscopy loading factors :

- 87 kV
- 100 mA
- Small Focus
- ABS ON
- « High » curve selected
- 15 frames per second
- 5ms pulse width

No additional spatial filter.
In these conditions, the maximum dose output is 1.333 mGy/s
Using the worst the scenario where the most dose is delivered (hysterography), 6 radiographic exposures are made, and 30 seconds of radioscopy. This averages to 25 radiographic exposures and 150 seconds of radioscopy per hour.

3 – 9 Dose levels

Repetitive and prolonged exposure of the skin to X-rays may cause tissue reactions.

The skin dose levels can be lowered by following the recommendations in part 2 (Quantitative information) of this annex.

In this document, the patient entrance reference point is located 30 cm above the patient support.

The highest dose is delivered by the system when the following settings are set:

For Radioscopy:

- kV=120
- pps = 30
- Q Detail ON

For Radiography:

- kV=100
- mA = 500
- exposure time = 1000 ms
- mAs = 500
- AEC OFF

Minimum focal spot to image receptor distance of 110cm in normal use.

Maximum focal spot to image receptor distance of 180cm in normal use.

In these cases, the entrance skin dose level is 49.7 mGy for a single radiographic exposure and 59 mGy/mn for radioscopy.

There are three ABS curves that can be selected for automatic exposure regulation in radioscopy. The effect of these curves on the air kerma rate is the following:

		KERMA RATE mGy/min	**KV**
LOW	STD	24,98	103
	filtre 1	18,86	107
	coll 10x10	31,09	118
	5pps	9,195	112
MEDIUM	STD	35,4	120
	filtre 1	24,9	120
	coll 10x10	33,6	120
	5pps	11,2	119
HIGH	STD	35,4	120
	filtre 1	24,6	120
	coll 10x10	34	120
	5pps	11,36	120

4 - TECHNICAL DATA

4 – 1 General

MANUFACTURER

STEPHANIX, 10 rue Jean Moulin, Z.I. du Bayon, 42150 LA RICAMARIE, FRANCE

MAINS

Table: 400 Vac, 50/60 Hz, 3 phases + neutral + ground, 5 kVA
Note: for the 480V, the power is provided via an optional three-phase transformer 480V+N / 400V+N, 60 Hz, 12kVA are provided
Table control console: 120/230Vac, 50/60 Hz, single phase
Digital system acquisition control console: 120/230Vac, 50/60 Hz, single phase

CLASS II EM EQUIPMENT with isolated internal screens
External means of isolation
Non-automatic discharging device for internal capacitors
Computer Network requirements for acquisition console, refer to corresponding DICOM Conformance Statements

DIMENSIONS AND WEIGHT

Table 2260 x 1590 x 2925 mm maximum, table in horizontal position, higher tabletop height, SID at 180 cm and column at 0°, 980 kg
Table cabinet is integrated into the table
Table control console 600 x 300 x 150 mm, 6.5 kg
Table X-ray tube 524 x Ø 190 mm, 29 kg
Generator cabinet 592 x 360 x 690 mm, 95 kg
Generator control console is integrated into table console
Acquisition console /computer 172 x 447 x 468 mm, 9.8 kg
Acquisition console /colour LCD monitor 465 x 209 x 453 mm, 9.7 kg

4 – 2 Remote control table

Class 1 equipment, Type B equipment 
Caution! Consult inclosed documentation 

TABLETOP

Dimensions: 225 x 81 cm
Variable Floor - tabletop distance motorised at 6 cm /s from 64 cm to 93 cm typically
Longitudinal movement motorized at 8 cm/s typically
Choice of movement between 120 / 60 cm or 50 / 50 cm or 70 / 30 cm
Lateral movement: motorized at 7 cm/s typically, clearance: + 180 mm / - 180 mm
The tabletop equivalent filtration is 0.55 mm Al at 100 kVp
Radio transparent width 600 mm
Accessories: two handles, two compression winches and the belt, one removable footrest, one stool

TILTING

Incidence: + 90° / - 25° (+/- 0.5°)
Tilting time: 15 seconds from 0° to + 90° (+/- 2°), 6° /s typically
Collision safeties done by internal software

4 – 3 Tube stand

SID

Motorized at 6 cm /s typically with continuous speed from 110 cm to 180 cm

TUBE ROTATION

+/- 180° stop each 90° and electrical break on 360°

INCIDENCES

+/- 40° up to 150 cm motorised 6°/s typically, then 0° up to 180 cm

COLLIMATOR

4 pairs of motorized lead shutters and automatic filtres

LED light beam

Automatic, semi-automatic and manual mode

X-ray tube and collimator assembled by the manufacturer

COMPRESSION DEVICE (option)

Motorized movement with pressure control

4 – 4 Detector Support

FUNCTIONS

Automatic centring with X-ray tube and detector format displayed on the control console

MOVEMENT

Motorised carriage (at 15 cm /s) about 135 cm from X-ray beam axis

REMOVABLE GRID

Fixed grid ratio 10/1, one focused at 125 cm and other one focused at 180 cm

4 - 5 Control console

The control console is electrical class I, type B 

Caution! Consult inclosed documentation 

User interface: 8 inches colour LCD touch screen

All messages regarding operation (warning, error) appear on this screen. Refer to chapter « error messages » in user manual.

Movements controls with four joysticks and soft keys.

Soft keys also on remote handswitch.

X-ray controls by mechanical keys.

Emergency switch (red) located at the top of screen. This button permits to stop all the movements immediately in case of fail.

Refer to chapters "table console" and "switching on" of the user manual.

Collision safeties done by internal software