

# Philips Medical Systems

## **Final Site Preparation Support Document:**

www.medical.philips.com/us

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The equipment components shown in this drawing package are based on the current proposed equipment purchase and are subject to change if modifications are made to the configuration.

No	te for Archit	Revisions  ects and/or Contractors: "If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your projects and/or Contractors: "If revisions are listed, these drawings must be thoroughly reviewed so that all changes can be incorporated into your projects."	ject"
Rev. Level	Date	Revision Descriptions	Ву
Α	4.10.08	A1 - Changed Tube Crane to CS 4.	CR
В	5.15.08	Created Final Site Prep Support Docs; A1 - Cut Transverse Carriage.	CR
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## **Table of Contents** Section A - Equipment Plan Equipment Plan -----Transport Details -----Section S - Support Plan Support Notes --Support Plan - Floor and Wall -----Support Plan - Ceiling----Support Details ---Section E - Electrical Plan Electrical Notes -----Electrical Plan -----Electrical Details -----Section N - Network Plan Network Diagram -----Check List -----

## **HVAC Requirement for General Equipment Locations**

Heating, ventilation, air conditioning requirement for general equipment locations must maintain temperature at 75° +/- 11° fahrenheit (24° +/- 6° celsius) and non-condensing relative humidity at 47%, +/- 28%.

## **Electrical Requirements** Optimus 65/80/C

Supply Configuration: 3 phase, 3 wire power and ground. Delta or wye

Nominal Line Voltage: 400, 440, 460 or 480 VAC, 60 Hz

Branch Power Requirement: 150 KVA

Circuit Breaker: 3 pole, 100 Amps (@ 480V)

### **Minimum Site Preparation Requirements**

A smooth efficient installation is vital to Philips and its' customers. Understanding what the minimum site preparation requirements are will help achieve this goal. The following list clearly defines the requirements which must be fulfilled before the installation can begin.

- 1. Walls to be painted or covered, baseboards installed, floors to be tiled and/or covered, ceiling shall have grid tiles and lighting fixtures installed.
- 2. Doors and windows, especially radiation protection barriers, installed and finished with locksets operational
- 3. All electrical convenience, conduit, raceway and junction boxes installed.
- 4. Incoming mains power operational and connected to room x-ray breaker.
- 5. 115v convenience outlets operational.
- 6. All support structures correctly installed. All channels, pipes, beams and/or other supporting devices should be level, parallel, and free of lateral or longitudinal movements.
- 7. All contractor supplied cables pulled and terminated.
- 8. A dust-free environment in and around the procedure room.
- 9. All HVAC (heating, ventilating and air conditioning) installed and operational as per
- 10. Architectural features such as computer floor, wood floor, casework, bulkheads, installed and finished. When technical cabinets are installed in a closet with doors, it is suggested that the customer install a temperature alarm in the event of an air conditioning failure.
- 11. All plumbing installed and finished.
- 12. Philips does not install or connect developing tanks, automatic processors or associated equipment, built in illuminators, cassette pass boxes, loading benches and cabinets, lead protective screens, panels or lead glass window and frame. This is to be done by the customer/contractor.
- 13. Clear door openings for moving equipment into the building must be 42" (1067mm) w x 82" (2083mm) h min. 48" (1219mm) w x 82" (2083mm) h rec., or larger contingent on an 8'-0" (2438mm) corridor width.

#### Note

Once Philips has moved equipment into the suite and started the installation, the contractor shall schedule his work around the Philips installation team on site. It is suggested that a telephone be provided in the room to receive telephone calls. This would alleviate facility staff from answering calls for Philips personnel.

#### **Remote Service Diagnostics**

Medical imaging equipment to be installed by Philips Medical is equipped with a service diagnostic feature which allows for remote and on site service diagnostics. To establish this feature, a dedicated direct-distance - dialing, voice-grade line must be installed as shown on plan. All costs with this feature are the responsibility of the customer.

### **General Specifications**

#### 1. Responsibility

The customer shall be solely responsible, at its expense for preparation of site, including any required structural alterations. The site preparation shall be in accordance with plans and specifications provided by Philips. Compliance with all safety, electrical, and building codes relevant to the equipment and its installation is the customer's responsibility. Sufficiency of such plans and specifications, specifically including, but not limited to the accuracy of the dimensions described therein, shall be the sole responsibility of customer. The customer shall advise Philips of conditions at or near the site which could adversely affect the carrying out of the installation work and shall ensure that such conditions are corrected and that the site is fully prepared and available to Philips before the installation work is due to begin. The customer shall provide all necessary plumbing, carpentry work, or conduit wiring required to attach and install products ready for use.

#### 2. Permits

Customer shall obtain all permits and licenses required by federal, state/provincial or local authorities in connection with the construction, installation and operation of the products and shall bear any expense in obtaining same or in complying with any related rules, regulations, ordinances and statutes.

#### 3. Radiation Protection

The customer or his contractor, at his own expense, shall obtain the service of a licensed radiation physicist to specify radiation protection. For the purpose of the radiation protection design for the suite, the physicist should assume a maximum kVp x-ray tube output of 150.

#### 4. Asbestos and Other Toxic Substances

Philips assumes no hazardous waste (i.e., pcb's in existing transformers) exists at the site. If any hazardous materials are found, it shall be the sole responsibility of the customer to properly remove and dispose of this material at its expense. Any delays caused in the project for this special handling shall result in Philips time period for completion being extended by like period of time. Philips assumes that no asbestos material is involved in this project in any ceilings, walls or floors. If any asbestos material is found anywhere on the site, it shall be the customer's sole responsibility to properly remove and/or make safe this condition, at the customer's sole expense.

#### 5. Labor

In the event local labor conditions make it impossible or undesirable to use Philips' regular employees for such installation and connection, such work shall be performed by laborers supplied by the customer, or by an independent contractor chosen by the customer at the customer's expense, and in such case, Philips agrees to furnish adequate engineering supervision for proper completion of the installation.

#### 6. Schedule

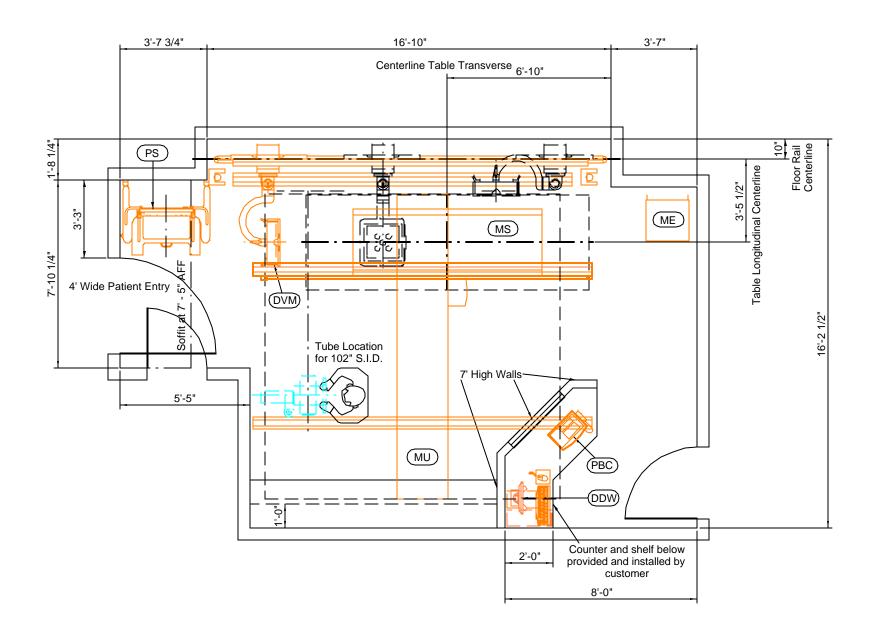
The general contractor should provide Philips with a schedule of work to assist in the coordination of delivery of Philips supplied products which are to be installed by the contractor and delivery of the primary equipment.

#### 7. Extended Installation or Turnkey Work by Philips.

Any room preparation requirements for Philips equipment indicated on these drawings is the responsibility of the customer. If an extended installation or turnkey contract exists between Philips and the customer for room preparation, then additional work required for the equipment will not be represented on these drawings. Some of the responsibilities of the customer as depicted in these drawings may be assumed by Philips. In the event of a conflict between the work described in the turnkey contract workscope and these drawings, the turnkey contract workscope shall govern.

- Room **TH-DVM (Dual Detector)** Center Ш Z **Maine Medical** Portland, Digital Diagnost 1 O.A. Number 6600026876.001000 Date 5/15/2008

Ω Project Number N-EAS080262



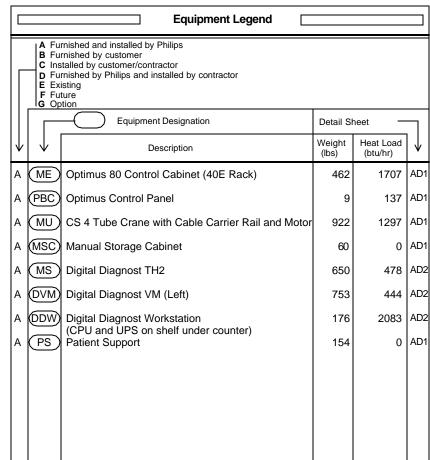
# **Equipment Layout**

Wall Stand	Tube Position	Minimum/Preferred Ceiling Height	Maximum Ceiling Height
Digital Diagnost VM	''	8' - 8 3/8" (2650mm) 9' - 11 3/4" (3040mm)	9' - 10 1/8" (3000mm) 11' - 1 3/4" (3400mm)

Reported Existing Ceiling Height: 9' - 6"

Ceiling heights (from finished floor to bottom of Unistrut) other than recommended may impact equipment functionality; consult with Philips.





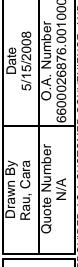


Final location to be coordinated with the customer and architect of record.

## **Notes to Philips Field Personnel**

- \* Existing flush mounted floor box will not be able to be re-used.
- \* All room dimensions to be verified in field.
- \* Transverse carriage to be shortened by 8".

_							
	Equipment Legend						
	A Furnished and installed by Philips B Furnished by customer C Installed by customer/contractor D Furnished by Philips and installed by contractor E Existing F Future G Option						
		Equipment Designation	Detail SI	neet -	_		
$\downarrow$	$\downarrow$	Description	Weight (lbs)	Heat Load (btu/hr)	<b>V</b>		
Α	ME	Optimus 80 Control Cabinet (40E Rack)	462	1707	AD1		
Α	PBC	Optimus Control Panel	9	137	AD1		
Α	MU	CS 4 Tube Crane with Cable Carrier Rail and Motor	922	1297	AD1		
Α	(MSC)	Manual Storage Cabinet	60	0	AD1		
Α	MS	Digital Diagnost TH2	650	478	AD2		
Α	(DVM)	Digital Diagnost VM (Left)	753	444	AD2		
Α	(DDW)		176	2083	AD2		
Α	PS	(CPU and UPS on shelf under counter) Patient Support	154	0	AD1		

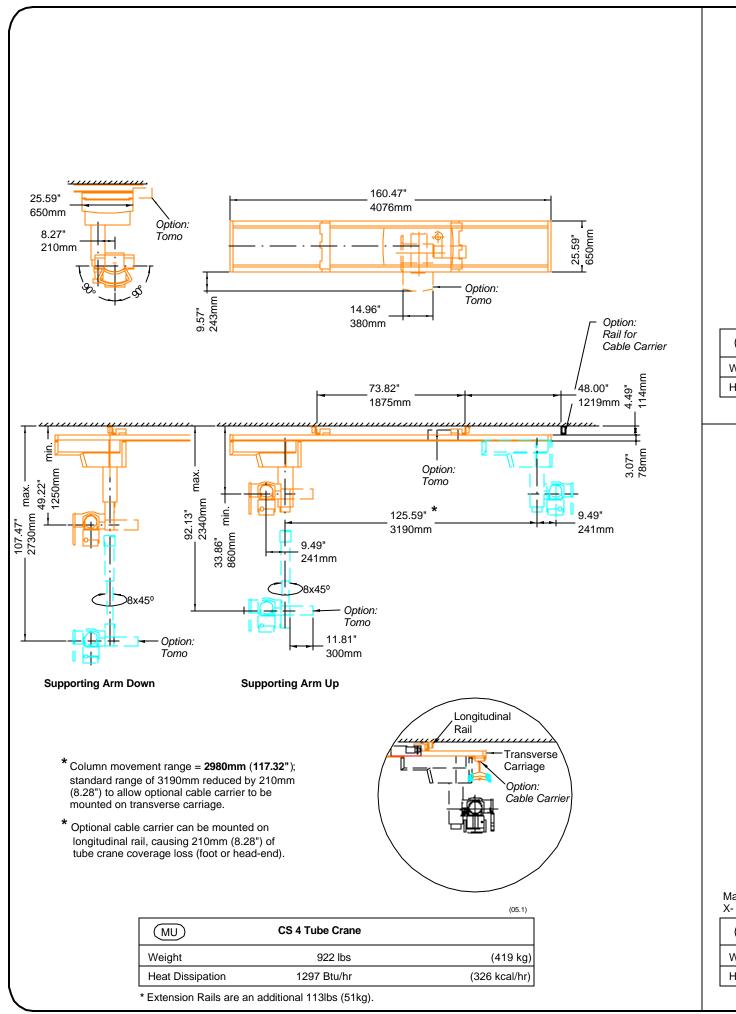


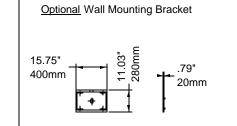
TH-DVM (Dual Detector)

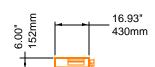
**Digital Diagnost** 

Maine Medical Center Portland, ME

N-EAS080262 B Project Number



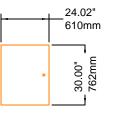


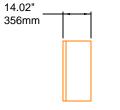




		(07.0)
PBC	Optimus Control Panel	
Weight	9 lbs	(4 kg)
Heat Dissipation	137 Btu/hr	(35 kcal/hr)

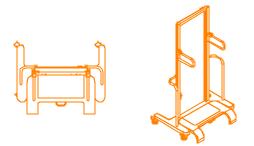


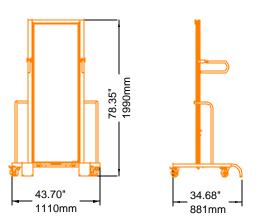


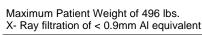


Max. weight of cabinet with manuals = 260 lbs.  $(118 \text{ kg})_{(03.0)}$ 

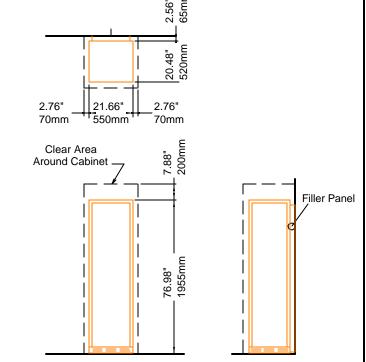
MSC	Manual Storage Cabinet	
Weight	60 lbs	(27 kg)
Heat Dissipation	0 Btu/hr	( 0 kcal/hr)







.,		(07.1)
PS	Patient Support	
Weight	154 lbs	(70 kg)
Heat Dissipation	0 Btu/hr	(0 kcal/hr)



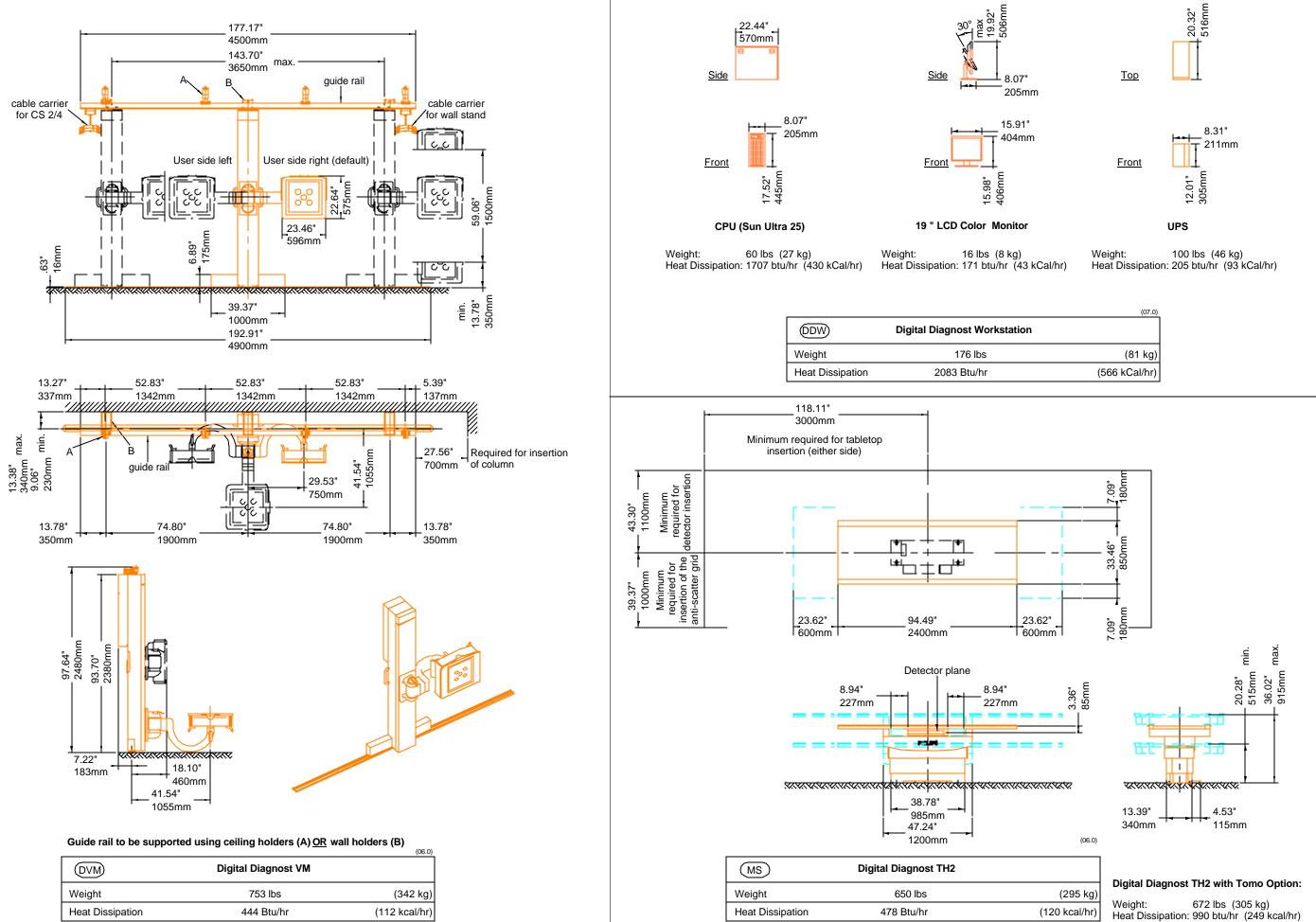
ME	Optimus 50/65/80 Control Cabinet	
Weight	462 lbs	(210 kg)
Heat Dissipation	n 1707 Btu/hr	(430 kcal/hr)

Digital Diagnost TH-DVM (Dual Detector) O.A. Number 6600026876.001000 5/15/2008

Maine Medical Center Portland, ME

N-EAS080262 B Project Number

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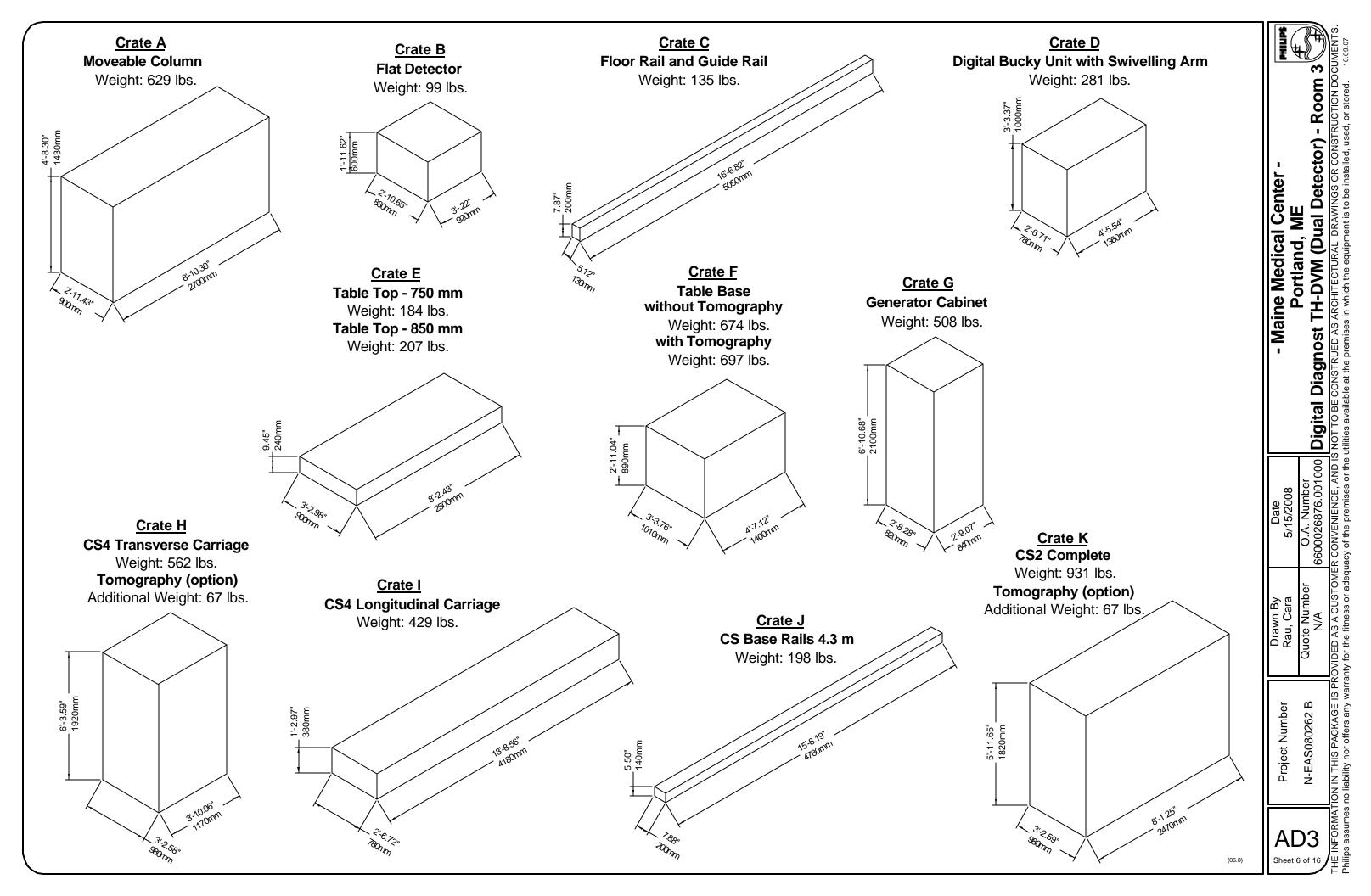


- Room Digital Diagnost TH-DVM (Dual Detector) Maine Medical Center Portland, ME

O.A. Number 6600026876.001000 Date 5/15/2008

N-EAS080262 B

Project Number



## **Equipment Support Information**

#### 1. General

The customer shall be solely responsible, at its expense, for preparation of the site, including any required structural alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and building codes. The customer shall be solely responsible for obtaining all construction permits from jurisdictional authority.

#### 2. Equipment Anchorage

Philips provides, with this plan and specifications, information relative to equipment size, weight, shape, anchoring hole locations and forces which may be exerted on anchoring fasteners. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of equipment anchoring to floors, wall and/or ceiling of the building. Any anchorage test required by local authority shall be the customer's responsibility. Stud type anchor bolts should not be specified as they hinder equipment removal for service. Consult with Philips service prior to specifying anchor methods.

## 3. Floor Loading and Surface

Philips provides, with this plan and specifications, information relative to size, weight and shape of floor mounted equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings confirmation of the structural adequacy of the floor upon which the equipment will be placed. Any load test required by local authority, shall be the customer's responsibility.

The floor surface upon which Philips equipment is to be placed/anchored shall be flat and level to within plus or minus 1/16 inch (2mm) over a length of 39" (1m).

### 4. Ceiling Support Apparatus

Philips provides, with this plan and specifications, information relative to size, weight and shape of ceiling supported equipment. The customer shall be solely responsible, through the engineer of record for the building, to provide on the architectural/construction drawings, information regarding the approved method of structural support apparatus, fasteners and anchorage to which Philips will attach equipment. Any anchorage and/or load test required by local authority shall be the customer's responsibility.

Contractor to clearly mark Philips equipment longitudinal centerline on bottom of each structural support.

The structural support apparatus surface to which Philips equipment is to be attached, shall have horizontal equipment attachment surfaces parallel, square and level to within plus or minus 1/16 inch (2mm).

Any drilling and/or tapping of holes required to attach Philips equipment to the structural support apparatus shall be the responsibility of the customer.

Fasteners/anchors (i.e., bolts, spring nuts, lock and flat washers) and strip closures shall be provided by the customer.

#### 5. Liahtina

Lighting fixtures shall be placed in such a position that they are not obscured by equipment or its movement, nor shall they interfere with Philips ceiling rails and equipment movement or otherwise adversely affect the equipment. Such lighting fixture locations shall be the sole responsibility of the customer.

#### 6. Ceiling Obstructions

There shall be no obstructions that project below the finished ceiling in the area covered by ceiling suspended equipment travel.

## 7. Seismic Anchorage (For Seismic Zones Only)

All seismic anchorage hardware, including brackets, backing plates, bolts, etc., shall be supplied and installed by the customer/contractor unless otherwise specified within the support legend on this sheet. Installation of electronic cabinets to meet seismic anchorage requirements must be accomplished using flush mounted expansion type anchor/bolt systems to facilitate the removal of a cabinet for maintenance. Do not use threaded rod/adhesive anchor systems. Consult with Philips regarding any anchor system issues.

#### 8. Floor Obstructions/ Floor Coverings

There shall be no obstructions on the floor (sliding door tracks, etc.) in front of the Philips technical cabinets. Floor must be clear to allow cabinets to be pulled away from the wall for service.

Contractor to verify with Philips the preferred floor covering installation method.

Maine Medical Center -Portland, ME - Room

**TH-DVM (Dual Detector)** 

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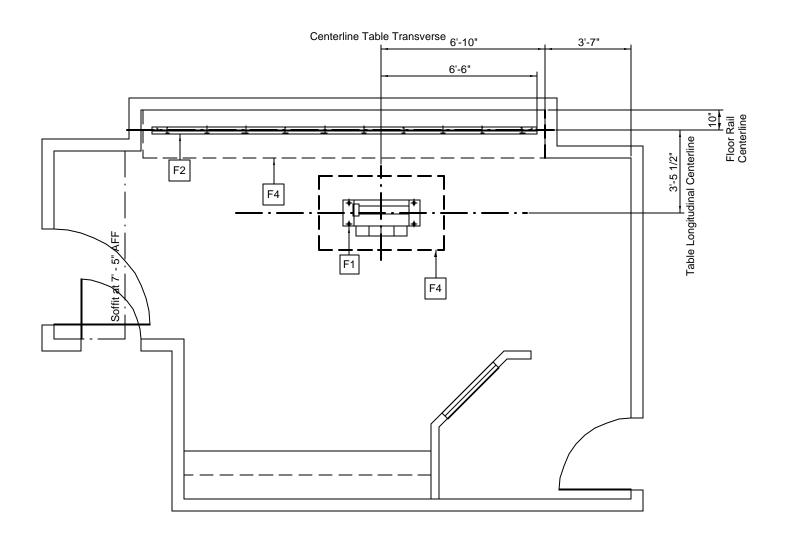
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Project Number N-EAS080262 B

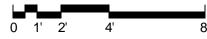
SN Sheet 7 of

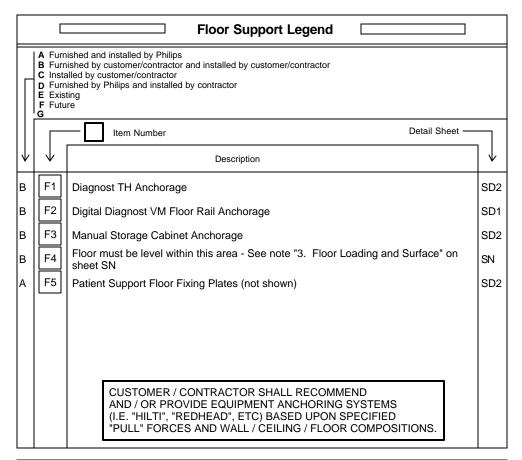


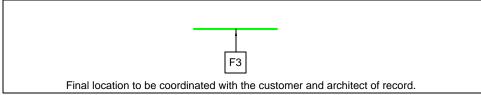
# Floor Support Layout

Wall Stand	Tube Position	Minimum/Preferred Ceiling Height	Maximum Ceiling Height
Digital		8' - 8 3/8" (2650mm)	9' - 10 1/8" (3000mm)
Diagnost VM		9' - 11 3/4" (3040mm)	11' - 1 3/4" (3400mm)

Ceiling heights (from finished floor to bottom of Unistrut) other than recommended may impact equipment functionality; consult with Philips.







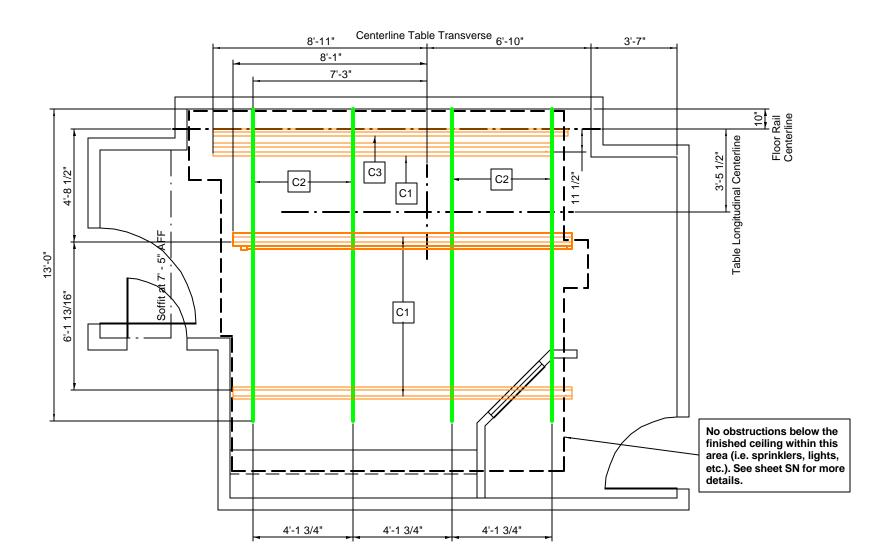
All dimensions must be off the final finished wall.

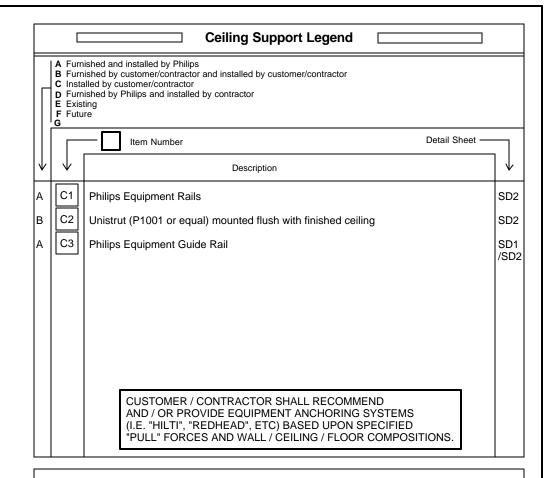
If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off the finished furred wall.

**TH-DVM (Dual Detector)** Maine Medical Center **Digital Diagnost** O.A. Number 6600026876.001000 Date 5/15/2008 N-EAS080262 B

Project Number

**S1** 





All dimensions must be off the final finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off the finished furred wall.

# Ceiling Support Layout

Wall Stand	Tube Position	Minimum/Preferred Ceiling Height	Maximum Ceiling Height
Digital	Upper Position Lower Position	8' - 8 3/8" (2650mm)	9' - 10 1/8" (3000mm)
Diagnost VM		9' - 11 3/4" (3040mm)	11' - 1 3/4" (3400mm)

Ceiling heights (from finished floor to bottom of Unistrut) other than recommended may impact equipment functionality; consult with Philips.



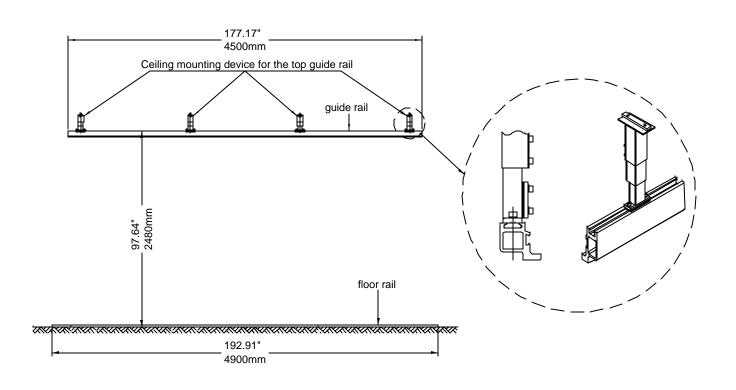
- Room Digital Diagnost TH-DVM (Dual Detector)

NOT TO BE CONSTRUED AS ARCHITECTURAL DRAWINGS OR CONST

utilities available at the premises in which the equipment is to be installed, us - Maine Medical Center Portland, ME O.A. Number 6600026876.001000 N-EAS080262 B

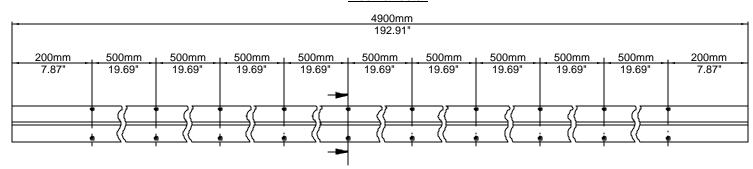
Date 5/15/2008

Project Number



Ceiling Height	Required Ceiling Holder	Part Number
104.33" (2650mm) - 105.55" (2681mm)	Short	4512 201 0218x
105.51" (2680mm) - 113.94" (2894mm)	Medium	4512 201 0219x
113.70" (2888mm) - 137.40" (3490mm)	Long	4512 201 0220x

## Floor rail detail



Floor rail detail (side view)

3.54"
90mm

2.87"
73mm

2.87"
73mm

min. 9.06"
230mm

A - Phillips screw 5 x 60 + 8 mm (or equivalent) dowels for concrete floors

\*Drawing not to scale

Detail - Digital Diagnost VM Floor Rail & Guide Rail Support (w/ ceiling holders)

olt Forces:

T max (Tension)(ceiling) = 870 lbs/bolt V max (Shear)(ceiling) = 174 lbs/bolt

V max (Shear)(floor) = 180 lbs/bolt

CUSTOMER / CONTRACTOR SHALL RECOMMEND AND / OR PROVIDE EQUIPMENT ANCHORING SYSTEMS (I.E. "HILTI", "REDHEAD", ETC) BASED UPON SPECIFIED "PULL" FORCES AND WALL / CEILING / FLOOR COMPOSITIONS.

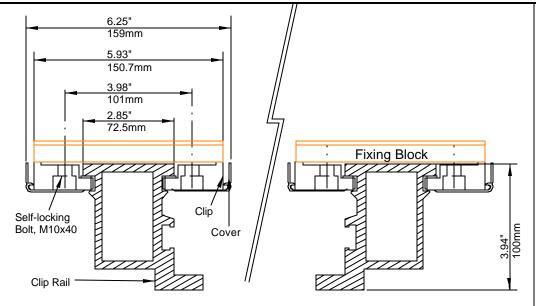


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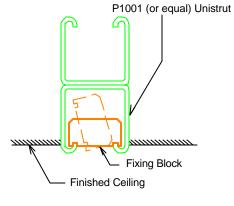
Project Number

SD1

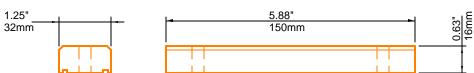
Maine Medical Center Portland, ME



## **Detail - Clip Rail Cross-section**



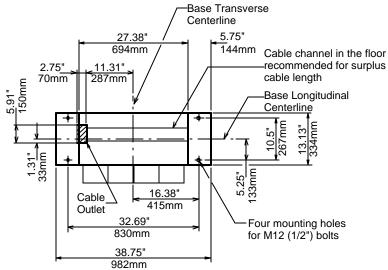
- \* Philips does not specify the overhead equipment support structure. Unistrut (or equal) may or may not be used. If Unistrut are used, it is up to Unistrut and the structural engineer for the project to determine which of it's products are appropriate for each project.
  P1001 Unistrut may not be appropriate given the equipment weight on a specific project.
- $^{\star}$  Finished ceiling must  $\underline{\text{NOT}}$  be lower than the bottom of the Unistrut in order to prevent damage to the finished ceiling during the installation of clip rails.
- \* Nothing shall be attached to the Unistrut with any fastener that protrudes into the unistrut which would interfere with positioning of



Detail - Fixing Block for Philips Ceiling Rails (Clip Rails)

Tube Crane Support Forces	Without Tomo Option	With Tomo Option	With Trauma Attachment
CS2	(Tension) Tmax = 794 lbs/support	(Tension) Tmax = 891 lbs/support	(Tension) Tmax = 1106 lbs/support
	(Shear) Vmax = 134 lbs/support	(Shear) Vmax = 149 lbs/support	(Shear) Vmax = 158 lbs/support
CS4	(Tension) Tmax = 686 lbs/support	(Tension) <b>T</b> max = 756 lbs/support	(Tension) Tmax = 887 lbs/support
C34	(Shear) Vmax = 160 lbs/support	(Shear) Vmax = 175 lbs/support	(Shear) Vmax = 184 lbs/support

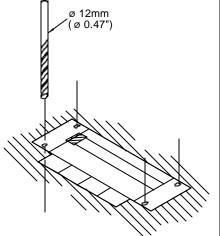
CUSTOMER / CONTRACTOR SHALL RECOMMEND AND / OR PROVIDE EQUIPMENT ANCHORING SYSTEMS (I.E. "HILTI", "REDHEAD", ETC) BASED UPON SPECIFIED
"PULL" FORCES AND WALL / CEILING / FLOOR COMPOSITIONS.



**Bolt Forces:** 

V max (Shear)

T max (Tension)



**Bolt Forces:** 

Backing

(Tension) Tmax = 107 lbs/bolt (Shear) Vmax = 146 lbs/bolt

20.00"

508mm

## Manual Storage Cabinet Mounting Detail

The customer's architect/engineer of record shall specify a wall backing plate sufficient for the bolt forces shown.

F3

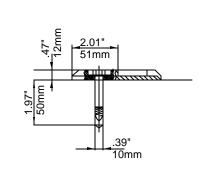
The Diagnost TH base mounts directly to floor. Floorplates are not used.

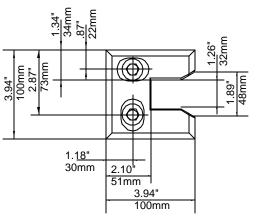
= 177 lbs/bolt

= 105 lbs/bolt

## **Detail - Diagnost TH / TF Table Base**

Not to Scale





**Detail - Patient Support Floor Fixing Plates** 

F5

Not to Scale

O.A. Number 6600026876.001000 5/15/ N-EAS080262 B Project Number

TH-DVM (Dual Detector)

Digital Diagnost 7

Center

**Maine Medical** 

M M

Portland,

C1 C2 C3 (07.2)

## **General Electrical Information**

#### 1. General

The customer shall be solely responsible, at its expense, for preparation of the site, including any required electrical alterations. The site preparation shall be in accordance with this plan and specifications, the architectural/construction drawings and in compliance with all safety and electrical codes, the customer shall be solely responsible for obtaining all electrical permits from jurisdictional authority.

#### 2. Materials and Labor

The customer shall be solely responsible, at its expense, to provide and install all electrical ducts, boxes, conduit, cables, wires, fittings, bushing, etc., as separately specified herein.

#### 3. Electrical Ducts and Boxes

Electrical ducts and boxes shall be accessible and have removable covers. Floor ducts and boxes shall have watertight covers. Ducts shall be divided into as many as three separate channels by metal dividers, separately specified herein, to separate wiring and/or cables into groups as follows: Group a. power wiring and/or cables. Group b: signal and/or data and protective ground wiring and/or cables. Group c: x-ray high voltage cables, the use of 90 deg, ells is not acceptable. On ceiling duct and wall duct use 45 deg, bends at all corners. All intersecting points in duct to have cross over tunnels supplied and installed by contractor to maintain separation of cables.

#### 4. Conduit

Conduit point - to - point runs shall be as direct as possible. Empty conduit runs used for cables may require pull boxes located along the run. Consult with Philips. A pull wire or cord shall be installed in each conduit run. All conduits which enter duct prior to their termination point must maintain separation from other cables via use of dividers, cross over tunnels, or flex conduit supplied and installed by contractor from entrance into duct to exit

#### 5. Conductors

All conductors, separately specified, shall be 75° c stranded copper, rung out and marked.

#### 6. Disconnecting Means

A disconnecting means shall be provided as separately specified.

#### 7. Warning Lights and Door Switches

"X-Ray On" warning lights and x-ray termination door switches should be provided at all entrances to x-ray rooms as required by code.

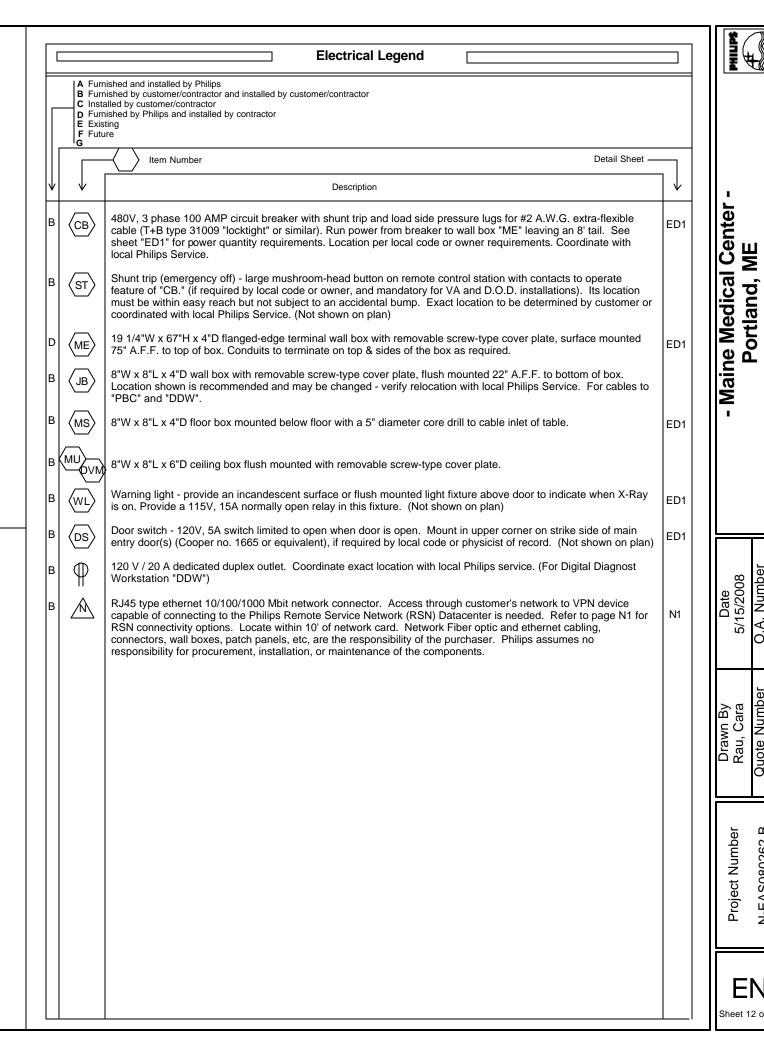
#### 8. Dimmer Switches

X-ray room lights should be provided with dimmer switches.

(02 0)

## **Electrical Notes**

- 1. The contractor will supply & install all breakers, shunt trip and incoming power to the breakers. The exact location of the breakers and shunt trips will be determined by the architect or contractor.
- 2. The contractor shall supply & install all pull boxes, raceways, conduit runs, stainless steel covers, etc. Conduit/raceways must be free from burrs and sharp edges over its entire length. A Greenlee pull string/measuring tape (part no. 435, or equivalent) shall be provided with conduit runs.
- 3. All pre terminated, cut to length cables, will be supplied and installed by Philips Medical Systems. All cables to the breakers, will be supplied and installed by the contractor, subject to local arrangements.
- 4. Provide and install 4 2" (50 mm) dia. Chase nipples between adjacent wall boxes where applicable.
- 5. Electrical raceway shall be installed with removable covers. The raceway should be accessible for the entire length. In case of non accessible floors, walls and ceilings, an adequate number of access hatches should be supplied to enable installation of cabling. Approved conduits may be substituted. All raceways will be designed in a manner that will not allow cables to fall out of the raceway when the covers are removed. In most cases, this will require above - ceiling raceway to be installed with the covers removable from the top. Raceway system as illustrated on this drawing are based upon length of furnished cables. Any changes in routing of raceway system could exceed maximum allowable length of furnished cables. Conduit or raceway above - ceiling must be kept as near to finished ceiling as possible.
- 6. Conduit sizes shall be verified by the architect, electrical engineer or contractor, in accordance with local or National Electrical Codes, whichever govern.
- 7. Convenience outlets are not illustrated. Their number and location are to be specified by the customer/architect.
- 8. All sections of raceway and conduit shall be grounded with an independent #6 a.w.g.green wire that is to be attached using solderless lugs. All ceiling mounted structural support members and ceiling plates shall also be grounded. All grounding connections, terminals, etc. Shall be installed in a manner to provide accessibility for inspection, maintenance, repair, etc.



- Room **TH-DVM (Dual Detector) Digital Diagnost** O.A. Number 6600026876.001000

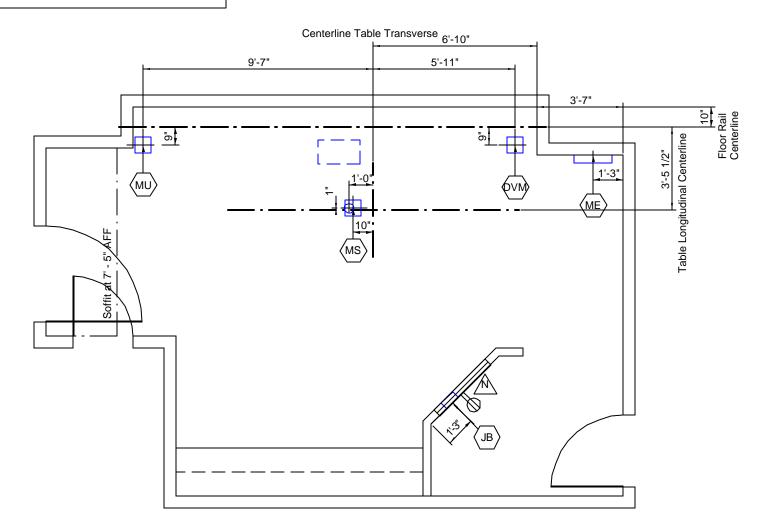
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N-EAS080262

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Refer to electrical legend - Sheet EN



## **Electrical Layout**

Wall Stand	Tube Position	Minimum/Preferred Ceiling Height	Maximum Ceiling Height
Digital	Upper Position Lower Position	8' - 8 3/8" (2650mm)	9' - 10 1/8" (3000mm)
Diagnost VM		9' - 11 3/4" (3040mm)	11' - 1 3/4" (3400mm)

Ceiling heights (from finished floor to bottom of Unistrut) other than recommended may impact equipment functionality; consult with Philips.



All dimensions must be off the final finished wall.

If a wall is furred out to hide electrical duct or boxes, the dimensions included in this plan must come off the finished furred wall.

Conduit Required

## General Notes

- 1. All conduit runs must take most direct route point to point.
- 2. All conduit runs must have a pull string.
- A Conduit supplied/installed by contractor Philips cables installed by Philips
  B Conduit supplied/installed by contractor Philips cables installed by contractor
  C Conduit and cables supplied and installed by contractor
- D Conduit existing cables supplied and installed by Philips

  E Conduit existing cables supplied by Philips, installed by co
- P Power / Ground Cables S Signal Cables
- V Video Cables
- H High Tension Power Cables

		Conduit		Conduit Quantity	Minimum	Default	Special
/	Run No.		То	(* Cable Type)	Conduit Size	Conduit Length	Requirements
$\circ$	1	Power Panel	СВ	1 (P)	per NEC	per NEC	
В	2	СВ	ME	1 (P)	2"	50'	
С	3	СВ	ST	1 (P)	3/4"	50'	
С	4	ME	(WL)	1 (P)	1/2"	50'	
C	5	ME	DS	1 (P)	1/2"	50'	
A	6	ME	JB	1 (P)	1 1/2"	55'	
Ą	7	ME	JB	1 (S)	2"	55'	
Ą	8	ME	MS	1 (P)	1 1/2"	19'	
Ą	9	ME	MS	1 (S)	2 1/2"	19'	
4	10	ME	(OVM)	1 (P)	1 1/2"	46'	Max. conduit length = 30' (each conduit) if DVN (Horizontal Movement).
4	11	ME	(OVM)	1 (S)	2"	46'	
4	12	ME	MU	1 (H)	2 1/2"	32'	
4	13	ME	MU	1 (S)	2"	32'	
4	14	JB	MS	1 (S)	1 1/2"	55'	
4	15	JB	€VM	1 (S)	1 1/2"	78'	Max. conduit length = 72' if DVM2 (Horizontal Movement).

- Room **TH-DVM (Dual Detector)** Digital Diagnost N-EAS080262 B

- Maine Medical Center Portland, ME

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## **Power Quality Requirements**

Optimus 80 / Optimus C

Power Output: 80 KW

Supply Configuration: 3 phase, 3 wire power and ground, Delta or wye

Nominal Line Voltage: 400, 440, 460, or 480 VAC, 60 Hz

Line Voltage Variation: ± 8% steady-state

Line Voltage Balance: 2% maximum of nominal voltage between phases

Frequency Variation:  $\pm 1\% (\pm 0.6 \text{ Hz})$ 

Voltage Surges: To 110% of steady-state voltage 100 msecs. Maximum duration, 6 per hour maximum

To 90% of steady-state voltage 100 msecs. Voltage Sags: Maximum duration, 6 per hour maximum

Line Impulses: 1000 VPK above phase-neutral RMS absolute

maximum. No more than 1 impulse per hour to exceed

500 VPK.

Neutral-ground Voltage: 2.0 volts maximum RMS value

No more than 1 per hour that exceeds 25 volts and 1 Neutral-ground Impulses:

High Frequency noise: 3.0 volts steady-state maximum. Over 3.0 volts

permitted for 100 msec. maximum, 1 per hour

maximum.

Ground and Neutral

Conductor Impedance: 0.1 Ohms @ 60 Hz maximum

## **Branch Circuit and Wire Gauge Requirements**

Optimus 80 / Optimus C

Branch Power: 150 KVA

Circuit Breaker: 3 pole, 100 amperes (@ 480V)

Maximum Instantaneous Power: 158 KVA (800 MA @ 100 KV) (Short-term)

<8 Amps (Stand-by/Long-term)

Recommended conductor sizes for 1% impedance of branch conductors. Based on 20°C copper conductors:

	400 VAC	440 VAC	460 VAC	480 VAC
#1 AWG	66.9 ft.	79 ft.	87 ft.	96 ft.
1/0 AWG	84.3 ft.	100 ft.	110 ft.	121 ft.
2/0 AWG	106 ft.	126 ft.	139 ft.	152 ft.
3/0 AWG	133 ft.	159 ft.	175 ft.	192 ft.
4/0 AWG	169 ft.	201 ft.	221 ft.	242 ft.
250 MCM	199 ft.	230 ft.	261 ft.	287 ft.
300 MCM	239 ft.	285 ft.	313 ft.	344 ft.
400 MCM	399 ft.	380 ft.	418 ft.	459 ft.
500 MCM	359 ft.	476 ft.	522 ft.	574 ft.
Inst. Current	228 A	210 A	200 A	190 A
Max. Phase-phase Impedance	0.2 Ω	0.2 Ω	0.2 Ω	0.2 Ω
Max. Load Voltage Drop	45.6 V	42.0 V	40.0 V	38.0 V
Percent Regulation at Maximum Load	11.4 %	9.5 %	8.7 %	7.9 %

Minimum copper wire size, circuit breaker to equipment: #2

 $\langle CB \rangle$ 

## **Eletrical Requirement Notes**

Electrical power distribution at the facility shall comply with:

Utilization voltages per ANSI C84.1 - 1982 range A.

Voltage to be supplied is 3 phase, 3 wire power and ground (delta or wye) unless otherwise noted in equipment specifications.

Phase conductors to be sized for instantaneous voltage drop per NEC 517 - 73 and Philips

Neutral and ground conductors to be sized equivalently to phase conductors, unless

Metal conduit shall not be used as the equipment ground conductor.

Clamping type surge suppressors are highly recommended in addition to standing facility lighting arrestors. Equipment to be protected from ANSI/IEEE C62.41-1980 location category B impulses.

ANSI / NFPA 70 - National Electrical Code

Article 250 - grounding

Article 517 - health care facilities

ANSI / NFPA 99 - health care facilities

NEMA standard XR0 - power supply guideline for x-ray machines

## **Power Quality Guidelines**

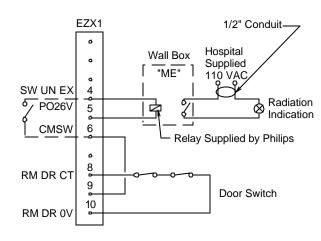
- 1. Power supplied to medical imaging equipment must be separate from power feeds to air conditioning, elevators, outdoor lighting, and other frequently switched or motorized loads. Such loads can cause waveform distortion and voltage fluctuations that can hinder high quality
- 2. Equipment that utilizes the facility power system to transmit control signals (especially clock systems) may interfere with medical imaging equipment, thus requiring special filtering.
- 3. The following devices provide a high impedance, nonlinear voltage source, which may affect image quality:

Static UPS systems, Series filters, Power conditioners, and Voltage regulators.

Do not install such devices at the mains supply to medical imaging equipment without consulting Philips installation or service personnel.

4. Line impedance is the combined resistance and inductance of the electrical system and includes the impedence of the power source, the facility distribution system, and all phase conductors between the source and the imaging equipment. Philips publishes recommended conductor sizes based on equipment power requirements, acceptable voltage drops, and assumptions about the facility source impedance. The minimum conductor size is based on the total line impedance and NEC requirements. Unless impedance calculations are performed by an electrical engineer, the recommended values must be used.





## **Detail for Connection of** X-Ray On Light and Door Switch





(Optimus Rad/RF Generator Only)

(99.1)

al Center , ME

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Maine

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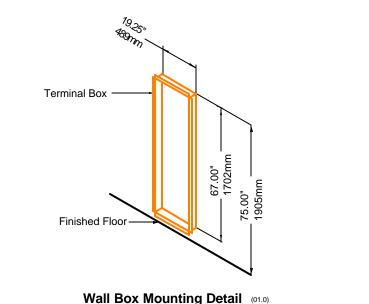
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Project Number

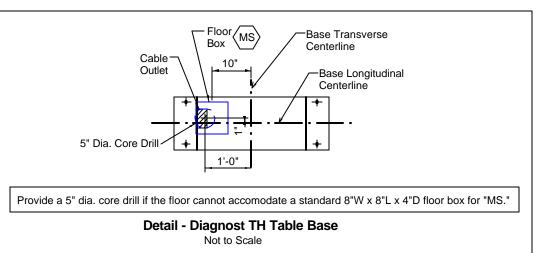
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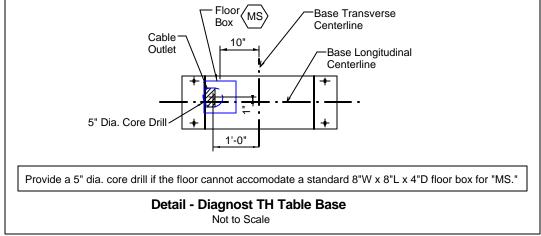
N-EAS080262

Portland,



(ME)





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Room **TH-DVM (Dual Detector) Digital Diagnost** nber .001000

## Philips Medical Systems Remote Services Network (RSN)

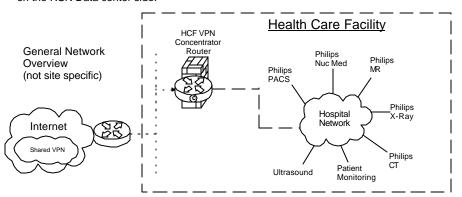
Secure broadband connection required for Philips remote technical support, diagnostics, and applications assistance

## **Broadband Site-to-Site Connectivity (Preferred)**

This connectivity method is designed for customers who prefer a connection from the RSN Data Center to the Health Care Facility (HCF) utilizing their existing VPN equipment.

#### **Connectivity Details:**

- A Site-to-Site connection from the RSN data center's Cisco router will be established to the HCF's VPN concentrator
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE as standard, but alternative standards are also available, such as AES, MD5, SHA, Security Association lifetime and Encryption Mode
- Every system that we will be servicing remotely will have a static NAT IP that we configure on the RSN Data center side.



#### Action Required by Hospital:

- Review and approve connection details
- Complete appropriate Site Checklist
- Configure and allow Site-to-Site access prior to setting up connectivity depending on the access criteria that the HCF decides to implement (ex: Source IP filtering, destination IP filtering, NAT assignment, etc.)
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to the designed IP provided by Philips

## **Broadband Router Installed at Health Care Facility**

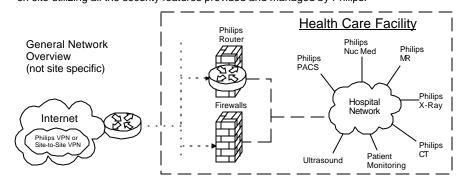
This connectivity method is designed for customers who have a dedicated high speed connection for Philips equipment.

#### **Connectivity Details:**

- An RSN Cisco 1711 or 1712 router will be preconfigured and installed at the HCF by Philips in conjunction with the HCF IT representative.
- The VPN Tunnel will be an IPSEC, 3DES encrypted Tunnel using IKE and will be established from the RSN-DC and terminated at the RSN Router on-site
- One to One NAT is used to limit access to Philips eqiupment only
- Router Config and IP auditing is enabled for Customer IT to view via website 24/7
- Dedicated DSL connections are also supported

## Option 1: Parallel to HCF Firewall Connectivity Method

This connectivity method is designed for customers who prefer a Philips RSN Router installed on site utilizing all the security features provided and managed by Philips.

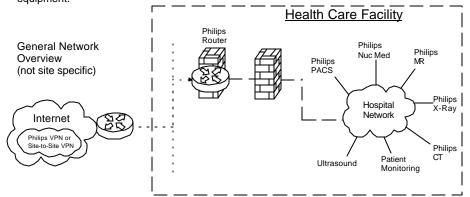


#### **Action Required by Hospital:**

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall
- Assign a Back end IP for the Philips router on the Hospital Network
- Complete appropriate Site Checklist
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.

## Option 2: Back End Connected to the HCF Firewall Connectivity Method

This connectivity method is designed for customers who prefer a Philips RSN Router installed on site by setting up an IP-Based policy allowing access thru existing HCF Firewall to Philips equipment.

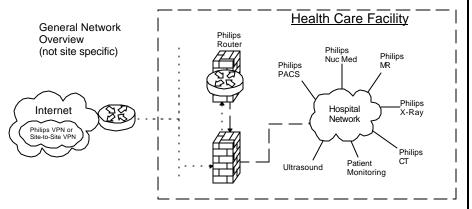


#### **Action Required by Hospital:**

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network
- Complete appropriate Site Checklist
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address.

## Option 3: Router Installed Inside the HCF's DZM

This connectivity method is designed for customers who prefer the RSN Router installed inside and existing, or new DMZ, allowing access to Philips equipment



## Action Required by Hospital:

- Assign a fixed public IP Address from the ISP to be configured on the Philips router. This is the DOTTED link on the picture connected to the firewall.
- Assign a Back end IP for the Philips router on the Hospital Network
- Complete appropriate Site Checklist
- Route traffic from within the hospital network with destination addresses 192.68.48.0/22 to internal Philips router Ethernet interface. This is the DASHED line connected to the firewall.
- Configure and allow on the firewall on the DASHED line interface IPSec protocol communication by opening protocol 500, 50, 51, 47 and port 23 + TACACS. Traffic should be between external IP Address located on the Philips router and the RSN Data center IP address 192.68.48/24 and IP address AOSN TACAS
- Configure and allow on the firewall on the DASHED line interface access between the IP address allocated by the hospital to the Philips internal Ethernet router interface and the target modality IP address

- Room

**TH-DVM (Dual Detector)** 

Center

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Portland,

Digital Diagnost T s NOT TO BE CONSTRUED AS A utilities available at the premises

O.A. Number 6600026876.001000

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Project Number N-EAS080262

Proje	ect Manager	Date
	roved for Delivery	
_		
	Trail oupport to trail statu	
_	run length) Wall support for wall stand	
	Conduit lenghts measured according to Philips specifications. NOTE: Specifications are from source box to destinat	ion box (not just cond
	Blocking support for wall stand	
	Unistrut installed and level according to Philips specifications	
	ality Checklist	
_	Cabinets and casework installed***.	
_	Room has been cleaned ***.	
	Dedicated phone line for modem use***.	
_	X-ray warning lights installed ***.	
	Lead glass installed ***.	
_	Pre-move survey completed - Delivery route identified.	
	All pre-cabling identified on Philips drawings has been installed.	
_	All network cabling, drops installed according to Philips specifications (including hardcopy cameras).	
	Electrical preparation according to Philips specifications.	
_	Ceiling installation completed.	
_	without sharp edges. Pull strings in conduit. Installation per Philips specifications.  HVAC environmental equipment installed and working according to Philips specifications.	
<u> </u>	Cable conduit and ductwork installed and clean. Position checked. Duct covers in place but not finally closed. Cab	le opening are clear,
	Ceiling lights installed.	
	Floors are tiled/covered finished. Flooring is covered with protective covering (scratch protection).	
Ī	Floor leveled according to Philips drawings and specifications.	
	Doors installed.	
	Walls finished including painting.	
	Customer site preparation verified in general against the Philips final planning drawings.	
ite	Readiness Checklist	
	identified with *** as delayed items must be completed after hours or on weekend. These itmes cannot be accomp gress. Also, these items must be completed within two days of installation start or they may stop installation.	iisned while installati
	listed are go/no go items for delivery unless noted as delay only items.	
	listed are ga/no go itama for delivery unless noted as delay only itama	

**Instructions** 

## Questionnaire for DigitalDiagnost TH with DigitalDiagnost VM Cataloque section 712-50 Direct Radiography)

This questionnaire must be used with your order.

Mark all items with a cross.

Fill in your special requests with help of the drawing Z-5.1 and forward it to your SSD order desk.

Bold \* marked items = default.

Order No. :						C	ountry :				
Customer:											
Project lead											
Phone No.	<u>:                                    </u>										
e-mail :	·					15	-4				
Signature :						טן	ate:				
	Cable lengths	(m) fr	om outlet to outlet								
	Cable lengths	Ť		1							
704-Q01	Generator → Generator control desk Amplimat display			20* 20							
			Generator	20							
	DigitalDiagnost VM	$\Lambda \rightarrow$	DigitalDiagnost TH	20							
			Workstation	24							
704-Q20	Generator → Dig			6*							
704-Q23	Generator → Wo			20*							
704-Q24	DigitalDiagnost TH	$\rightarrow$ We	orkstation	20*							
704-Q21	Duratur Di 1 C C		Generator	10*							
	BuckyDiagnost CS	$\rightarrow$	DigitalDiagnost TH	16*							
	Workstation → Ch	station remote control	20								
	General										
		LENC	`								
	Operator Manual L	Operator Manual Language ENG									
	Operator Manual La Additional ren			ENG							
				ENG							
	Additional ren	narks:				OV MR	D 5781				
	Additional ren	marks:		415-	480	OV MR	D 5781				
	Additional ren  Generator  Mains voltage (50/6	60Hz)		415-	480		D 5781				
704 040	Generator  Mains voltage (50/6 Control desk versio BuckyDiagnos	60Hz)		415-	480	ersion*	2D 5781 < 3.0 m*			>3.0 r	n
704-Q10	Generator  Mains voltage (50/6 Control desk versio	60Hz)		415-	480 k ve	ersion*		i. 🗆			
704-Q10	Generator  Mains voltage (50/k Control desk versio BuckyDiagnos Ceiling height	60Hz)		415- Desk	480 k ve	ersion* Tube su	< 3.0 m* upport upper pos	s. 🗆	Tube su	pport	lower pos
704-Q10	Generator  Mains voltage (50/k Control desk versio BuckyDiagnos Ceiling height	60Hz) on st CS		415- Desk	480 k ve	ersion* Tube su	< 3.0 m*		Tube su Red	oport luction	lower pos
704-Q10	Additional rem  Generator  Mains voltage (50/6 Control desk version  BuckyDiagnos  Ceiling height  Length of ceiling to A → For longitudina	60Hz) on st CS rails al carria	ge rear side CS2	415- Desk	480 k ve	ersion* Γube sι Sta	< 3.0 m* upport upper pos	i.	Tube su Red mm	pport luction max	lower pos n x. 100 mn
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704-Q10	Additional rem  Generator  Mains voltage (50/6 Control desk version  BuckyDiagnos  Ceiling height  Length of ceiling in A → For longitudina B → For longitudina A → For longitudina A → For longitudina A → For longitudina	60Hz) on st CS rails al carria al carria	ge rear side CS2 ge front side CS2 ge rear side CS4	415- Desk	480 k ve	Ersion*  Tube su  Sta	< 3.0 m* ipport upper pos		Recomm mm 100 mm	luction max max max	n x. 100 mn x. 500 mn x. 500 mn
704-Q10	Additional rem  Generator  Mains voltage (50/6 Control desk version BuckyDiagnos)  Ceiling height  Length of ceiling to A → For longitudina B → For longitudina	60Hz) on st CS rails al carria al carria al carria	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4	415- Desk	480 k ve	ersion* Tube su Sta	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm		Recomm mm 100 mm 100 mm	luction max max max	n x. 100 mn x. 500 mn x. 500 mn
704-Q10	Additional rem  Generator  Mains voltage (50/6 Control desk version BuckyDiagnos)  Ceiling height  Length of ceiling in A → For longitudina B → For longitudina B → For longitudina C → Option: Rail e	60Hz) on st CS rails al carria al carria al carria al carria	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4	415- Desk	480 k ve	ersion* Tube su Sta	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm		Recomm mm 100 mm mm	luction max max max	n x. 100 mn x. 500 mn x. 500 mn
704-Q10	Additional rem  Generator  Mains voltage (50/6 Control desk version BuckyDiagnos)  Ceiling height  Length of ceiling in A → For longitudina B → For longitudina B → For longitudina C → Option: Rail e D → Rail separatio	60Hz) on st CS rails al carria al carria al carria al carria cartia carria cartia carria	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4	415- Desk	480 k ve	ersion*  Tube su  Sta	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm 0 mm		Recomm mm 100 mm mm mm mm	luction max max max	n x. 100 mn x. 500 mn x. 500 mn
704-Q10	Additional rem  Generator  Mains voltage (50/6) Control desk version  BuckyDiagnos  Ceiling height  Length of ceiling in A → For longitudina B → For longitudina B → For longitudina C → Option: Rail e D → Rail separation  E → Rail length (to	60Hz) on st CS rails al carria al carria al carria al carria con (rail c otal)	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4	415- Desk	480 k ve	ersion*  Tube su  Sta	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm		Recomm mm 100 mm mm	luction max max max	n x. 100 mn x. 500 mn x. 500 mn
704-Q10	Generator  Mains voltage (50/6 Control desk version BuckyDiagnos)  Ceiling height  Length of ceiling in A → For longitudina B → For longitudina B → For longitudina C → Option: Rail e D → Rail separation E → Rail length (to DigitalDiagnos)	narks: 60Hz) on st CS rails al carria al carria al carria al carria al carria carria al carria	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4 n	415- Desk	486k ve	Ersion*	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm 0 mm		Recomm mm 100 mm mm mm mm	luction max max max	n x. 100 mr x. 500 mr x. 500 mr
	Additional rem  Generator  Mains voltage (50/6 Control desk version  BuckyDiagnos  Ceiling height  Length of ceiling in a period in a per	narks:  60Hz) on st CS  rails al carria al carria al carria al carria al carria sextension on (rail c otal) st TH nat chan	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4 n onnection parts incl.)	415-Desk	480k ve	Fube su Sta	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm 0 mm		Recomm mm 100 mm mm mm mm	luction max max max	n x. 100 mn x. 500 mn x. 500 mn
	Generator  Mains voltage (50/6 Control desk version BuckyDiagnos)  Ceiling height  Length of ceiling in A → For longitudina B → For longitudina B → For longitudina C → Option: Rail e D → Rail separation E → Rail length (to DigitalDiagnos)	narks:  60Hz) on st CS  rails al carria al carria al carria al carria al carria sextension on (rail c otal) st TH nat chan	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4 n onnection parts incl.)	415-Desk	480k ve	Ersion*	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm 0 mm		Recomm mm 100 mm mm mm mm	luction max max max	n x. 100 mn x. 500 mn x. 500 mn
	Additional rem  Generator  Mains voltage (50/6 Control desk version  BuckyDiagnos  Ceiling height  Length of ceiling in a period in a per	narks:  60Hz) on st CS  rails al carria al carria al carria con (rail contal) st TH mat chan (lines/cn	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4 n onnection parts incl.)	415-Desk	480k ve	Fube su Sta	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm 0 mm		Recomm mm 100 mm mm mm mm	luction max max max	n x. 100 mn x. 500 mn x. 500 mn
704-Q08	Generator  Mains voltage (50/6 Control desk version BuckyDiagnos)  Ceiling height  Length of ceiling in A → For longitudina B → For longitudina B → For longitudina C → Option: Rail e D → Rail separation E → Rail length (to DigitalDiagnos)  Direction of amplim Grid cassette tray ( DigitalDiagnos)	narks:  60Hz) on st CS  rails al carria al carria al carria al carria al carria cytensior on (rail c otal) st TH nat chan (lines/cn	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4 n onnection parts incl.)	415- Desk	480 k ve	Fube su Sta	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm 0 mm		Recomm mm 100 mm mm mm mm	luction max max max	lower pos
704-Q10 704-Q08 712-Q23 704-Q38	Generator  Mains voltage (50% Control desk version BuckyDiagnos  Ceiling height  Length of ceiling in A → For longitudina B → For longitudina C → Option: Rail e D → Rail separation E → Rail length (to DigitalDiagnos  Direction of amplim Grid cassette tray ( DigitalDiagnos	narks:  60Hz) on st CS  rails al carria al carria al carria al carria al carria cytensior on (rail c otal) st TH nat chan (lines/cn	ge rear side CS2 ge front side CS2 ge rear side CS4 ge front side CS4 n onnection parts incl.)	415- Desk	480 k ve	Tube su Sta	< 3.0 m* upport upper pose ndard 2356 mm 4076 mm 2700 mm 0 mm		Recomm mm 100 mm m	luction max max max	n x. 100 mm x. 500 mm x. 500 mm



- Maine Medical Center Portland, ME

Digital Diagnost TH-DVM (Dual Detector) - For Note to Be constructed as Architectural Drawing for the premises in which the utilities available at the utilities are at the utilities at the utilities at the utilities at the utilities available at the utilities at the utilities available at the utilities at the utilities