



**GE Healthcare**

*gehealthcare.com*

# **Technical Publication**

**Direction 5275600-100**

**Revision 8**

**GE Healthcare**

**Medical Diagnostic Radiography XR 6000**

**Pre-Installation**

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# Important Precautions

## LANGUAGE

- ПРЕДУПРЕЖДЕНИЕ** • **ТОВА УПЪТВАНЕ ЗА РАБОТА Е НАЛИЧНО САМО НА АНГЛИЙСКИ ЕЗИК.**
- (BG) • **АКО ДОСТАВЧИКЪТ НА УСЛУГАТА НА КЛИЕНТА ИЗИСКА ЕЗИК, РАЗЛИЧЕН ОТ АНГЛИЙСКИ, ЗАДЪЛЖЕНИЕ НА КЛИЕНТА Е ДА ОСИГУРИ ПРЕВОД.**
- **НЕ ИЗПОЛЗВАЙТЕ ОБОРУДВАНЕТО ПРЕДИ ДА СТЕ СЕ КОНСУЛТИРАЛИ И РАЗБРАЛИ УПЪТВАНЕТО ЗА РАБОТА.**
- **НЕСПАЗВАНЕТО НА ТОВА ПРЕДУПРЕЖДЕНИЕ МОЖЕ ДА ДОВЕДЕ ДО НАРАНЯВАНЕ НА ДОСТАВЧИКА НА УСЛУГАТА, ОПЕРАТОРА ИЛИ ПАЦИЕНТ В РЕЗУЛТАТ НА ТОКОВ УДАР ИЛИ МЕХАНИЧНА ИЛИ ДРУГА ОПАСНОСТ.**

### 警告

(ZH-CN)

- 本维修手册仅提供英文版本。
- 如果维修服务提供商需要非英文版本，客户需自行提供翻译服务。
- 未详细阅读和完全理解本维修手册之前，不得进行维修。
- 忽略本警告可能对维修人员，操作员或患者造成触电、机械伤害或其他形式的伤害。

### VÝSTRAHA

(CS)

- **TENTO PROVOZNÍ NÁVOD EXISTUJE POUZE V ANGLICKÉM JAZYCE.**
- **V PŘÍPADĚ, ŽE EXTERNÍ SLUŽBA ZÁKAZNÍKŮM POTŘEBUJE NÁVOD V JINÉM JAZYCE, JE ZAJIŠTĚNÍ PŘEKLADU DO ODPOVÍDAJÍCÍHO JAZYKA ÚKOLEM ZÁKAZNÍKA.**
- **NESNAŽTE SE O ÚDRŽBU TOHOTO ZAŘÍZENÍ, ANIŽ BYSTE SI PŘEČETLI TENTO PROVOZNÍ NÁVOD A POCHOPILI JEHO OBSAH.**
- **V PŘÍPADĚ NEDODRŽOVÁNÍ TÉTO VÝSTRAHY MŮŽE DOJÍT K PORANĚNÍ PRACOVNÍKA PRODEJNÍHO SERVISU, OBSLUŽNÉHO PERSONÁLU NEBO PACIENTŮ V LIVEM ELEKTRICKÉHO PROUDU, RESPEKTIVE V LIVEM MECHANICKÝCH ČI JINÝCH RIZIK.**

### ADVARSEL

(DA)

- **DENNE SERVICEMANUAL FINDES KUN PÅ ENGELSK.**
- **HVIS EN KUNDES TEKNIKER HAR BRUG FOR ET ANDET SPROG END ENGELSK, ER DET KUNDENS ANSVAR AT SØRGE FOR OVERSÆTTELSE.**
- **FORSØG IKKE AT SERVICERE Udstyret medmindre denne servicemanual har været konsulteret og er forstået.**
- **MANGLENDE OVERHOLDELSE AF DENNE ADVARSEL KAN MEDFØRE SKADE PÅ GRUND AF ELEKTRISK, MEKANISK ELLER ANDEN FARE FOR TEKNIKEREN, OPERATØREN ELLER PATIENTEN.**

## WAARSCHUWING

(NL)

- DEZE ONDERHOUDSHANDLEIDING IS ENKEL IN HET ENGELS VERKRIJGBAAR.
- ALS HET ONDERHOUDSPERSONEEL EEN ANDERE TAAL VEREIST, DAN IS DE KLANT VERANTWOORDELIJK VOOR DE VERTALING ERVAN.
- PROBEER DE APPARATUUR NIET TE ONDERHOUDEN VOORDAT DEZE ONDERHOUDSHANDLEIDING WERD GERAADPLEEGD EN BEGREPEN IS.
- INDIEN DEZE WAARSCHUWING NIET WORDT OPGEVOLGD, ZOU HET ONDERHOUDSPERSONEEL, DE OPERATOR OF EEN PATIËNT GEWOND KUNNEN RAKEN ALS GEVOLG VAN EEN ELEKTRISCHE SCHOK, MECHANISCHE OF ANDERE GEVAREN.

## WARNING

(EN)

- THIS SERVICE MANUAL IS AVAILABLE IN ENGLISH ONLY.
- IF A CUSTOMER'S SERVICE PROVIDER REQUIRES A LANGUAGE OTHER THAN ENGLISH, IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE TRANSLATION SERVICES.
- DO NOT ATTEMPT TO SERVICE THE EQUIPMENT UNLESS THIS SERVICE MANUAL HAS BEEN CONSULTED AND IS UNDERSTOOD.
- FAILURE TO HEED THIS WARNING MAY RESULT IN INJURY TO THE SERVICE PROVIDER, OPERATOR OR PATIENT FROM ELECTRIC SHOCK, MECHANICAL OR OTHER HAZARDS.

## HOIATUS

(ET)

- KÄESOLEV TEENINDUSJUHEND ON SAADAVAL AINULT INGLISE KEELES.
- KUI KLIENDITEENINDUSE OSUTAJA NÕUAB JUHENDIT INGLISE KEELEST ERINEVAS KEELES, VASTUTAB KLIENT TÖLKETEENUSE OSUTAMISE EEST.
- ÄRGE ÜRITAGE SEADMEID TEENINDADA ENNE EELNEVALT KÄESOLEVA TEENINDUSJUHENDIGA TUTVUMIST JA SELLEST ARU SAAMIST.
- KÄESOLEVA HOIATUSE EIRAMINE VÕIB PÕHJUSTADA TEENUSEOSUTAJA, OPERAATORI VÕI PATSIENDI VIGASTAMIST ELEKTRILÕOGI, MEHAANILISE VÕI MUU OHU TAGAJÄRJEL.

## VAROITUS

(FI)

- TÄMÄ HUOLTO-OHJE ON SAATAVILLA VAIN ENGLANNIKSI.
- JOS ASIAKKAAN HUOLTOHENKILÖSTÖ VAATII MUUTA KUIN ENGLANNINKIELISTÄ MATERIAALIA, TARVITTAVAN KÄÄNNÖKSEN HANKKIMINEN ON ASIAKKAAN VASTUULLA.
- ÄLÄ YRITÄ KORJATA LAITTEISTOA ENNEN KUIN OLET VARMASTI LUKENUT JA YMMÄRTÄNYT TÄMÄN HUOLTO-OHJEEN.
- MIKÄLI TÄTÄ VAROITUSTA EI NOUDATETA, SEURAUKSENA VOI OLLA HUOLTOHENKILÖSTÖN, LAITTEISTON KÄYTTÄJÄN TAI POTILAAH VAHINGOITTUMINEN SÄHKÖISKUN, MEKAANISEN VIAN TAI MUUN VAARATILANTEEN VUOKSI.

**ATTENTION**  
(FR)

- CE MANUEL DE MAINTENANCE N'EST DISPONIBLE QU'EN ANGLAIS.
- SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L'ANGLAIS, C'EST AU CLIENT QU'IL INCOMBE DE LE FAIRE TRADUIRE.
- NE PAS TENTER D'INTERVENTION SUR LES ÉQUIPEMENTS TANT QUE LE MANUEL SERVICE N'A PAS ÉTÉ CONSULTÉ ET COMPRIS.
- LE NON-RESPECT DE CET AVERTISSEMENT PEUT ENTRAÎNER CHEZ LE TECHNICIEN, L'OPÉRATEUR OU LE PATIENT DES BLESSURES DUES À DES DANGERS ÉLECTRIQUES, MÉCANIQUES OU AUTRES.

**WARNUNG**  
(DE)

- DIESE SERVICEANLEITUNG EXISTIERT NUR IN ENGLISCHER SPRACHE.
- FALLS EIN FREMDER KUNDENDIENST EINE ANDERE SPRACHE BENÖTIGT, IST ES AUFGABE DES KUNDEN FÜR EINE ENTSPRECHENDE ÜBERSETZUNG ZU SORGEN.
- VERSUCHEN SIE NICHT DIESE ANLAGE ZU WARTEN, OHNE DIESE SERVICEANLEITUNG GELESEN UND VERSTANDEN ZU HABEN.
- WIRD DIESE WARNUNG NICHT BEACHTET, SO KANN ES ZU VERLETZUNGEN DES KUNDENDIENSTTECHNIKERS, DES BEDIENERS ODER DES PATIENTEN DURCH STROMSCHLÄGE, MECHANISCHE ODER SONSTIGE GEFAHREN KOMMEN.

**ΠΡΟΕΙΔΟΠΟΙΗΣΗ**  
(EL)

- ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ ΔΙΑΤΙΘΕΤΑΙ ΣΤΑ ΑΓΓΛΙΚΑ ΜΟΝΟ.
- ΕΑΝ ΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ ΕΝΟΣ ΠΕΛΑΤΗ ΑΠΑΙΤΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕ ΓΛΩΣΣΑ ΕΚΤΟΣ ΤΩΝ ΑΓΓΛΙΚΩΝ, ΑΠΟΤΕΛΕΙ ΕΥΘΥΝΗ ΤΟΥ ΠΕΛΑΤΗ ΝΑ ΠΑΡΕΧΕΙ ΥΠΗΡΕΣΙΕΣ ΜΕΤΑΦΡΑΣΗΣ.
- ΜΗΝ ΕΠΙΧΕΙΡΗΣΕΤΕ ΤΗΝ ΕΚΤΕΛΕΣΗ ΕΡΓΑΣΙΩΝ ΣΕΡΒΙΣ ΣΤΟΝ ΕΞΟΠΛΙΣΜΟ ΕΚΤΟΣ ΕΑΝ ΕΧΕΤΕ ΣΥΜΒΟΥΛΕΥΤΕΙ ΚΑΙ ΕΧΕΤΕ ΚΑΤΑΝΟΗΣΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ.
- ΕΑΝ ΔΕ ΛΑΒΕΤΕ ΥΠΟΨΗ ΤΗΝ ΠΡΟΕΙΔΟΠΟΙΗΣΗ ΑΥΤΗ, ΕΝΔΕΧΕΤΑΙ ΝΑ ΠΡΟΚΛΗΘΕΙ ΤΡΑΥΜΑΤΙΣΜΟΣ ΣΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ, ΣΤΟ ΧΕΙΡΙΣΤΗ Ή ΣΤΟΝ ΑΣΘΕΝΗ ΑΠΟ ΗΛΕΚΤΡΟΠΛΗΞΙΑ, ΜΗΧΑΝΙΚΟΥΣ Ή ΑΛΛΟΥΣ ΚΙΝΔΥΝΟΥΣ.

**FIGYELMEZTETÉS**  
(HU)

- EZEN KARBANTARTÁSI KÉZIKÖNYV KIZÁRÓLAG ANGOL NYELVEN ÉRHEŐ EL.
- HA A VEVŐ SZOLGÁLTATÓJA ANGOLTÓL ELTÉRŐ NYELVRE TART IGÉNYT, AKKOR A VEVŐ FELELŐSSÉGE A FORDÍTÁS ELKÉSZÍTTETÉSE.
- NE PRÓBÁLJA ELKEZDENI HASZNÁLNI A BERENDEZÉST, AMÍG A KARBANTARTÁSI KÉZIKÖNYVBEN LEÍRTAKAT NEM ÉRTELMEZTÉK.
- EZEN FIGYELMEZTETÉS FIGYELMEN KÍVÜL HAGYÁSA A SZOLGÁLTATÓ, MŰKÖDTETŐ VAGY A BETEG ÁRAMÜTÉS, MECHANIKAI VAGY EGYÉB VESZÉLYHELYZET MIATTI SÉRÜLÉSÉT EREDMÉNYEZHETI.

**AÐVÖRUN**  
(IS)

- ÞESSI ÞJÓNUSTUHANDBÓK ER EINGÖNGU FÁANLEG Á ENSKU.
- EF AÐ ÞJÓNUSTUVEITANDI VIÐSKIPTAMANNS ÞARFNAST ANNAS TUNGUMÁLS EN ENSKU, ER ÞAÐ SKYLDA VIÐSKIPTAMANNS AÐ SKAFFA TUNGUMÁLAPJÓNUSTU.
- REYNIÐ EKKI AÐ AFGREIÐA TÆKIÐ NEMA AÐ ÞESSI ÞJÓNUSTUHANDBÓK HEFUR VERIÐ SKOÐUÐ OG SKILIN.
- BROT Á SINNA ÞESSARI AÐVÖRUN GETUR LEITT TIL MEIÐSLA Á ÞJÓNUSTUVEITANDA, STJÓRNANDA EÐA SJÚKLINGS FRÁ RAFLOSTI, VÉLRÆNU EÐA ÖÐRUM ÁHÆTTUM.

**AVVERTENZA**  
(IT)

- IL PRESENTE MANUALE DI MANUTENZIONE È DISPONIBILE SOLTANTO IN INGLESE.
- SE UN ADDETTO ALLA MANUTENZIONE ESTERNO ALLA GEMS RICHIEDE IL MANUALE IN UNA LINGUA DIVERSA, IL CLIENTE È TENUTO A PROVVEDERE DIRETTAMENTE ALLA TRADUZIONE.
- SI PROCEDA ALLA MANUTENZIONE DELL'APPARECCHIATURA SOLO DOPO AVER CONSULTATO IL PRESENTE MANUALE ED AVERNE COMPRESO IL CONTENUTO.
- IL NON RISPETTO DELLA PRESENTE AVVERTENZA POTREBBE FAR COMPIERE OPERAZIONI DA CUI DERIVINO LESIONI ALL'ADDETTO ALLA MANUTENZIONE, ALL'UTILIZZATORE ED AL PAZIENTE PER FOLGORAZIONE ELETTRICA, PER URTI MECCANICI OD ALTRI RISCHI.

## 警告

(JA)

- このサービスマニュアルには英語版しかありません。
- サービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。
- このサービスマニュアルを熟読し理解せずに、装置のサービスを行わないでください。
- この警告に従わない場合、サービスを担当される方、操作員あるいは患者さんが、感電や機械的又はその他の危険により負傷する可能性があります。

## 경고

(KO)

- 본 서비스 지침서는 영어로만 이용하실 수 있습니다.
- 고객의 서비스 제공자가 영어 이외의 언어를 요구할 경우, 번역 서비스를 제공하는 것은 고객의 책임입니다.
- 본 서비스 지침서를 참고했고 이해하지 않는 한은 해당 장비를 수리하려고 시도하지 마십시오.
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## BRĪDINĀJUMS

(LV)

- ŠĪ APKALPES ROKASGRĀMATA IR PIEEJAMA TIKAI ANGLŪ VALODĀ.
- JA KLIENTA APKALPES SNIEDZĒJAM NEPIECIEŠAMA INFORMĀCIJA CITĀ VALODĀ, NEVIS ANGLŪ, KLIENTA PIENĀKUMS IR NODROŠINĀT TULKOŠANU.
- NEVEICIET APRĪKOJUMA APKALPI BEZ APKALPES ROKASGRĀMATAS IZLASĪŠANAS UN SAPRAŠANAS.
- ŠĪ BRĪDINĀJUMA NEIEVĒROŠANA VAR RADĪT ELEKTRISKĀS STRĀVAS TRIECIENA, MEHĀNISKU VAI CITU RISKU IZRAISĪTU TRAUMU APKALPES SNIEDZĒJAM, OPERATORAM VAI PACIENTAM.

## ĮSPĖJIMAS

(LT)

- ŠIS EKSPLOATAVIMO VADOVAS YRA PRIEINAMAS TIK ANGLŪ KALBA.
- JEI KLIENTO PASLAUGŲ TIEKĖJAS REIKALAUJA VADOVO KITA KALBA – NE ANGLŪ, NUMATYTI VERTIMO PASLAUGAS YRA KLIENTO ATSAKOMYBĖ.
- NEMĖGINKITE ATLIKTI ĮRANGOS TECHNINĖS PRIEŽIŪROS, NEBENT ATSIŽVELGĖTE Į ŠĮ EKSPLOATAVIMO VADOVĄ IR JĮ SUPRATOTE.
- JEI NEATKREIPSITE DĖMESIO Į ŠĮ PERSPĖJIMĄ, GALIMI SUŽALOJIMAI DĖL ELEKTROS ŠOKO.
- MECHANINIŲ AR KITŲ PAVOJŲ PASLAUGŲ TIEKĖJUI, OPERATORIUI AR PACIENTUI.

## ADVARSEL

(NO)

- DENNE SERVICEHÅNDBOKEN FINNES BARE PÅ ENGELSK.
- HVIS KUNDENS SERVICELEVERANDØR TRENGER ET ANNET SPRÅK, ER DET KUNDENS ANSVAR Å SØRGE FOR OVERSETTELSE.
- IKKE FORSØK Å REPARERE UTSTYRET UTEN AT DENNE SERVICEHÅNDBOKEN ER LEST OG FORSTÅTT.
- MANGLENDE HENSYN TIL DENNE ADVARSELEN KAN FØRE TIL AT SERVICELEVERANDØREN, OPERATØREN ELLER PASIENTEN SKADES PÅ GRUNN AV ELEKTRISK STØT, MEKANISKE ELLER ANDRE FARER.

## OSTRZEŻENIE

(PL)

- NINIEJSZY PODRĘCZNIK SERWISOWY DOSTĘPNY JEST JEDYNIEM W JĘZYKU ANGIELSKIM.
- JEŚLI DOSTAWCA USŁUG KLIENTA WYMAGA JĘZYKA INNEGO NIŻ ANGIELSKI, ZAPEWNIENIE USŁUGI TŁUMACZENIA JEST OBOWIĄZKIEM KLIENTA.
- NIE PRÓBOWAĆ SERWISOWAĆ WYPOSAŻENIA BEZ ZAPOZNANIA SIĘ I ZROZUMIENIA NINIEJSZEGO PODRĘCZNIKA SERWISOWEGO.
- NIEZASTOSOWANIE SIĘ DO TEGO OSTRZEŻENIA MOŻE SPOWODOWAĆ URAZY DOSTAWCY USŁUG, OPERATORA LUB PACJENTA W WYNIKU PORĄŻENIA ELEKTRYCZNEGO, ZAGROŻENIA MECHANICZNEGO BĄDŹ INNEGO.

## ATENÇÃO

(PT)

- ESTE MANUAL DE ASSISTÊNCIA TÉCNICA SÓ SE ENCONTRA DISPONÍVEL EM INGLÊS.
- SE QUALQUER OUTRO SERVIÇO DE ASSISTÊNCIA TÉCNICA, QUE NÃO A GEMS, SOLICITAR ESTES MANUAIS NOUTRO IDIOMA, É DA RESPONSABILIDADE DO CLIENTE FORNECER OS SERVIÇOS DE TRADUÇÃO.
- NÃO TENHA TENTADO REPARAR O EQUIPAMENTO SEM TER CONSULTADO E COMPREENDIDO ESTE MANUAL DE ASSISTÊNCIA TÉCNICA
- O NÃO CUMPRIMENTO DESTES AVISOS PODE POR EM PERIGO A SEGURANÇA DO TÉCNICO, OPERADOR OU PACIENTE DEVIDO A CHOQUES ELÉTRICOS, MECÂNICOS OU OUTROS.

## ATENȚIE

(RO)

- ACEST MANUAL DE SERVICE ESTE DISPONIBIL NUMAI ÎN LIMBA ENGLEZĂ.
- DACĂ UN FURNIZOR DE SERVICII PENTRU CLIEȚI NECESITĂ O ALTĂ LIMBĂ DECÂT CEA ENGLEZĂ, ESTE DE DATORIA CLIENTULUI SĂ FURNIZEZE O TRADUCERE.
- NU ÎNCERCAȚI SĂ REPARAȚI ECHIPAMENTUL DECÂT ULTERIOR CONSULTĂRII ȘI ÎNȚELEGERII ACESTUI MANUAL DE SERVICE.
- IGNORAREA ACESTUI AVERTISMENT AR PUTEA DUCE LA RĂNIREA DEPARATORULUI, OPERATORULUI SAU PACIENTULUI ÎN URMA PERICOLELOR DE ELECTROCUTARE, MECANICE SAU DE ALTĂ NATURĂ.

## **ОСТОРОЖНО!**

(RU)

- ДАННОЕ РУКОВОДСТВО ПО ОБСЛУЖИВАНИЮ ПРЕДЛАГАЕТСЯ ТОЛЬКО НА АНГЛИЙСКОМ ЯЗЫКЕ.
- ЕСЛИ СЕРВИСНОМУ ПЕРСОНАЛУ КЛИЕНТА НЕОБХОДИМО РУКОВОДСТВО НЕ НА АНГЛИЙСКОМ, А НА КАКОМ-ТО ДРУГОМ ЯЗЫКЕ, КЛИЕНТУ СЛЕДУЕТ САМОСТОЯТЕЛЬНО ОБЕСПЕЧИТЬ ПЕРЕВОД.
- ПЕРЕД ОБСЛУЖИВАНИЕМ ОБОРУДОВАНИЯ ОБЯЗАТЕЛЬНО ОБРАТИТЕСЬ К ДАННОМУ РУКОВОДСТВУ И ПОЙМИТЕ ИЗЛОЖЕННЫЕ В НЕМ СВЕДЕНИЯ.
- НЕСОБЛЮДЕНИЕ ТРЕБОВАНИЙ ДАННОГО ПРЕДУПРЕЖДЕНИЯ МОЖЕТ ПРИВЕСТИ К ТОМУ, ЧТО СПЕЦИАЛИСТ ПО ОБСЛУЖИВАНИЮ, ОПЕРАТОР ИЛИ ПАЦИЕНТ ПОЛУЧАТ УДАР ЭЛЕКТРИЧЕСКИМ ТОКОМ, МЕХАНИЧЕСКУЮ ТРАВМУ ИЛИ ДРУГОЕ ПОВРЕЖДЕНИЕ.

## **UPOZORNENIE**

(SK)

- TENTO NÁVOD NA OBSLUHU JE K DISPOZÍCII LEN V ANGLIČTINE.
- AK ZÁKAZNÍKOV POSKYTOVATEĽ SLUŽIEB VYŽADUJE INÝ JAZYK AKO ANGLIČTINU, POSKYTNUTIE PREKLADATEĽSKÝCH SLUŽIEB JE ZODPOVEDNOSŤOU ZÁKAZNÍKA.
- NEPOKÚŠAJTE SA O OBSLUHU ZARIADENIA SKÔR, AKO SI NEPREČÍTATE NÁVOD NA OBLUHU A NEPOROZUMIETE MU.
- ZANEDBANIE TOHTO UPOZORNENIA MÔŽE VYÚSTIŤ DO ZRANENIA POSKYTOVATEĽA SLUŽIEB, OBSLUHUJÚCEJ OSOBY ALEBO PACIENTA ELEKTRICKÝM PRÚDOM, DO MECHANICKÉHO ALEBO INÉHO NEBEZPEČENSTVA.

## **ATENCION**

(ES)

- ESTE MANUAL DE SERVICIO SOLO EXISTE EN INGLES.
- SI ALGUN PROVEEDOR DE SERVICIOS AJENO A GEMS SOLICITA UN IDIOMA QUE NO SEA EL INGLES, ES RESPONSABILIDAD DEL CLIENTE OFRECER UN SERVICIO DE TRADUCCION.
- NO SE DEBERA DAR SERVICIO TECNICO AL EQUIPO, SIN HABER CONSULTADO Y COMPRENDIDO ESTE MANUAL DE SERVICIO.
- LA NO OBSERVANCIA DEL PRESENTE AVISO PUEDE DAR LUGAR A QUE EL PROVEEDOR DE SERVICIOS, EL OPERADOR O EL PACIENTE SUFRAN LESIONES PROVOCADAS POR CAUSAS ELÉCTRICAS, MECÁNICAS O DE OTRA NATURALEZA.

## **VARNING**

(SV)

- DEN HÄR SERVICEHANDBOKEN FINNS BARA TILLGÄNGLIG PÅ ENGELSKA.
- OM EN KUNDS SERVICETEKNIKER HAR BEHOV AV ETT ANNAT SPRÅK ÄN ENGELSKA ANSVARAR KUNDEN FÖR ATT TILLHANDAHÅLLA ÖVERSÄTTNINGSTJÄNSTER.
- FÖRSÖK INTE UTFÖRA SERVICE PÅ UTRUSTNINGEN OM DU INTE HAR LÄST OCH FÖRSTÅR DEN HÄR SERVICEHANDBOKEN.
- OM DU INTE TAR HÄNSYN TILL DEN HÄR VARNINGEN KAN DET RESULTERA I SKADOR PÅ SERVICETEKNIKERN, OPERATÖREN ELLER PATIENTEN TILL FÖLJD AV ELEKTRISKA STÖTAR, MEKANISKA FAROR ELLER ANDRA FAROR.

## **DİKKAT**

(TR)

- BU SERVİS KILAVUZUNUN SADECE İNGİLİZCESİ MEVCUTTUR.
- EĞER MÜŞTERİ TEKNİSYENİ BU KILAVUZU İNGİLİZCE DIŞINDA BİR BAŞKA LİSANDAN TALEP EDERSE, BUNU TERCÜME ETTİRMEK MÜŞTERİYE DÜŞER.
- SERVİS KILAVUZUNU OKUYUP ANLAMADAN EKİPMANLARA MÜDAHALE ETMEYİNİZ.
- BU UYARIYA UYULMAMASI, ELEKTRİK, MEKANİK VEYA DİĞER TEHLİKELERDEN DOLAYI TEKNİSYEN, OPERATÖR VEYA HASTANIN YARALANMASINA YOL AÇABİLİR.

## **DAMAGE IN TRANSPORTATION**

All packages should be closely examined at time of delivery. If damage is apparent, write "Damage In Shipment" on ALL copies of the freight or express bill BEFORE delivery is accepted or "signed for" by a GE representative or hospital receiving agent. Whether noted or concealed, damage MUST be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this 14 day period. Call GEHC Global Parts 1-800-548-3366 and select option 8, immediately after damage is found. At this time be ready to supply name of carrier, delivery date, consignee name, freight or express bill number, item damaged and extent of damage.

Complete instructions regarding claim procedure are found in Section S of the Policy And Procedures Bulletins.

14 July 1993

## **CERTIFIED ELECTRICAL CONTRACTOR STATEMENT**

All electrical Installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations and testing shall be performed by qualified GE Healthcare personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchaser of GE equipment shall only utilize qualified personnel (i.e., GE's field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.

## **IMPORTANT...X-RAY PROTECTION**

X-ray equipment, if not properly used, may cause injury. Accordingly, the instructions herein contained should be thoroughly read and understood by everyone who will use the equipment before you attempt to place this equipment in operation. The General Electric Company, Healthcare Group, will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus incorporates a high degree of protection against x-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical design compel the operator to take adequate precautions to prevent the possibility of any persons carelessly exposing themselves or others to radiation.

It is important that anyone having anything to do with x-radiation be properly trained and fully acquainted with the recommendations of the National Council on Radiation Protection and Measurements as published in NCRP Reports available from NCRP Publications, 7910 Woodmont Avenue, Room 1016, Bethesda, Maryland 20814, and of the International Commission on Radiation Protection, and of any other local authorities, and take adequate steps to protect against injury.

The equipment is sold with the understanding that the General Electric Company, Healthcare Group, its agents, and representatives have no responsibility for injury or damage which may result from improper use of the equipment.

Various protective materials and devices are available. It is urged that such materials or devices be used.

## **OMISSIONS & ERRORS**

Customers, please contact your GE Sales or Service representatives.

GE personnel, please use the GEHC Complaint Record Process to report all omissions, errors, and defects in this publication.

---

# Preface

## Publication Conventions

---

Standardized conventions for representing information is a uniform way of communicating information to a reader in a consistent manner. Conventions are used so that the reader can easily recognize the actions or decisions that must be made. There are a number of character and paragraph styles used in this publication to accomplish this task. Please become familiar with them before proceeding forward.

It is important that you read and understand hazard statements, and not just ignore them.

## Section 1.0

### Safety & Hazard Information

Proper product safety labeling allows a person to safely use or service a product. The format and style for safety communications reflected in this publication represents the harmonization of IEC/ISO 3864 and ANSI Z535 standards.

Within this publication, different paragraph and character styles are used to indicate potential hazards. Paragraph prefixes, such as hazard, caution, danger and warning, are used to identify important safety information. Text (Hazard) styles are applied to the paragraph contents that are applicable to each specific safety statement.

#### 1.1 Hazard Messages

Any action that will, or could potentially cause personal injury will be preceded by the safety alert symbol and an appropriate signal word. The safety alert symbol is the triangle with an exclamation mark within it. It is always used next to the signal word to indicate the severity of the hazard. Together, they are used to indicate a hazard exists.

Signal words describe the severity of possible human injuries that may be encountered. The alert symbol and signal word are placed immediately before any paragraph they affect. Safety information includes:

- 1.) Signal Word - The seriousness level of the hazard.
- 2.) Symbol or Pictorial - The consequence of interaction with the hazard.
- 3.) Word Message:
  - a.) The nature of the hazard (i.e. the type of hazard).
  - b.) How to avoid the hazard.

The safety alert symbol is not used when an action can only cause equipment damage.

#### 1.2 Text Format of Signal Words

**DANGER - INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY. THIS SIGNAL WORD IS TO BE LIMITED TO THE MOST EXTREME SITUATIONS.**

**WARNING - INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.**

**Caution** - Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

**NOTICE** - Indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property. This signal word is associated directly with a hazard or hazardous situation and is used in place of 'DANGER,' 'WARNING,' or 'CAUTION.' It can include:

- Destruction of a disk drive
- Potential for internal mechanical damage, such as to a X-ray tube

### 1.3 Symbols and Pictorials Used

The following Symbols and Pictorials may be used in this publication. These graphical icons (symbols) may be used to make you aware of specific types of hazards that could possibly cause harm.

NOTICE	CAUTION	WARNING	DANGER	
 keep_up	 magnetic	 biohazard	 compressgas	 ppe-hearing
 fragile	 impact	 corrosive	 heavyobject	 ppe-2people
 static_elec	 heat	 general	 laser	 ppe-respiratory
 keep_dry	 pinch	 radiation	 poisongas	 ppe-loto
 general	 explosive	 electrical	 flammable	 ppe-eye
 torque	 crush/mechanical	 tipping	 Read Manual	 ppe-gloves
	 instuction	 poisonmatl	 entanglement	 instuction

## 1.4 Equipment Classification

The following equipment classifications are applicable to the product:

- Equipment classification with respect to protection from electric shock: Class I
- Degree of protection from electric shock: Type B
- Degree of protection against ingress of liquids: Not classified
- Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with nitrous oxide
- Mode of operation: Continuous operation with intermittent loading

## Section 2.0 Publication Conventions

### 2.1 General Paragraph and Character Styles

Prefixes are used to highlight important non-safety related information. Paragraph prefixes (such as Purpose, Example, Comment or Note) are used to identify important but non-safety related information. Text styles are also applied to text within each paragraph modified by the specific prefix.

#### **EXAMPLES OF PREFIXES USED FOR GENERAL INFORMATION:**

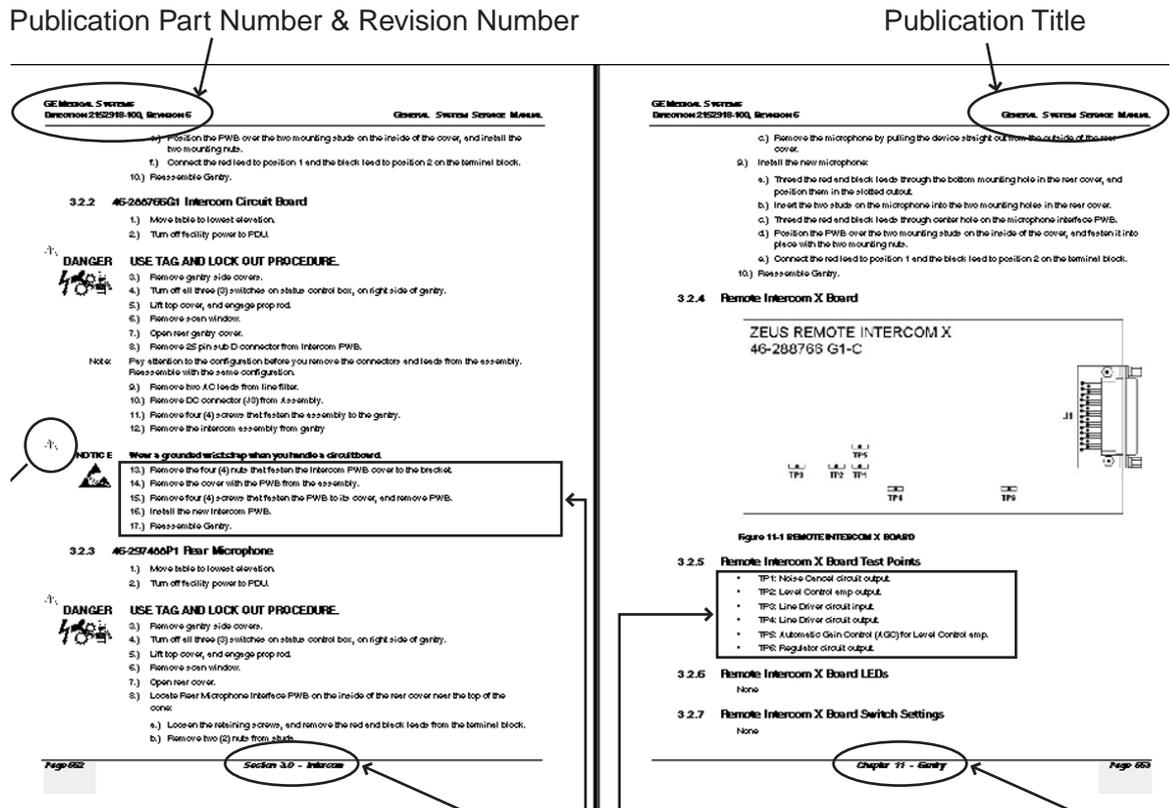
**Purpose:** Introduces and provides meaning as to the information contained within the chapter, section or subsection (such as used at the beginning this chapter, for example).

**Note:** Conveys information that should be considered important to the reader.

**Example:** Used to make the reader aware that the paragraph(s) that follow are examples of information possibly stated previously.

**Comment:** *Represents "additional" information that may or may not be relevant to your situation.*

## 2.2 Page Layout



The current section and its title are always shown in the footer of the left (even) page.

An exclamation point in a triangle is used to indicate important information to the user.

Paragraphs preceded by **Alphanumeric** characters (e.g. numbers) contain information that must be followed in a **specific order**.

The current chapter and its title are always shown in the footer of the right (odd) page.

Paragraphs preceded by a **symbol** (e.g. bullets) contain information that has **no specific order**.

**Figure 1 Component Identification**

Headers and footers in this publication are designed to allow you to quickly identify your location. The document part number and revision number appear in every header on every page. Odd numbered page footers indicate the current chapter, its title and current page number. Even numbered page footers show the current section and its title, as well as the current page number.

## 2.3 Computer Screen Output/Input Text Character Styles

Within this publication, mono-spaced character styles (fonts) are used to indicate computer text that is either screen input or output. Mono-spaced fonts, such as courier, are used to indicate text direction. When you type at your keyboard, you are generating computer input. Occasionally you will see the math operator “greater-than” and “less-than” symbols used to indicate the start and finish of variable output. When reading text generated by the computer, you are reading it as computer generated output. In addition to direction, characters are italicized (e.g. *italics*) to indicate information specific to your system or site.

Example: This paragraph's font represents computer generated screen "fixed" output.  
Fixed Output Its output is fixed from the sense that it does not vary from application to application. It is the most commonly used style used to indicate filenames, paths and text that do not change from system to system. The character style used is a fixed width such as courier.

Example: *This paragraph's font represents computer screen output that is "variable". It is used to represent output that varies from application to application or system to system. Variable output is sometimes found placed between greater-than and less-than operators for clarification. For example: <variable\_ouput> or <3.45.120.3>. In both cases, the < and > operators are not part of the actual input.*  
Variable Output

Example: **This paragraph's font represents fixed input. It is computer input that is typed-in via the keyboard. Typed input that does not vary from application to application or system to system. Fixed text the user is required to supply as input. For example: cd /usr/3p**  
Fixed Input

Example: *This paragraph's font represents computer input that can vary from application to application or system to system. With variable text, the user is required to supply system dependent input or information. Variable input sometimes is placed between greater-than and less-than operators. For example: <variable\_input>. In these cases, the (<>) operators would be dropped prior to input. For example: ypcat hosts | grep <3.45.120.3> would be typed into the computer as*  
Variable Input  

```
ypcat hosts | grep 3.45.120.3
```

*without the greater-than and less-than operators.*

## 2.4 Buttons, Switches and Keyboard Inputs (Hard & Soft Keys)

Different character styles are used to indicate actions requiring the reader to press either a hard or soft button, switch or key. Physical hardware, such as buttons and switches, are called hard keys because they are hard wired or mechanical in nature. A keyboard or on/off switch would be a hard key. Software or computer generated buttons are called soft keys because they are software generated. Software driven menu buttons are an example of such keys. Soft and hard keys are represented differently in this publication.

Example: A power switch **ON/OFF** or a keyboard key like **ENTER** is indicated by applying a character style that uses both over and under-lined bold text. This is a hard key.  
Hard Keys

Example: Whereas the computer **MENU** button that you would click with your mouse or touch with your hand uses over and under-lined regular text. This is a soft key.  
Soft Keys

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# *Chapter 1 - Introduction*

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## **Section 1.0**

### **Objective and Scope of this Manual**

This document is intended as a guide and informational resource for planning and properly preparing a location for the installation of a XR 6000 system.

## **Section 2.0**

### **Avoiding Unnecessary Expenses and Delays**

To avoid unnecessary expenses and delays, use the “Pre-Installation” checklist located in [Chapter 7](#) to determine if you are ready for the installation to begin. Once you believe that your room/location is ready for installation to begin, complete the “Pre-Installation” checklist. The checklist is an important tool that helps verify that nothing has been missed. The checklist summarizes the preparations and allows you to record a permanent record of the activities that have taken place.

## **Section 3.0**

### **An Overview of the Pre-Installation Process**

Pre-installation is a co-operative effort between the customer/purchaser and GE Healthcare (GEHC). Complete the checklists contained in this manual. They are an important part of the pre-installation process. The checklists summarize the required preparations and verify the completion of the pre-installation procedures.

[Figure 1-1](#) outlines the information in this document and its place in the pre-installation process.

Chapter 2 --  
 Room  
 Requirements

Chapter 5 --  
 Product  
 Characteristics  
 Chapter 6 --  
 Room Layout

Chapter 3 --  
 Planning Electrical  
 Connections  
 Chapter 4 --  
 System Facility  
 Power & Grounds

Chapter 7 --  
 Planning Aids

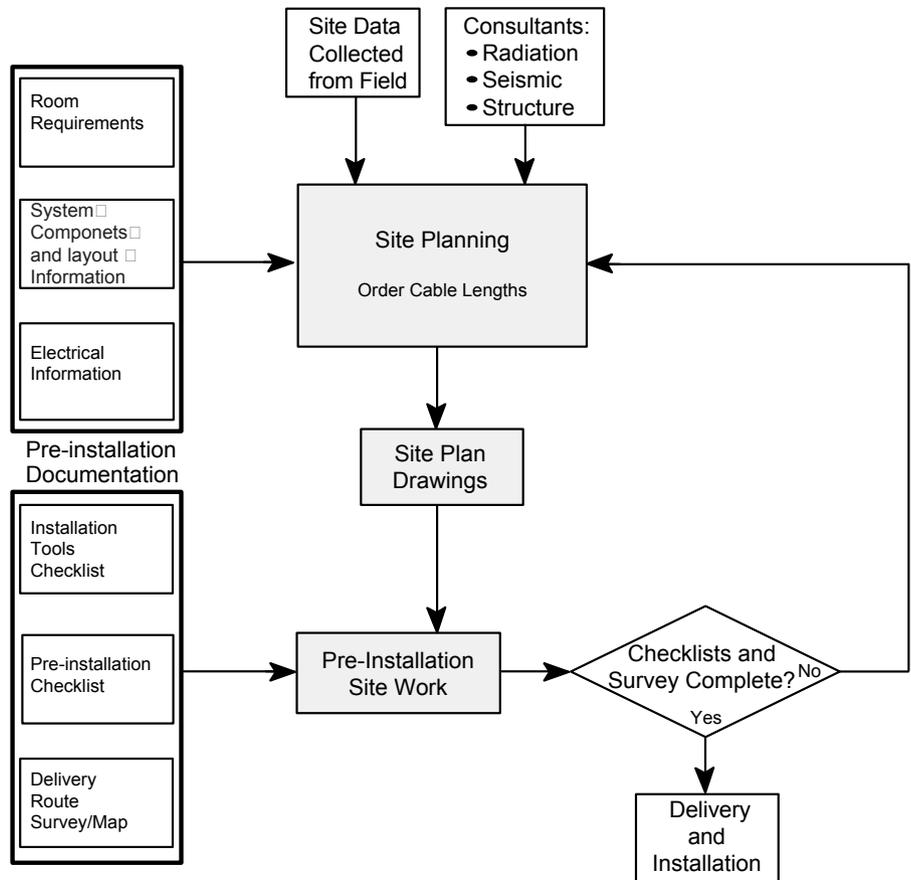


Figure 1-1 Pre-Installation Overtable

## Section 4.0 Responsibility of Purchaser/Customer

To ensure that the installation of a XR 6000 system meets the purchaser or Customer expectations, it is important to determine who will take responsibility for various items in the course of the system installation process. To aid you in determining these responsibilities, review the following checklists with the customer and assign responsibilities as appropriate:

- Tools and Equipment Checklist (see [page 66](#))
- Pre-Installation Checklist (see [page 68](#))

## Section 5.0 Contract Changes

Be sure to inform the customer that the cost of any alterations or modifications not specified in the sales contract are the responsibility of the customer.

## Section 6.0

# Responsibilities of the Purchaser

The purchaser is responsible for completion of “Pre-Installation”. This includes the procurement and installation of all required materials and services to get the room ready for installation of the product. This responsibility includes providing:

- A clean and safe work environment for installation of the product (finished floor, ceiling, walls, and proper room lighting).
- A location suitable for the installation of the product. See [Chapter 2 - - Room Requirements](#).
  - Suitable support structures in the floor, walls, or ceiling necessary for the mounting of the product and/or its components.
  - Installation of conduit, ducts and/or raceways necessary to route cables safely. See [Chapter 4 - - System Facility Power & Grounds](#) and [Chapter 5 - - Product Characteristics](#).
  - Electrical power and grounds of specified quality and reliability. See [Chapter 4 - - System Facility Power & Grounds](#).
    - \* Electrical power of the required voltage, including an emergency-off safety switch in the room. Power and ground cables to the PDU.
    - \* Properly installed and sized junction boxes, including covers and fittings at locations required and called out in architectural drawings.
- A location suitable for operation of the product. See [Chapter 6 - - Room Layout](#).
- Installation of non-electric services.

## Section 7.0

# What You Will Receive (System Components)

The XR 6000 system may consist of the following main components (See [Figure 1-2](#) and [Table 1-1](#)):

- Radiographic Table
- Standard Integrated Tube Stand
- Standard Wall Stand
- Operator Console
- Generator
- PDU
- E7843X X-Ray Tube
- Collimator



The XR 6000 is divided into basic components:

1. Operator Console (Console Stand - Optional)
2. Integrated Table Standard
3. Cabinet
4. Wall Stand Standard (Optional)
5. 50kW X-ray Tube - Toshiba E7843X
6. Collimator

**Figure 1-2 XR 6000 System Component Identification**

Item	Component	Model Number
1a	Console	5194507
1b	Console Pedestal (Option)	5192392
2	Standard Integrated Table	5180891
2a	Standard Integrated Tube Stand	5183392
3a	Generator (VR Jedi 50 RIT)	2212259-2
3b	PDU	5220653
4	Standard Wall Stand	5194508
5	X-ray Tube - E7843X	5192454
6	Manual Collimator	5189248

**Table 1-1 XR 6000 System Component Identification**

Note: Please ask customer to provide a support for the console if the console pedestal is not ordered.

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# Chapter 2 - Room Requirements

## Section 1.0 Environmental Requirements

### 1.1 Relative Humidity and Temperature

PRODUCT OR COMPONENT	RELATIVE HUMIDITY (Non-Condensing)				TEMPERATURE			
	IN-USE		STORAGE		IN-USE		STORAGE	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
Integrated Table	20%	85%	20%	95%	+10° C (50° F)	40° C (104° F)	-18° C (-4° F)	+70° C (158° F)
Wall Stand	20%	85%	20%	95%	+10° C (50° F)	40° C (104° F)	-18° C (-4° F)	+70° C (158° F)
Generator	30%	75%	10%	100%	-10° C (14° F)	40° C (104° F)	-40° C (-40° F)	+70° C (158° F)
PDU	20%	85%	20%	95%	+10° C (50° F)	40° C (104° F)	-18° C (-4° F)	+70° C (158° F)
Operator Console	30%	80%	20%	90%	+10° C (50° F)	40° C (104° F)	-20° C (-4° F)	+70° C (158° F)
X-ray Tube	30%	85%	20%	90%	+10° C (50° F)	40° C (104° F)	-20° C (-4° F)	+70° C (158° F)

**Table 2-1 Environmental Requirements (Relative Humidity & Temperature)**

**Limits for rates of change:**

In-Use

< 10 degree C / hour

< 30% / hour

Storage

< 20 degree C / hour

< 30% / hour

Note: STORAGE values only refer to equipment that is still in shipping containers. If the equipment is partially or completely installed, refer to IN-USE values.

## 1.2 Altitude and Atmospheric Pressure

PRODUCT OR COMPONENT	ALTITUDE				ATMOSPHERIC PRESSURE			
	IN-USE		STORAGE		IN-USE		STORAGE	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
Integrated Table	-100 m (-328 ft.)	3000 m (9842 ft.)	-100 m (-328 ft.)	15000 m (49212 ft.)	10 psi (69 kPa)	15.4 psi (106 kPa)	7 psi (48 kPa)	15.4 psi (106 kPa)
Wall Stand	-100 m (-328 ft.)	3000 m (9842 ft.)	-100 m (-328 ft.)	15000 m (49212 ft.)	10 psi (69 kPa)	15.4 psi (106 kPa)	7 psi (48 kPa)	15.4 psi (106 kPa)
Generator	-100 m (-328 ft.)	3000 m (9842 ft.)	-100 m (-328 ft.)	15000 m (49212 ft.)	10 psi (70 kPa)	15.4 psi (106 kPa)	7 psi (50 kPa)	15.4 psi (106 kPa)
PDU	-100 m (-328 ft.)	3000 m (9842 ft.)	-100 m (-328 ft.)	15000 m (49212 ft.)	10 psi (69 kPa)	15.4 psi (106 kPa)	7 psi (48 kPa)	15.4 psi (106 kPa)
Operator Console	-100 m (-328 ft.)	3000 m (9842 ft.)	-100 m (-328 ft.)	15000 m (49212 ft.)	10 psi (70 kPa)	15.4 psi (106 kPa)	7 psi (50 kPa)	15.4 psi (106 kPa)
X-ray Tube	-100 m (-328 ft.)	3000 m (9842 ft.)	-100 m (-328 ft.)	15000 m (49212 ft.)	10 psi (70 kPa)	15.4 psi (106 kPa)	7 psi (50 kPa)	15.4 psi (106 kPa)

Table 2-2 Environmental Requirements - (Altitude & Atmospheric Pressure)

**Limits for rates of change:**

In-Use

< 1.8 hPA / hour

Storage

< 76 hPA / hour

Note: STORAGE values only refer to equipment that is still in shipping containers. If the equipment is partially or completely installed, refer to IN-USE values.

## 1.3 Heat Output

The continuous and peak power consumption of this system is as follows:

- 6kW Continuous Power
- 75kW Peak Power

PRODUCT OR COMPONENT	HEAT OUTPUT (BTU/hr.)	HEAT OUTPUT (WATTS)
	IN-USE	IN-USE
Generator	891.36	261
PDU	500	145
Operator Console	20	6
X-ray Tube	1089.44	319
<b>Total System Output</b>	<b>2500.80</b>	<b>731</b>

Table 2-3 Heat Outputs by Component

## 1.4 Acoustic Output

COMPONENT	SOUND OUTPUT (dBA)	
	IN-USE (measured 1m from any point in system)	STAND-BY (measured 1m from any point in system)
System	< 60	< 55

Table 2-4 XR 6000 Acoustic Output

## 1.5 Light Specification

The monitor screen is adjusted for an optimum ambient light level of 50 lux.

## 1.6 Radiation Protection

Because X-ray equipment produces radiation, special precautions may need to be taken or special site modifications may be required. The General Electric Company does not make recommendations regarding radiation protection. It is the purchasers responsibility to consult a radiation physicist for advice on radiation protection in X-ray rooms.

# Section 2.0 Structural Requirements

## 2.1 Door Size Requirements

Minimum door sizes also apply to hallway and elevator. [See Chapter 5 ?\\$paratext? on page 51.](#), for additional details.

**Door Height:** The minimum door height to accommodate the Tube Stand is 225 cm.

**Door Width:**

- The minimum door width to accommodate the Table is: 100 cm.
- The minimum door width is calculated based on a straight-in approach requiring a 2.5 m wide corridor. Minimum widths will change based on narrower corridors.

## 2.2 Floor Requirements

The preferred method of installing the table and standard wall stand is to use the provided floor anchors.

### 2.2.1 Floor Requirements when using provided Floor Anchors



**Potential for Injury and/or Equipment Damage:**

**Anchors must be a minimum of 75mm from any concrete edge including ducts and cracks. In addition, the general condition of the concrete in the immediate mounting area should be inspected to ensure that anchors will be set in good quality concrete.**

### 2.2.1.1 Table

The Table Assembly is placed on the floor, which must accept the weight and the weight/area defined in [Chapter 5, Section 3.1 - Floor Loading and Recommended Mounting Methods](#).

- The weight of the complete table is 240 kg.
- The ground surface must be approximately level.
- The XR 6000 Table system must be attached to the floor.

The floor bearing the XR 6000 system must be concrete and the thickness to be determined by a Structural Engineer to properly support the equipment loads. The supplied anchors require a minimum embedment of 55 mm into the concrete. If the floor thickness is less than 75 mm, it is recommended that the unit be secured using a through-bolt method with a reinforcement plate on the back side. For additional details, see [Chapter 5, Section 3.1 - Floor Loading and Recommended Mounting Methods](#).

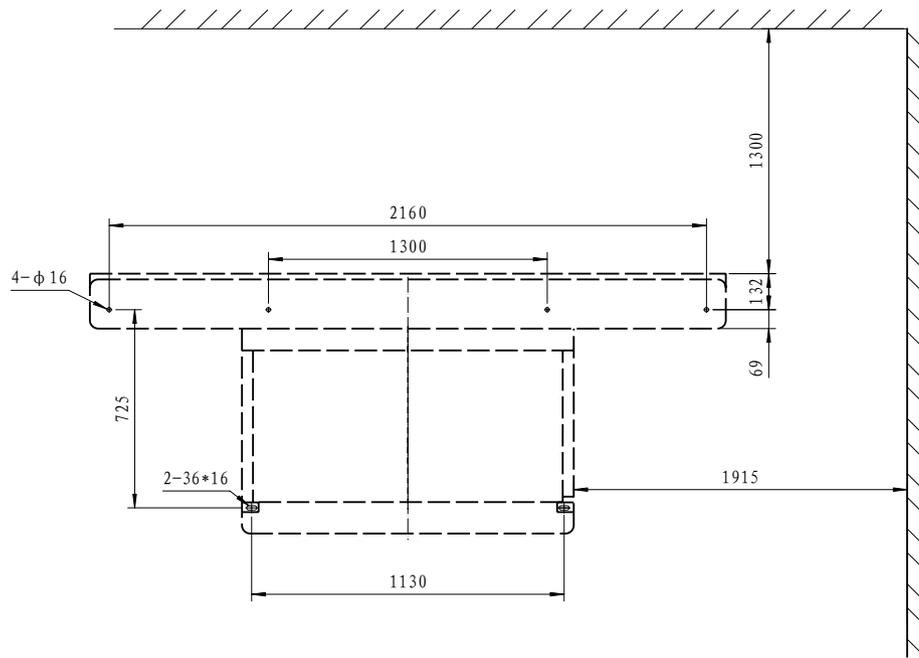


Figure 2-1 Floor Mounting - Table Assembly

### 2.2.1.2 Wall Stand

The Wall Stand Assembly is placed on the floor, which must accept the weight and the weight/area defined in [Chapter 5, Section 3.1 - Floor Loading and Recommended Mounting Methods](#).

- The weight of the complete standard wall stand is 106.5 kg.
- The ground surface must be approximately level.
- The XR 6000 Wall Stand system must be attached to the floor.

#### CAUTION

Concrete area for wall stand installation should be 0.1 m<sup>2</sup>.

The floor bearing the XR 6000 system must be concrete and the thickness to be determined by a Structural Engineer to properly support the equipment loads. The supplied anchors require a minimum embedment of 55 mm into the concrete. If the floor thickness is less than 75 mm, it is recommended that the unit be secured using a through-bolt method with a reinforcement plate on the back side. For additional details, see [Chapter 5, Section 3.1 - Floor Loading and Recommended Mounting Methods](#).

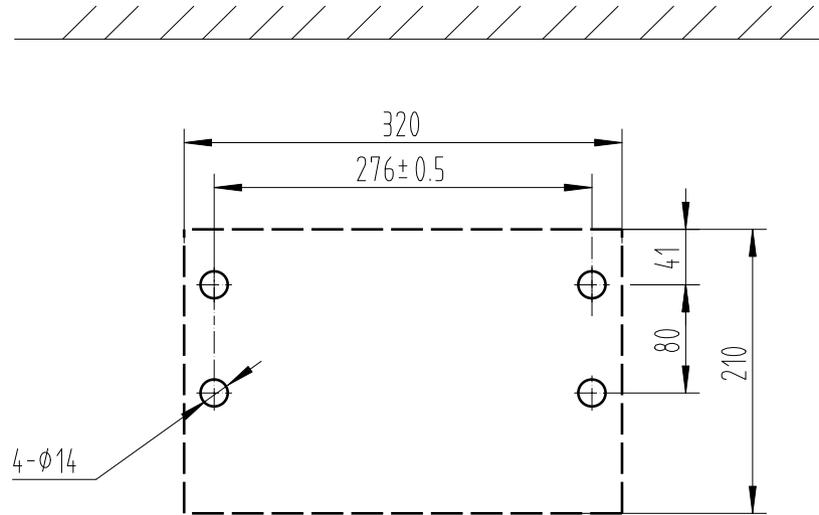


Figure 2-2 Floor Mounting - Wall Stand

2.2.1.3 Console Pedestal (Option)

The Console Pedestal Assembly is placed on the floor, which must accept the weight and the weight/area defined in Chapter 5, Section 3.1 - Floor Loading and Recommended Mounting Methods.

- The weight of the console with pedestal is 6.0 kg.
- The ground surface must be approximately level.
- The XR 6000 Console Pedestal must be attached to the floor.



Concrete area for console pedestal installation should be 0.2 m<sup>2</sup>.

The floor bearing the XR 6000 system must be concrete and the thickness to be determined by a Structural Engineer to properly support the equipment loads. The supplied anchors require a minimum embedment of 35 mm into the concrete. If the floor thickness is less than 55 mm, it is recommended that the unit be secured using a through-bolt method with a reinforcement plate on the back side. For additional details, see Chapter 5, Section 3.1 - Floor Loading and Recommended Mounting Methods.

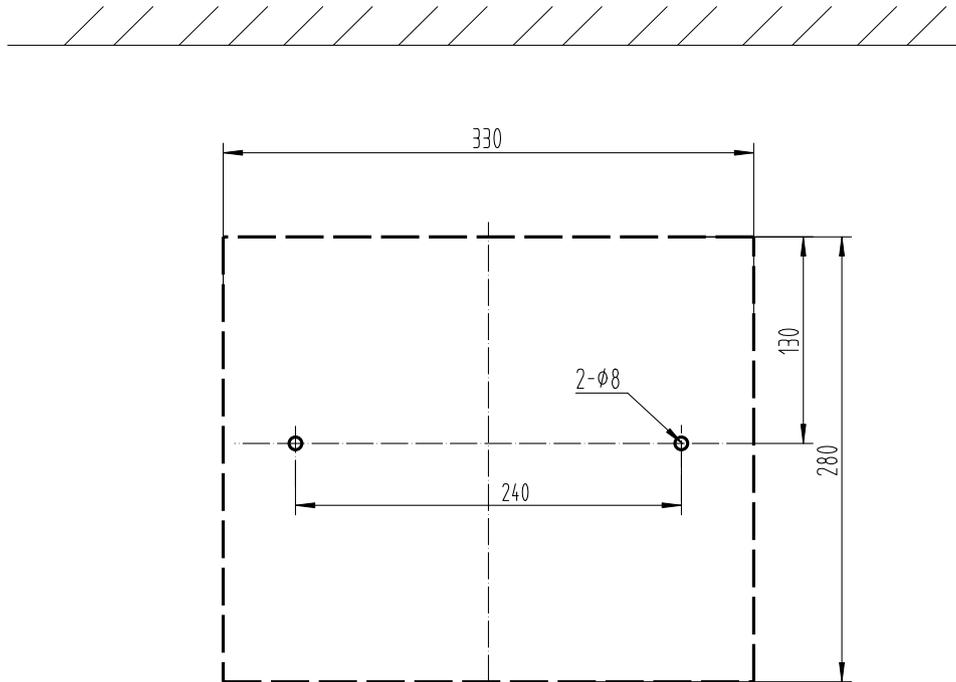


Figure 2-3 Floor Mounting - Console Pedestal

### 2.2.2 Service Access Requirements

Allow appropriate space for service access of equipment, per country and regional requirements.

# Chapter 3 - Planning Electrical Connections

---

## Section 1.0 Routing Cables

### 1.1 General

High voltage and power cables must be separated from other cables. Use a separate trough in the duct system, or use a separate conduit. Minimize cable length between the line disconnect and the System Cabinet power unit to reduce voltage regulation problems and wiring costs.

For information about the cables supplied with your system, please refer to [Chapter 8 - - System Cable Information](#).

### 1.2 Conduit

Separate conduits must be used for power and signal wires. These wires must be kept separated from each other.

Using conduit imposes some important considerations when used with this system. Of primary concern, the majority of cables used are pre-terminated. Pre-termination greatly simplifies interconnection but makes cable-pulling difficult because of the added dimensions of the connectors.

Conduit must be large enough to pass the cable and connector through with all other cables already in the conduit. Also, the size of conduit chosen must allow for future growth. There is the possibility of additional cables being added later as the system is developed and options are added.

The use of conduit is recommended for cables running overhead between rooms, especially when a diagonal run provides the shortest cable path.

### 1.3 Electrical Ducts

It's important that electrical ducts have separate compartments for power and signal wires. These wires must be kept separated from each other for proper system operation.

Electrical ducts have advantages, when used with a single room or two adjacent rooms. Electrical ducts combine cabling in a neat and functional appearance, with accessibility and room for expansion.

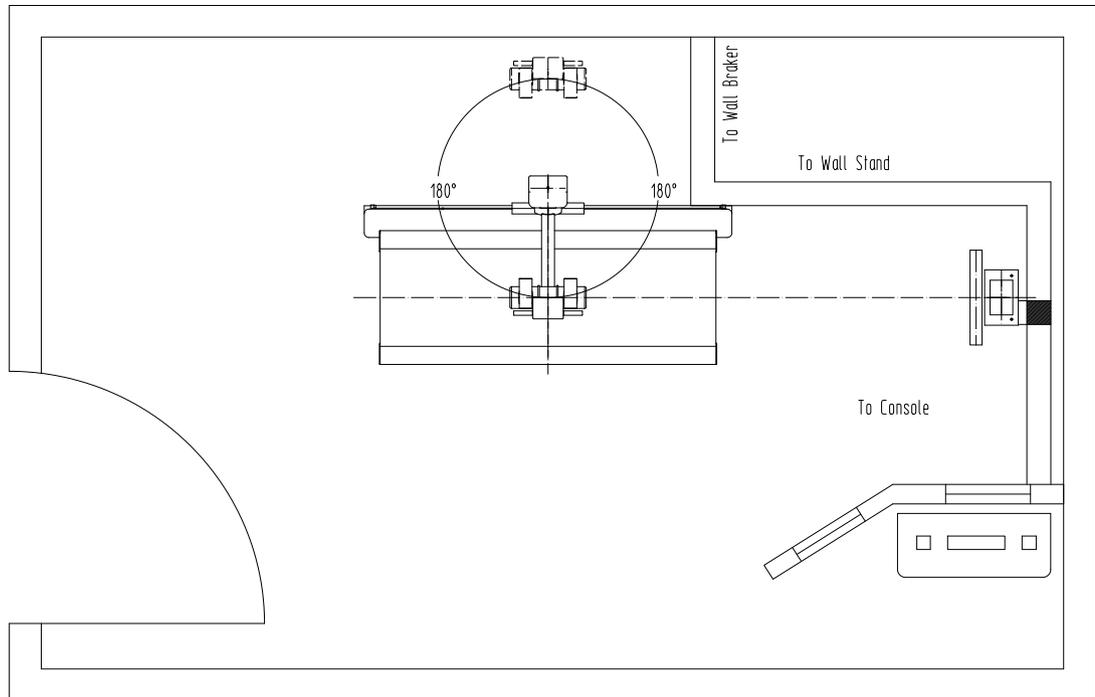


Figure 3-1 System Electrical Ducts

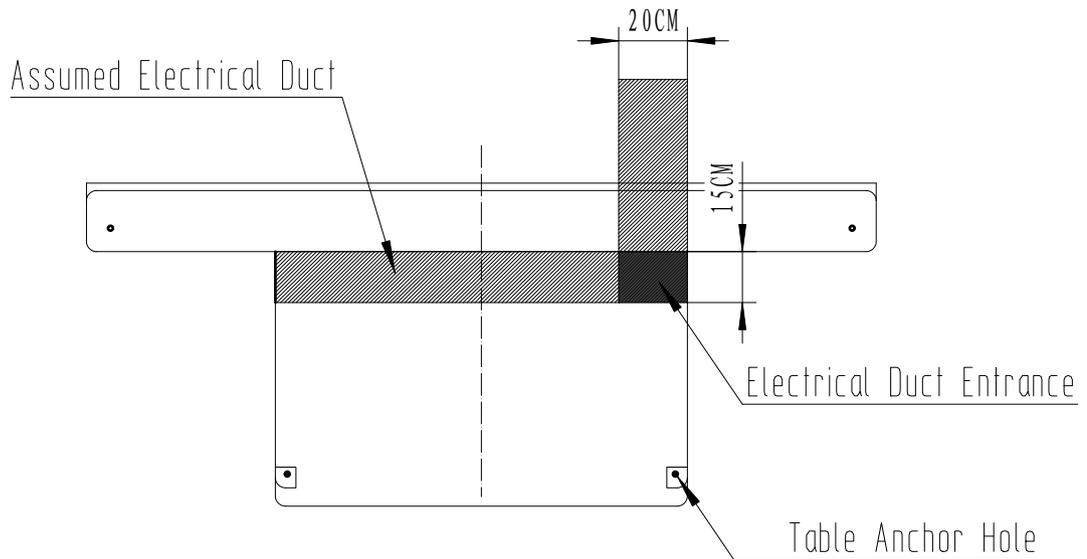


Figure 3-2 Table Electrical Ducts

## 1.4 Power Distribution

XR 6000 system power distribution consists of two major components that must either be customer supplied or GE Healthcare supplied. These are:

- Feeder power from Hospital distribution center to the XR 6000 System Cabinet load power unit (SKL).
- Power distribution from the XR 6000 System Cabinet load power unit (SKL) to all the components in the XR 6000 system room.

Usually the feeder power from the Hospital distribution center is customer supplied and the power distribution within the XR 6000 system is supplied by GEHC.

---

Note:  
Additional  
Reference  
Material Exists

For hospital facility feeder power and ground requirements to the XR 6000 system power unit, refer to: [Chapter 4 - - System Facility Power & Grounds](#).

For XR 6000 system power distribution from the System Cabinet power unit, refer to XR 6000 MIS Map, see [Chapter 8 - - System Cable Information](#).

---

## Section 2.0 Master Interconnect System (MIS)

System interconnect cables are described in MIS (Master Interconnect System) documents shipped with the system. These documents specify all interconnections between components within the system and its options.

---

Note:  
Additional  
Reference  
Material Exists

For specific XR 6000 system interconnect maps and connection details, please refer to [Chapter 8 - - System Cable Information](#).

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# Chapter 4 - System Facility Power & Grounds

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## Section 1.0 Introduction

The purpose of this chapter is to ensure that the product is properly powered and grounded, thus ensuring the proper operation of the product installed. The information in this chapter should be adhered to, unless there are written deviations approved by GE Healthcare.

This chapter gives the sizes and procedures on how to power and ground your system. If these power and grounding instructions are not adhered to, proper operation cannot be guaranteed. Any cost associated and found to be a result of non-conformity, as stated in this chapter, may result in additional cost charged back to the institution and/or their contractor.

### NOTICE

**All XR 6000 system and sub-system power connections shall be made ONLY to power outlets that are connected to the XR 6000 system.**

All XR 6000 system component power connections must be made in accordance with the XR 6000 MIS Map, see [Chapter 8 - - System Cable Information](#).

## 1.1 Power Quality

The electrical power, from its origination to the system, must adhere to the wire size and transformer sizes as prescribed in the installation drawings. The feeder voltage-drops, as well as the supplying power, must be within the given parameters. Sizing for feeder is usually calculated for a maximum of 2% voltage drop at the minimum voltage range. The actual feeder sizing may vary from the installation drawing for a facilities voltage.

Calculate feeder losses before you begin. Total feeder losses must be calculated to ensure that the losses are less than those specified in the installation drawings. Calculating the recommended minimum transformer sizing for feeding a system ensures the transformer losses are less than half of the maximum regulation for the system.

Regulation is the calculated voltage losses for the entire power distribution system (No-Load Voltage minus Full-Load Voltage) divided by the no-load voltage minus the system losses (Full-Load Voltage):

$$\text{Regulation} = \frac{\text{NoLoadVoltage} - \text{FullLoadVoltage}}{\text{FullLoadVoltage}} \times 100$$

In the X-ray room, there must be a lockable facility power disconnect. It must be installed electrically before the equipment, for the purpose of locking out the power. This must be done before service to the high voltage system is performed.

## 1.2 Electrical Requirements

**NOTICE**

In China, all cables used to provide system power and ground must be CCC certified.

**NOTICE**

Only WYE connected power source are currently permitted, due to current system (generator) design.

All system components obtain their power from the Power Distribution Unit (PDU). The Generator and PDU are both in the table **Providing power and ground wires to the PDU are the responsibility of the customer**. As an aid, wire sizes for various lengths of the power supply cable are shown in the following tables.

**WARNING**

**PE CABLES SHALL HAVE THE DIAMETER NOT LESS THAN THE POWER SUPPLY CONDUCTOR, AND SHALL HAVE AN IMPEDENCE NOT MORE THAN 0.1 OHMS.**

### 1.2.1 System Electrical Requirements

#### 1.2.1.1 System Power Specifications

PARAMETER	JEDI GENERATOR - 50kW										
Input Voltage	380/400/440/480 VAC WYE 3-Phase and ground without neutral										
Required Power Source	WYE Distribution										
Daily Voltage variations	+/- 10% (VAC) In this range, the generator will operate without any de-rating in accuracy.										
Line Impedance	The apparent line impedance guaranteed by the customer should be equal or less than the values indicated below, according to the voltage value and the commercial power of the generator. <b>Voltage range (V)    Line Impedance (ohms)</b> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>3 phase</th> <th>50kW</th> </tr> </thead> <tbody> <tr> <td>380</td> <td>0.15</td> </tr> <tr> <td>415</td> <td>0.18</td> </tr> <tr> <td>440</td> <td>0.20</td> </tr> <tr> <td>480</td> <td>0.24</td> </tr> </tbody> </table>	3 phase	50kW	380	0.15	415	0.18	440	0.20	480	0.24
3 phase	50kW										
380	0.15										
415	0.18										
440	0.20										
480	0.24										
	Note: 400-480 VAC impedance values are based on IEC 601-2-7 standard. Values are interpolated from values in standard.										
HV cable length	8 m										
HV cable type	IB EEC: 22 mm cable de Lyon (<=150 pF/m) USA: 22 mm DSI (<=165pF/m) EEC: 16 mm Claymount (<=165 pF/m) HV cable connector = Federal standard										
Ground Wire	#8 AWG										

Table 4-1 System Power Specifications

PARAMETER	JEDI GENERATOR - 50kW
Inrush current	600 A
Normal Frequency	50/60Hz
Daily frequency variation	47~63Hz

**Table 4-1 System Power Specifications**

**1.2.2 Recommended Power Supply**

PDU Power Supply cable has to be provided by the customer, and also can be ordered from GE (S3922KG). Wire size for various lengths of the Power Supply cable are shown in [Table 4-5](#).

Note: Power cable should be flexible enough to allow generator to roll back into table.

PARAMETER Input Voltage Wire Size Length	THREE PHASE GENERATOR - 50kW							
	380 VAC		400 VAC		440 VAC		480 VAC	
15 m (50 ft.)	10 mm <sup>2</sup>	(#8 AWG)	10 mm <sup>2</sup>	(#8 AWG)	10 mm <sup>2</sup>	(#8 AWG)	10 mm <sup>2</sup>	(#8 AWG)
30 m (150 ft.)	16 mm <sup>2</sup>	(#6 AWG)	16 mm <sup>2</sup>	(#6 AWG)	16 mm <sup>2</sup>	(#6 AWG)	16 mm <sup>2</sup>	(#6 AWG)
46 m (200 ft.)	22 mm <sup>2</sup>	(#5 AWG)	22 mm <sup>2</sup>	(#5 AWG)	22 mm <sup>2</sup>	(#5 AWG)	22 mm <sup>2</sup>	(#5 AWG)
60 m (100 ft.)	30 mm <sup>2</sup>	(#3 AWG)	30 mm <sup>2</sup>	(#3 AWG)	30 mm <sup>2</sup>	(#3 AWG)	30 mm <sup>2</sup>	(#3 AWG)

**Table 4-2 Minimum Wire Size 50 kW**

Phase	3	3	3	3
Nominal Line Voltage (Vac)	380	400	440	480
Voltage Range (Vac)	+/- 10%	+/- 10%	+/- 10%	+/- 10%
Momentary Line Current (Amp)	110	105	95	88
Continuous Line Current (Amp)	7	6.7	6	5.5
Power Demand (kVA)	70	70	70	70
Frequency	47/53Hz and 57/63Hz			

**Table 4-3 kVA Load Characteristics 50 kW**

### 1.2.3 Recommended Wall “Circuit-Breaker” Ratings

Power / Voltage	50 kW
380 V	110 A / 600 V
400 V	105 A / 600 V
440 V	95 A / 600 V
480 V	88 A / 600 V

**Table 4-4 Wall Breaker Parameter (Theoretical Current Values)**

Note: The main circuit breaker supplied by the customer must be sized in accordance to local regulations.  
Shunt trip circuit breaker required.

### 1.2.4 Wiring Electrical Power and Disconnects

This section provides additional data regarding power circuits the customer must provide, and internal electrical circuits necessary to supply the correct power to the XR 6000 system. Figure 4-1 shows the room power supply installed.

#### 1.2.4.1 Room Power Supply

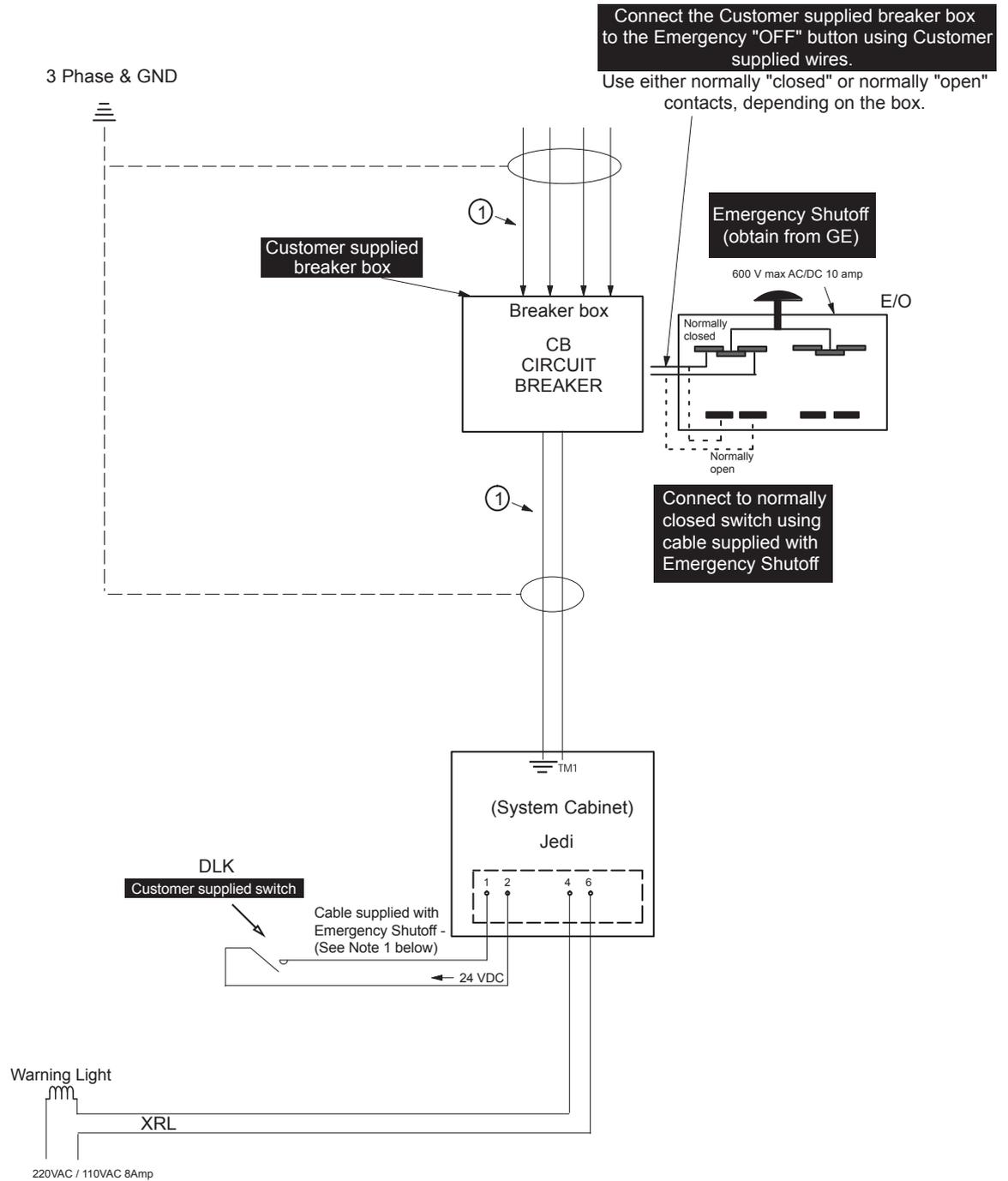


Figure 4-1 Room Power Supply (see Table 4-5 for Legend)

Key for Figure 4-1	Description
CB	Circuit breaker with remote trip (shunt) capabilities supplied by customer.
DLK <i>(see note below)</i>	Open-door detector (per local regulations). SKL provides 24 VDC.
XRL	Yellow X-ray emission indicator lamp above the room access door. 220 V in Europe/120 V in USA with 25 W max. bulb (per local regulations). Wires and light fixtures supplied by customer.

**Note:** Use only a multi conductor, shielded, PVC/PVC, UL TYPE CM cable. Alpha Wire. CQA10210637. This wire is found in GE Catalog Item A8091JH as a “bulk” roll of wire (60 Meters). Material consists of two 16 AWG (19/0.0117 strand) conductors. Shields must be grounded at both ends.

Table 4-5 Legend for Figure 4-1 and Figure

### 1.2.4.2 Multiple Emergency “OFF” Switches

Figure 4-2 shows how multiple emergency “OFF” switches could be wired.

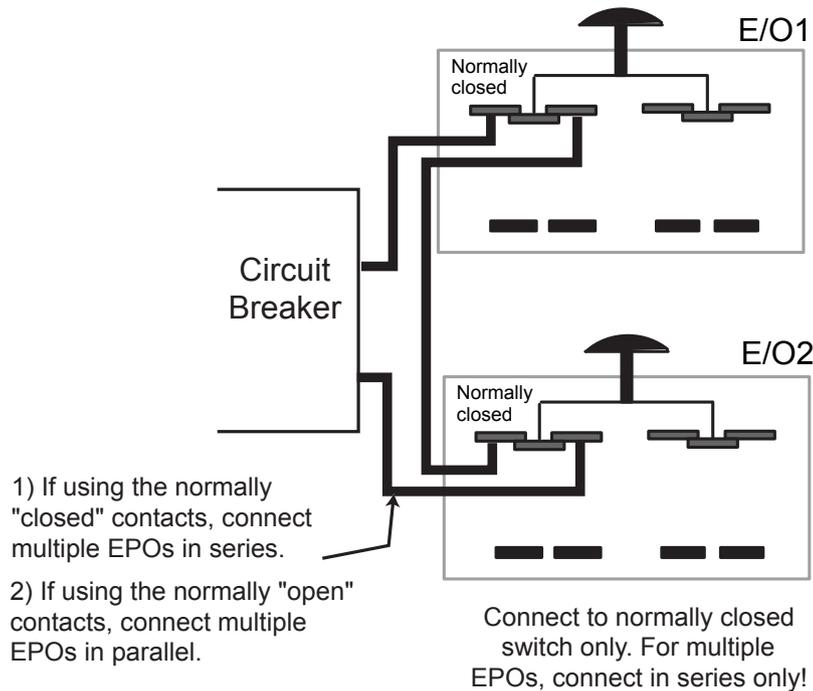


Figure 4-2 Wiring Multiple “Emergency OFF” (E/O) Switches

### 1.2.4.3 Customer-supplied Electrical Outlet

Customer must provide an electrical outlet of appropriate voltage rating within 0.91 meters of the System Cabinet.

## Section 2.0

# Electrical Grounds

### 2.1 System and Facility Grounds

The ground for this system must originate at the system's power source and be continuous (i.e., transformer or first access point of power into a facility, and be continuous to the system power disconnect in the room). Ground connection at the power source must be at the grounding point of the "Neutral/Ground" if a "Wye" transformer is used, or typical grounding points of a separately derived system. In the case of an external facility, it must be bonded to the facility ground point at the electrical service entrance.

The "system" ground can be spliced using "High Compression Fittings" but must be properly terminated at each distribution panel it passes through. When it is terminated, it must be connected into an approved grounding block. Incoming and outgoing grounds must terminate at this same grounding block. Grounds must only be terminated to approved grounding blocks. Grounds must never connect directly to the panels, frames or other materials in a cabinet or distribution panel (refer to [Figure 4-3](#)).

### 2.2 Recommended Ground Wire Sizes

The ground wire must be copper and never smaller than 8 AWG.

The ground wire impedance from the system disconnect (including the ground rod) measured to earth, must not exceed 2 ohms (as measured by one of the applicable techniques described in Section 4 of ANSI/IEEE Standard 142 - 1982). Refer to [Figure 4-3](#) and [Figure 4-4](#) for typical equipment and methods to measure the different portions of the 2 ohm impedance.

Note:  
Additional  
Reference  
Material Exists

For general system grounding requirements and information on establishing an equi-potential grounding system, refer to:

- Direction 46-014505, *Electrical Safety - Equipment Grounding*
- Direction 46-014546, *Electrical Safety - Leakage Currents*

For specific XR 6000 system grounding maps and connection details, refer to [Chapter 8 - - System Cable Information](#).

### 2.3 Final Checks, Before System Installation Can Begin

The customer must provide GE Healthcare or its representative (installation specialist) evidence that grounds and electrical power meet GE Healthcare' specifications.

Prior to product installation, a local service or installation specialist, to be determined by GEHC, will do a physical walk through of the exam suite to ensure the following:

- 1.) Ground wires are of the same size as the power feeder or 8 AWG, whichever is larger.
- 2.) Grounds at junction points are connected properly and securely to an approved ground bus.
- 3.) Grounds within an enclosure are tied together by copper wire or to an appropriate buss bar (i.e., separate buss bars within an enclosure must be tied together with copper wire of appropriate size).
- 4.) Grounds originate at the power source (i.e., transformer or entrance panel into facility).
- 5.) Ground wires measure less than 2 ohms to earth.

You may use the following form to record the results of that inspection.

GROUND IMPEDANCE MEASURED TO BE \_\_\_\_\_ OHMS

Inspector's Name and Date: \_\_\_\_\_

Customer's Name and Date: \_\_\_\_\_

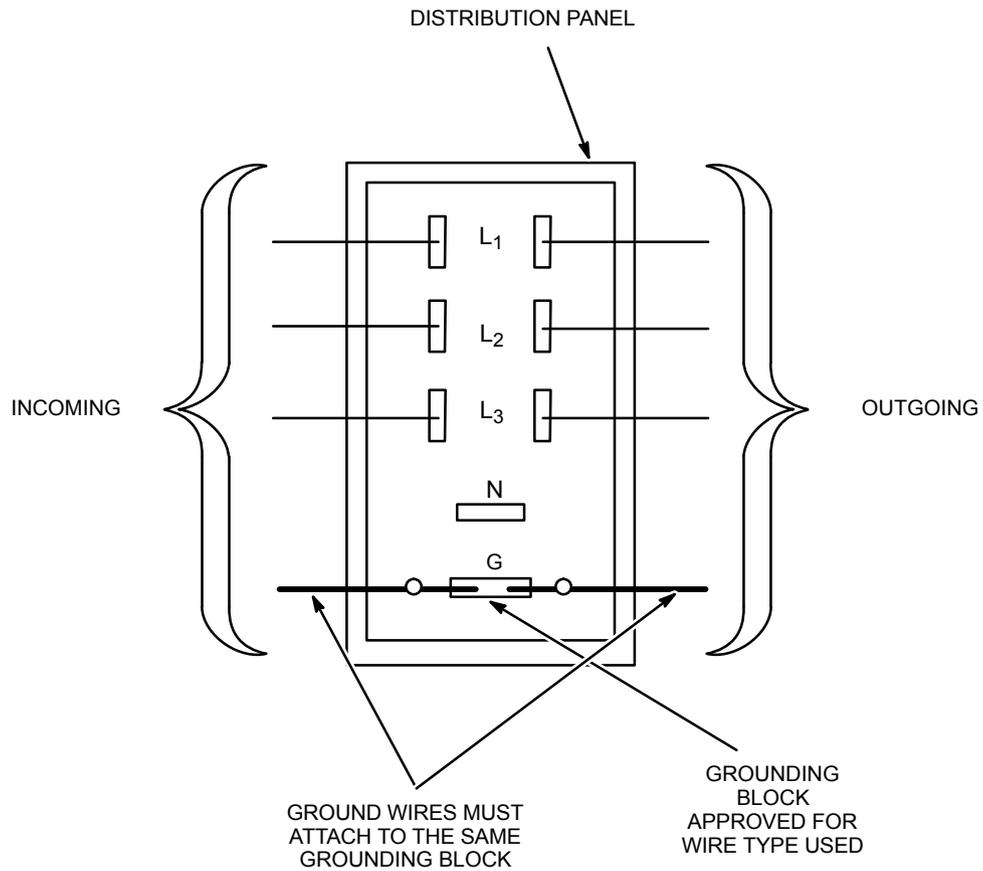


Figure 4-3 Ground Connection at Distribution Panel

To ensure proper measurement of the ground rod, the grounding conductor from a facility must be removed. Since this wire may be carrying amounts of current, this procedure should only be performed by a qualified person.

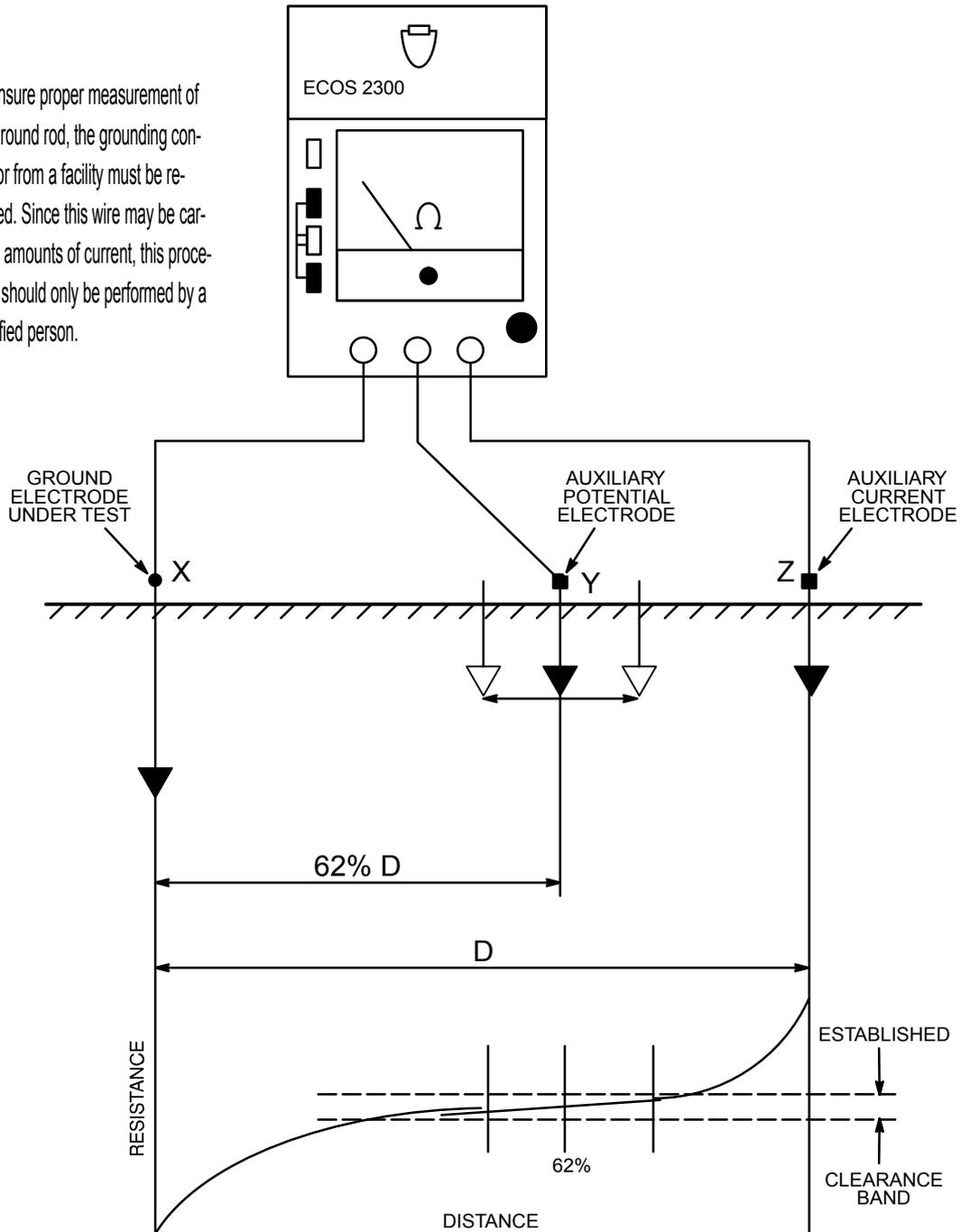


Figure 4-4 Ground Rod Impedance Test

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# Chapter 5 - Product Characteristics

## Section 1.0 Overview

Refer to this section for dimensional drawings for the components of the XR 6000 system. These components include:

- System - [Figure 5-1](#)
- Operator Console - [Figure 5-2](#).
- Integrated Table - [Figure 5-3](#) through [Figure 5-5](#).
- Radiographic Table - [Figure 5-6](#) through [Figure 5-7](#).
- Integrated Tube Stand - [Figure 5-8](#).
- Standard Wall Stand - [Figure 5-9](#) through [Figure 5-11](#).
- Dolly - [Figure 5-12](#).

Note: Drawings are not to scale. Dimensions are called out on each drawing.

## Section 2.0 System Components Dimensions and Weights

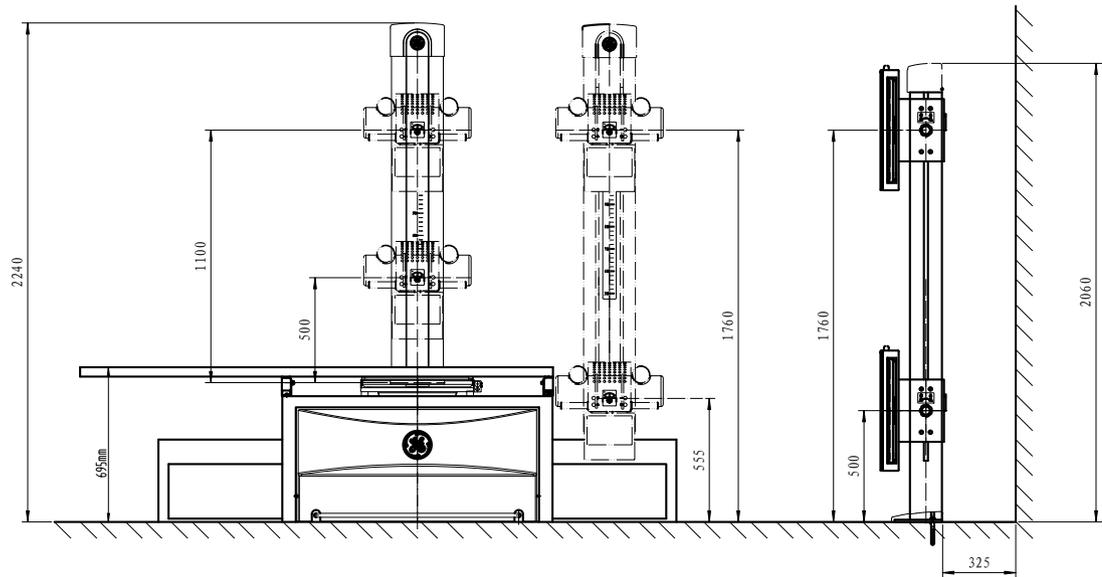
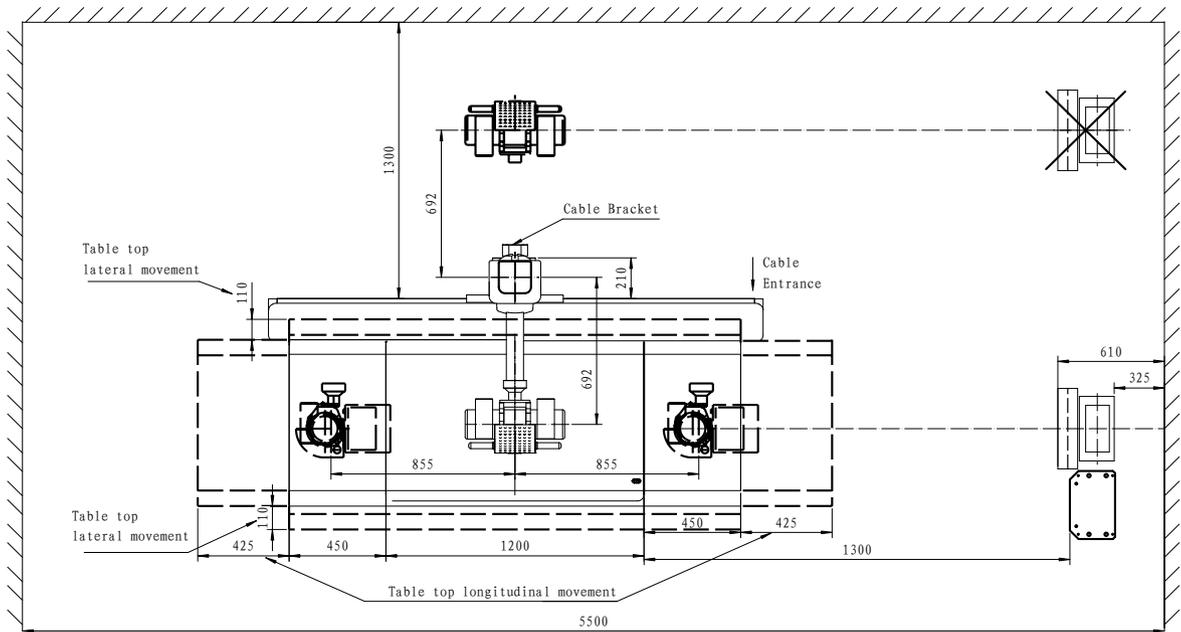
### 2.1 Dimensions

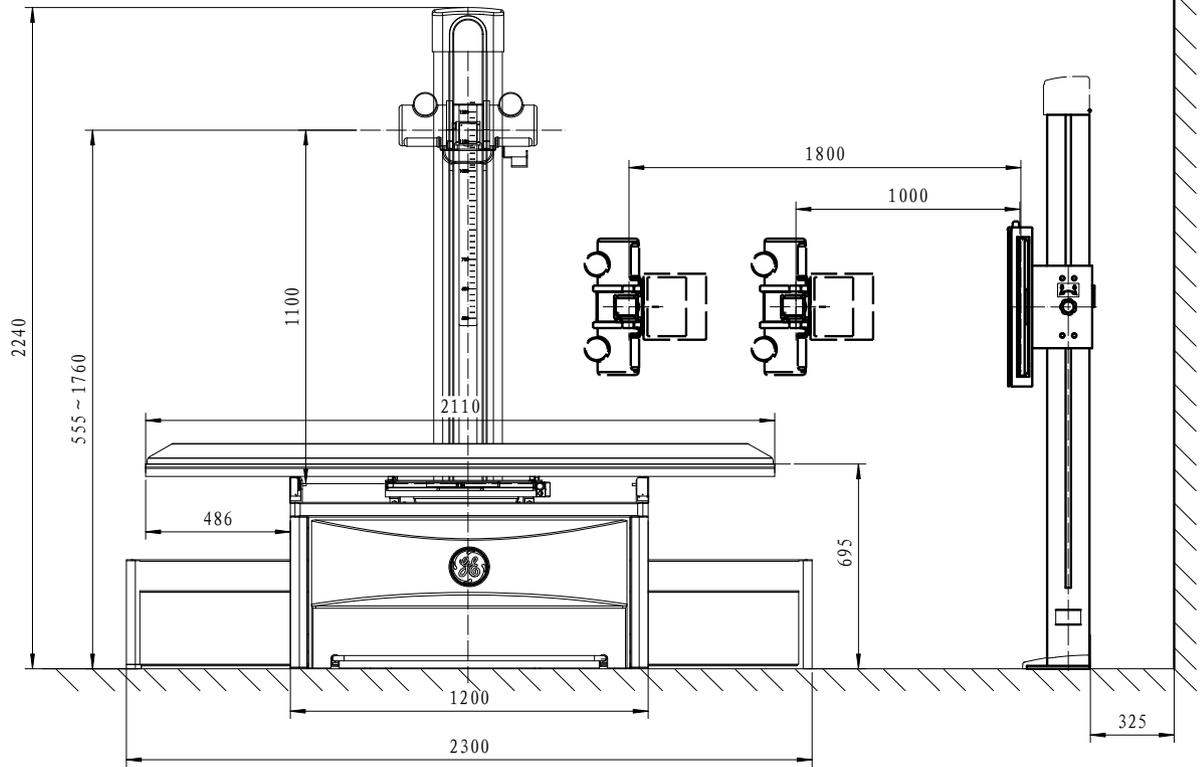
PRODUCT OR COMPONENT	DIMENSIONS			References
	Width	Depth	Height	
Operator Console:				
Console	340 mm	240 mm	110 mm	<a href="#">Figure 5-2</a>
Console Pedestal	352 mm	300 mm	950 mm	
Standard Integrated Table	2300 mm	1115 ~ 1335 mm	2240 mm	See <a href="#">Figure 5-3</a> through <a href="#">Figure 5-5</a>
Radiographic Table	2300 mm	850 mm	695 mm	<a href="#">Figure 5-6</a> through <a href="#">Figure 5-7</a>
Standard Wall Stand	651 mm	284.5 mm	2060 mm	See <a href="#">Figure 5-9</a> through <a href="#">Figure 5-11</a>
*Showing: Mounting Holes, Cable Entrance, Air Vents, Service Access, Center of Gravity				

Table 5-1 Product Physical Characteristics (Width / Depth / Height)

## 2.2 Dimensioned Figures and Drawings

### 2.2.1 System





**Figure 5-1 System Views**

- Note: If wall stand use only 180 cm SID  $a < 2640$  mm  
 If wall stand use both 100 cm and 180 cm SID  $a < 1840$  mm  
 Note: "a" refers to the distance between the tube center and the front panel of wall stand.

### 2.2.2 Operator Console

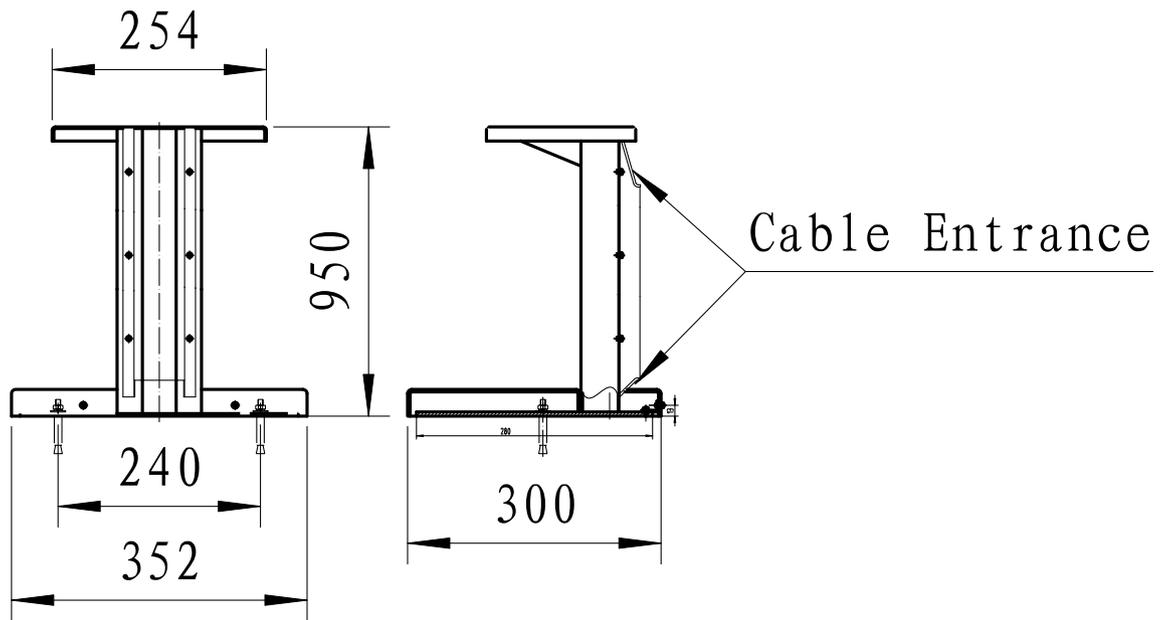


Figure 5-2 Console Dimensions

### 2.2.3 Integrated Table

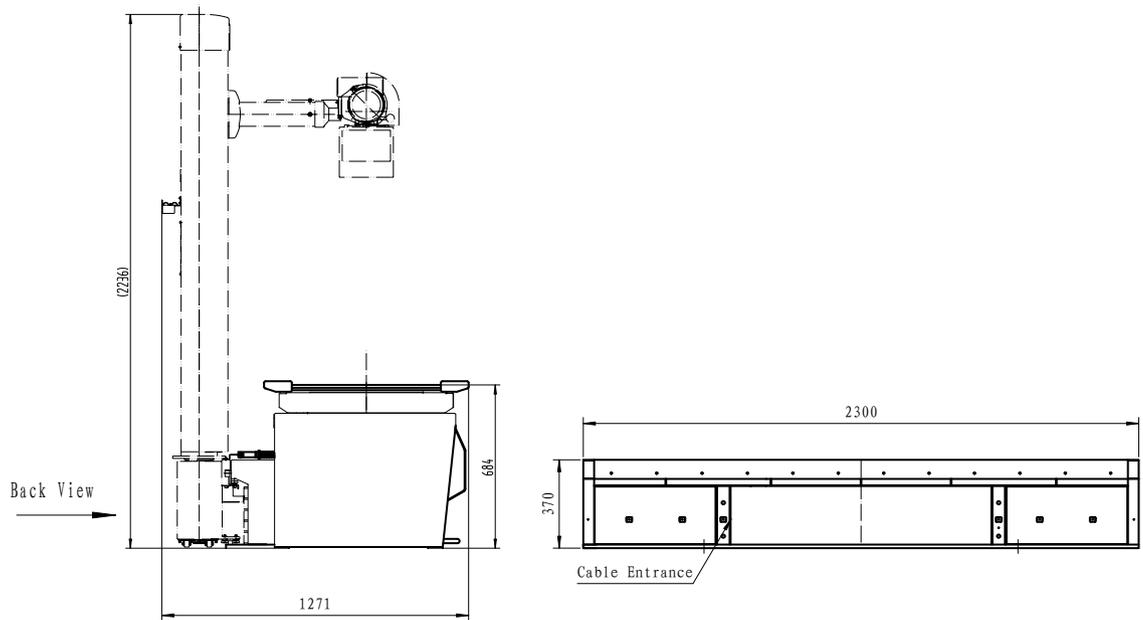


Figure 5-3 Integrated Table Side View

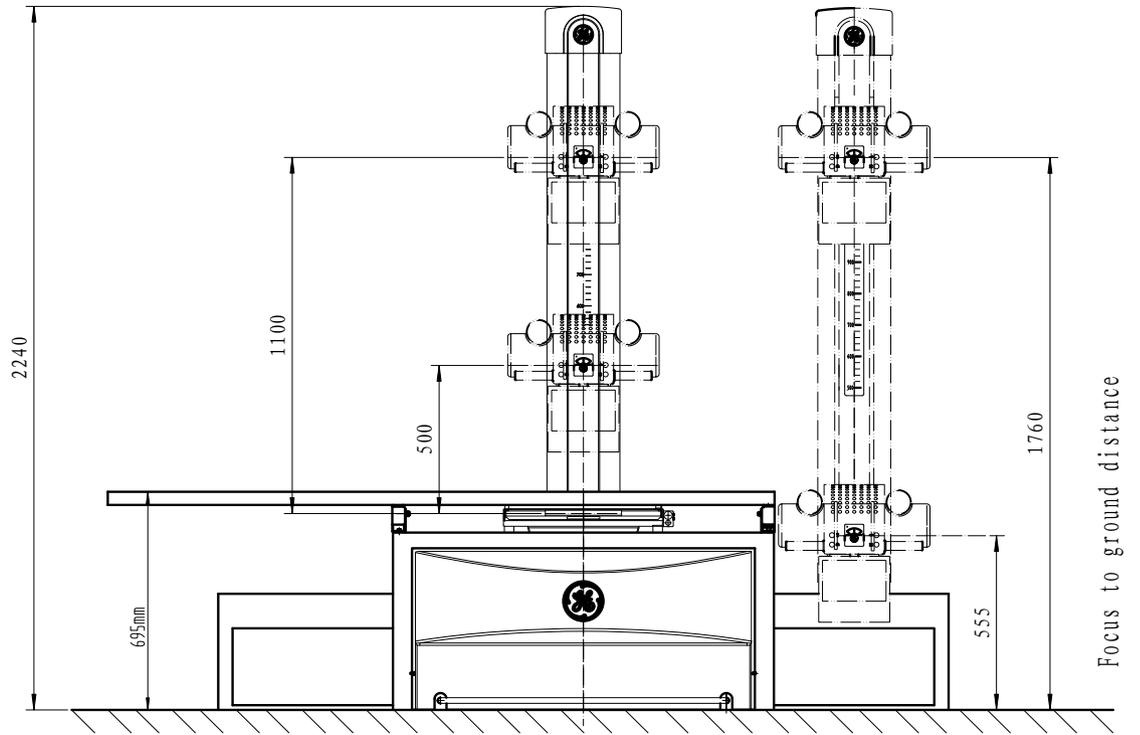


Figure 5-4 Integrated Table Front View

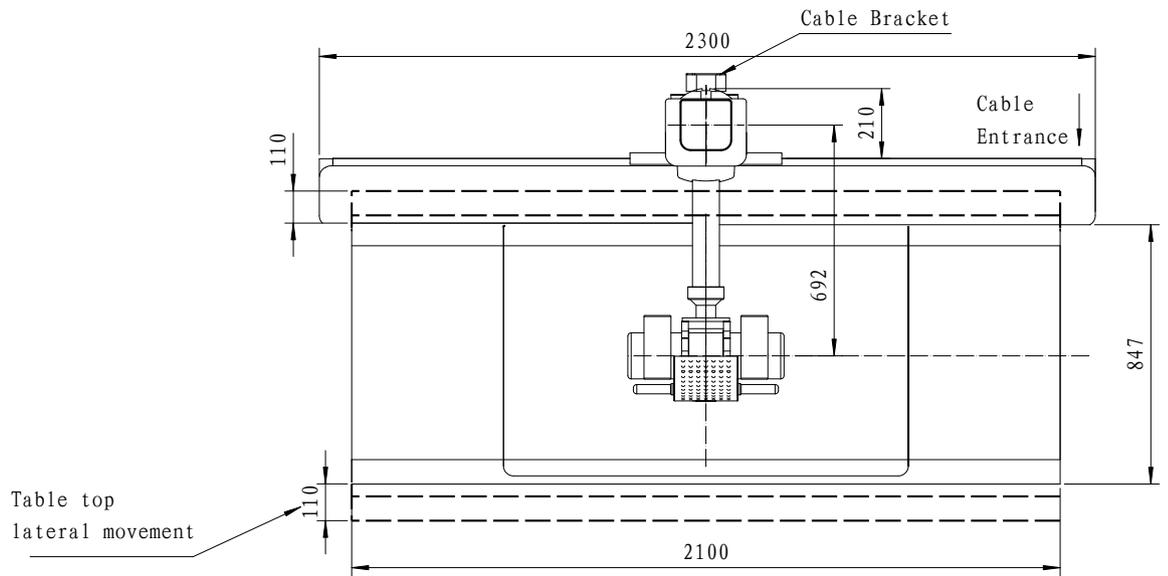


Figure 5-5 Integrated Table Top View

2.2.3.1 Table

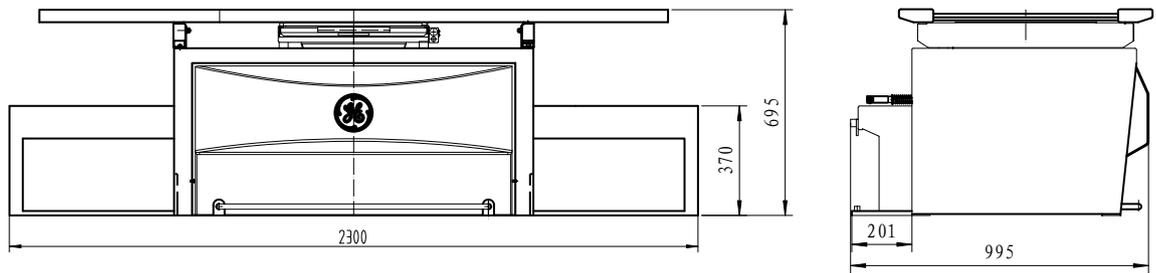


Figure 5-6 Table Dimensions

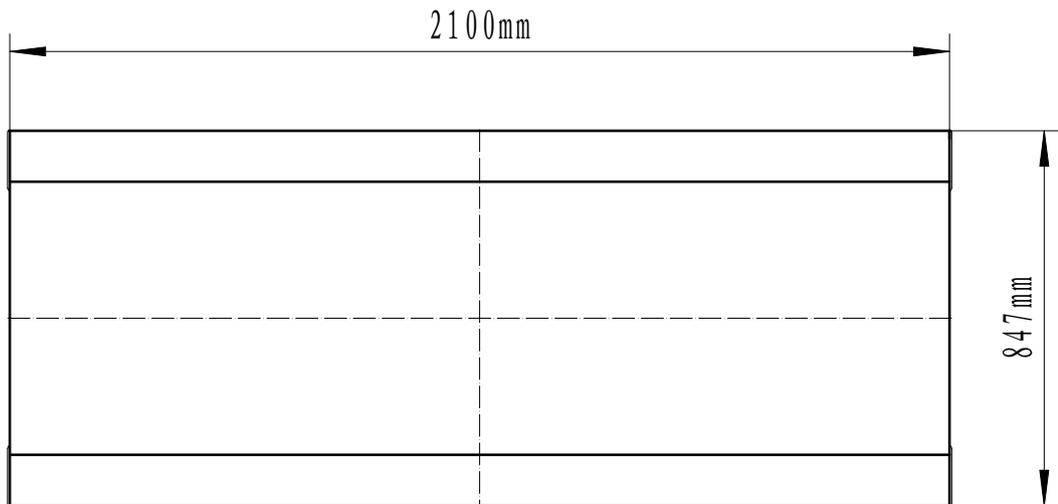


Figure 5-7 Table Top Dimensions

2.2.3.2 Tube Stand

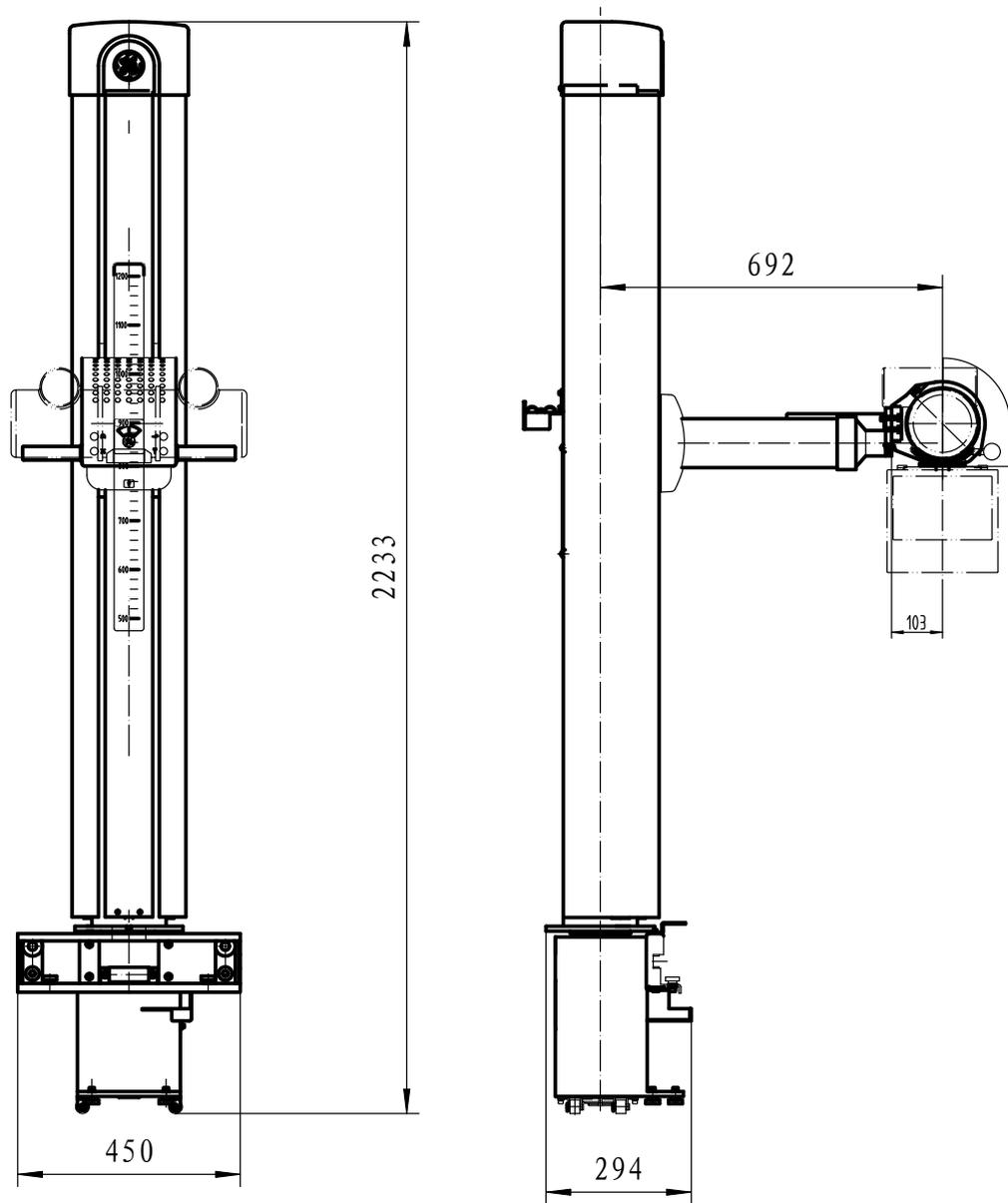


Figure 5-8 Standard Tube Stand

2.2.4 Wall Stand

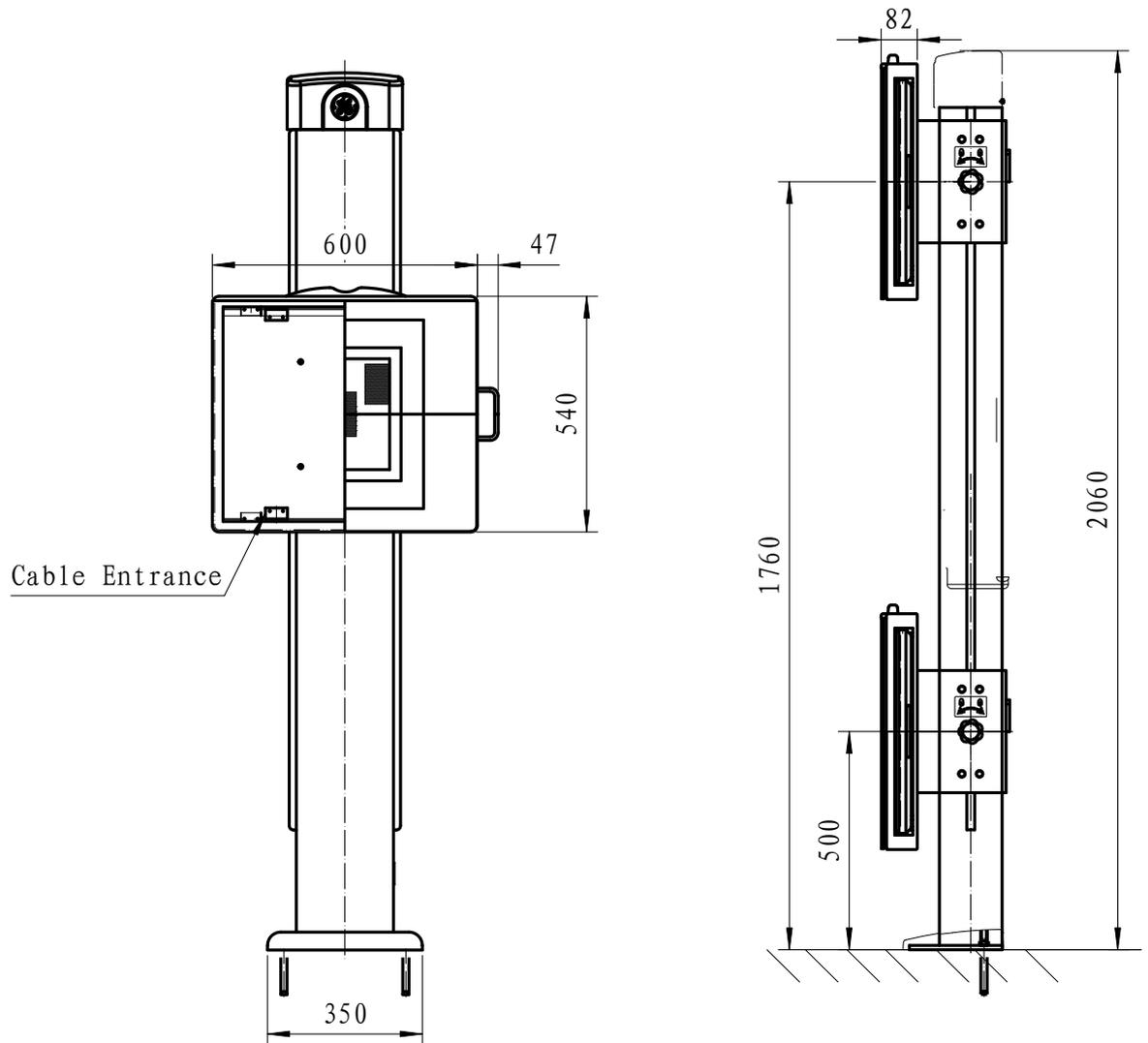


Figure 5-9 Standard Wall Stand Plan View

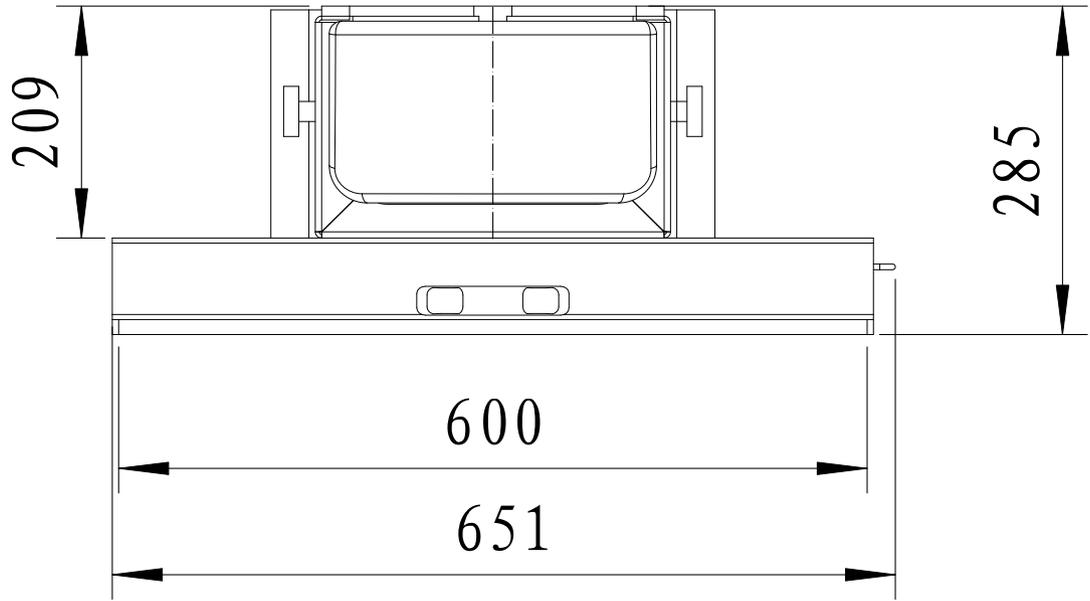


Figure 5-10 Standard Wall Stand Top View

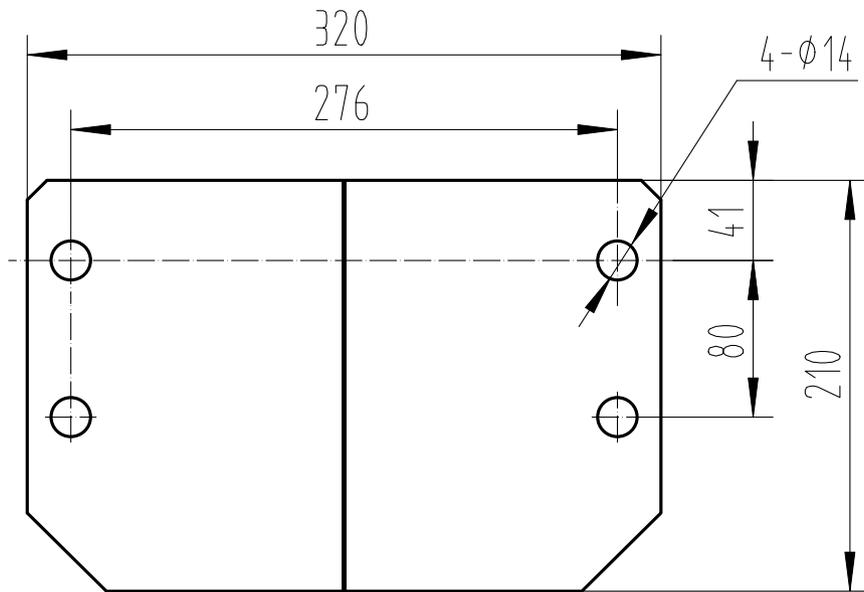


Figure 5-11 Standard Wall Stand Template

2.2.5 Dolly

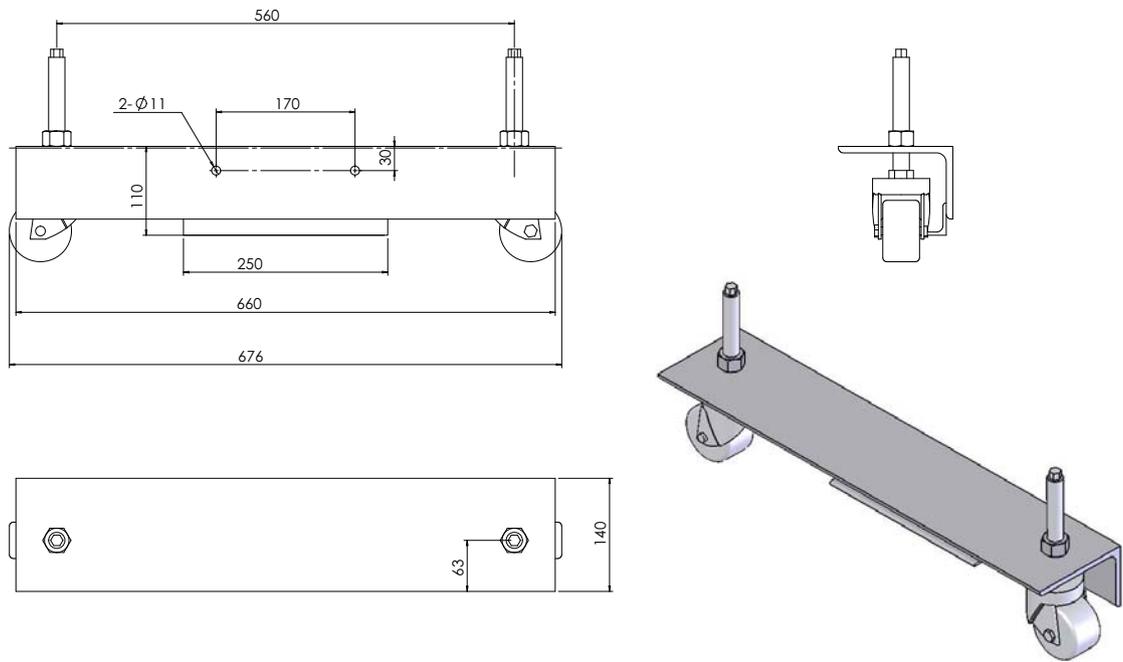


Figure 5-12 XR 6000 Dolly (Table/Wall Stand)

## Section 3.0

### Positioning and Mounting Equipment

#### 3.1 Floor Loading and Recommended Mounting Methods

PRODUCT OR COMPONENT	WEIGHT kg	LOAD BEARING AREA m <sup>2</sup>	WEIGHT/OCCUPIED AREA kg/m <sup>2</sup>	RECOMMENDED MOUNTING INFORMATION
Operator Console Console Console on Pedestal (option)	2 kg 6 kg	0.105 m <sup>2</sup>	57.14 kg/m <sup>2</sup>	Floor mounting Recommendations: (4) M6 X 65 mm anchors (supplied) Note: Please use $\phi$ 7 drill.
Standard Radiographic Table	240 kg Max. Patient Load is 180 kg	1.25 m <sup>2</sup>	192 kg/m <sup>2</sup>	Floor mounting Recommendations: (4) M10 X 95 mm anchors (supplied) Note: Please use $\phi$ 10 drill.
Standard Wall Stand	106.5 kg	0.0735 m <sup>2</sup>	1448.98 kg/m <sup>2</sup>	Floor mounting Recommendations: (4) M10 X 95 mm anchors (supplied) Note: Please use $\phi$ 10 drill.

Table 5-2 Product Physical Characteristics (weight)

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# Chapter 6 - Room Layout

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## Section 1.0 Radiation Production

Because X-ray equipment produces radiation, you may need to take special precautions or make special site modifications. The General Electric Company does not make recommendations regarding radiation protection. It is the purchaser's responsibility to consult a radiation physicist for advisement on radiation protection in X-ray rooms.

## Section 2.0 Clinical Access

Make sure that you plan the room with the following clinical access requirements:

- Provide emergency egress path out of the room for patient, operators and service personal, per country and regional requirements.
- Provide easy access to the patient table. Stretchers and other mobile hospital equipment must reach the table quickly.
- Clinicians at the patient table must be able to communicate with assistants in the control area.
- Operators in the control area must have easy access to the Operator Console. However, position the controls (including handswitches) so the operator cannot take exposures while looking around or standing outside the control booth's lead glass window.
- Consult customer on the number and location of nonelectrical lines (air, oxygen, vacuum, water, etc.) in the radiographic room.
- Provide easy access to the Wall Stand.
- Ensure there is enough space between the table and the Wall Stand to perform standing ankles, knees, etc.
- For the wallstand, ensure that the room layout is such that the tube can be centered on top of the horizontal detector.

Note: The generally accepted practice is to load the patient laterally. In case of room layout designed for longitudinal patient loading, some modifications must be brought to the table.

## Section 3.0 Peripheral Equipment

Consult hospital personnel regarding additional space requirements for the following types of hospital equipment:

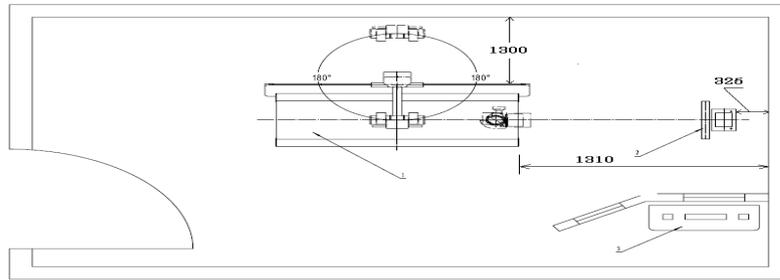
- Storage Cabinet
- Sinks
- Oxygen Stations
- Monitoring Equipment
- Crash Cart

# Section 4.0

## Room Layout Drawings

See [Figure 6-1](#) through [Figure 7-1](#) for typical XR 6000 system room layouts.

- Note: The room layout shows the minimum room size that system needs, but customers should be required to prepare a room according with local regulatory requirements.
- Note: You will notice that a minimum of 2200 mm of clearance is shown from the table frame to the end of the table (opposite side to wall stand); this is to allow the table top to be installed.



**Figure 6-1 Typical Room Layout**

Item	Component
1	Radiographic Table
2	Standard Wall Stand
3	Operator Console

**Table 6-1 System Components**

LENGTH		WIDTH		CEILING	
Recommended	Minimum	Recommended	Minimum	Recommended	Minimum
6.0 m (19.7 ft.)	5.5 m (17.6 ft.)	6.0 m (19.7 ft.)	5.0 m (14.0 ft.)	3.0 m (9.8 ft.)	2.5 m (8.2 ft.)

**Table 6-2 System Recommended and Minimum Room Size Dimension**

# Chapter 7 - Planning Aids

## Section 1.0 Shipping Dimensions and Weights

PRODUCT OR COMPONENT	SHIPPING DATA					SHIPPING METHOD
	SHIPPING DIMENSIONS (APPROX.)			GROSS SHIPPING WEIGHT (approx.)	NET SHIPPING WEIGHT (approx.)	
	LENGTH (cm)	WIDTH (cm)	HEIGHT (cm)	(kg)	(kg)	
Table	244	122	120	640	440	box 1# including "FIRST OPEN ME" box
Tube Stand	244	61	84	230	130	box 2#
Wall Stand	219	80	85	220	120	box 3#
or	or	or	or	or	or	
Basic Wall Stand	196	53	52	160	70	

Table 7-1 Shipping Data

## Section 2.0

# Installation Tools and Materials Required

### 2.1 Tools and Materials Checklist

The following tools and materials are needed for installation, but are not shipped with the product:

**Completed**

Assorted hardware for termination of electrical connections (solder-less ring lug terminals and butt splices, AWG 2-18)

Tie wraps, electrical tape and wire markers

Tags for labelling incomplete work in accordance to OSHA and regulatory requirements

Tag and lock-out equipment

Assorted 12-point sockets (SAE and metric), drives, wrenches and torque wrench (Nm and ft.-lbs)

Electric and hammer drill. Assorted masonry and high-speed bits in both metric and SAE sizes

Assorted sizes of tongue and groove pliers, hammers, hex wrenches (metric and SAE), screw drivers and metal files

Assorted sizes of wire cutters and strippers, ratchet and standard crimpers (42,400 mm<sup>2</sup> and upwards), and a 75 watt soldering iron

Heat and electrical tape

Chalk line

Digital multimeter

4 ft. level (or two standard levels)

# Section 3.0

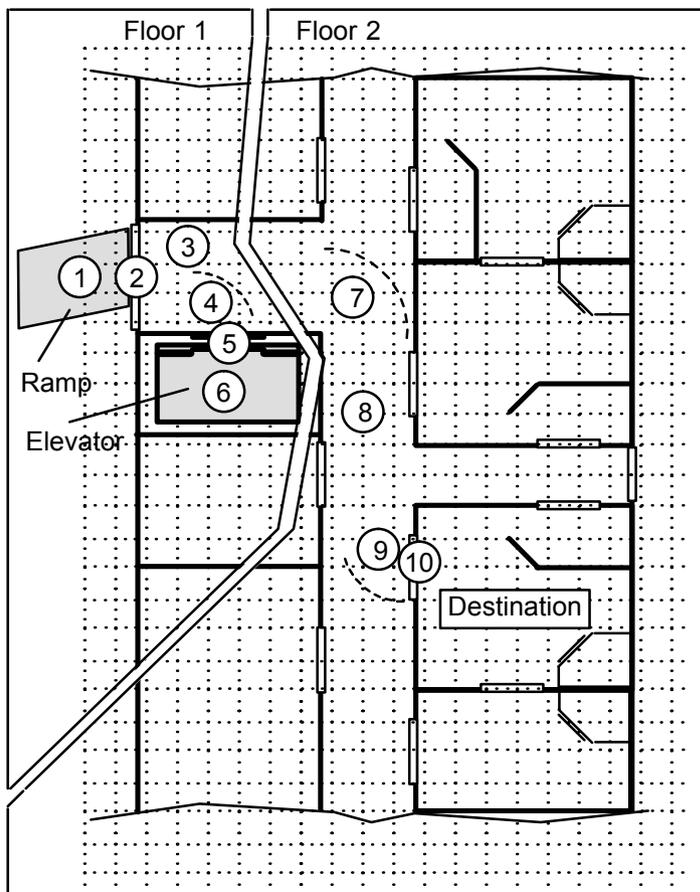
## Preparing the Delivery Route

1.) Step One – Sketch out the Route

Begin preparing Route Survey by sketching the area of the hospital or clinic which will receive the equipment. Include all areas on the delivery route from outside of building to destination. See sample sketch below.

*Reference Numbers*

Numbers in circles refer to the Route Survey data. The Route Survey is a form on which site data is listed (step 2).



**Figure 7-1 Sample Route**

2.) Step Two – Survey the Route

Record all loading capacities, corridor widths, door openings, turning radii, flooring materials, elevator sizes, obstructions and so on for reference.

3.) Step Three – Check the Route

Verify equipment can actually be transported via the route determined in step 1.

# Section 4.0 Pre-Installation Checklist

Delivery Date: \_\_\_\_\_ Sales Person: \_\_\_\_\_  
 Customer: \_\_\_\_\_ FDO No.: \_\_\_\_\_ Room # \_\_\_\_\_  
 Equipment: \_\_\_\_\_

**Physical Requirements of Site**

**Completed**

- 1.) Room size adequate for intended equipment configuration?
- 2.) Floor is strong enough for intended equipment and mounting methods approved – seismic regulatory codes considered?
- 3.) Delivery route accommodates all intended equipment?
- 4.) Radiation physicist consulted?
- 5.) Necessary alterations made to circumvent obstructions?
- 6.) Modifications to room finished?
- 7.) Supports, platforms been provided?
- 8.) Support structures installed for floor, and wall mounted equipment?
- 9.) Has floor been modified for cable ducts?
- 10.) Electrical service in place - at the ratings specified in pre-installation documentation?
- 11.) Power available to operate power tools?
- 12.) All non-electrical lines (air, water, oxygen, vacuum) installed?

**Interconnections**

**Completed**

- 1.) Signal cable, power and grounding plans produced?
- 2.) Necessary interconnection hardware, such as junction boxes, conduit or raceways, and fittings provided?
- 3.) Interconnection hardware installed?
- 4.) Flexible, stranded wire provided for System input power connection?
- 5.) System “feeder” power cables pulled and sufficient length available at disconnect box for connections?
- 6.) Interconnecting cables continuity checked, and labeled?
- 7.) All high voltage cable lengths verified?
- 8.) Interface information available for equipment?

**General**

**Completed**

- 1.) Walls, and floor clear of all obstructions?
- 2.) Walls finished?
- 3.) Finished floor installed?
- 4.) Room lights installed?
- 5.) Dust-creating work completed?
- 6.) Old equipment within room removed?
- 7.) Component positions clearly marked on floor?
- 8.) Space available to store equipment?
- 9.) Lock on door, or locked room available?
- 10.) Room IP Addresses for DICOM and Broadband identified?
- 11.) Have all fire/safety inspections for occupancy been completed?

Comments:

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Inspection Date(s):

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Installation Project Manager Signature

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# *Chapter 8 - System Cable Information*

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## **Section 1.0 Introduction**

The following information is provided as an aid to make the physical installation of system cables easy and efficient. In the tables that follow, the physical characteristics of each cable and its associated connectors is provided. Thus making it easier to plan cable paths and clearances in advance. Physical characteristics are given for each available cable length. Review cable lengths carefully and choose lengths appropriate for your installation prior to the equipment arriving, to avoid unnecessary installation delays.

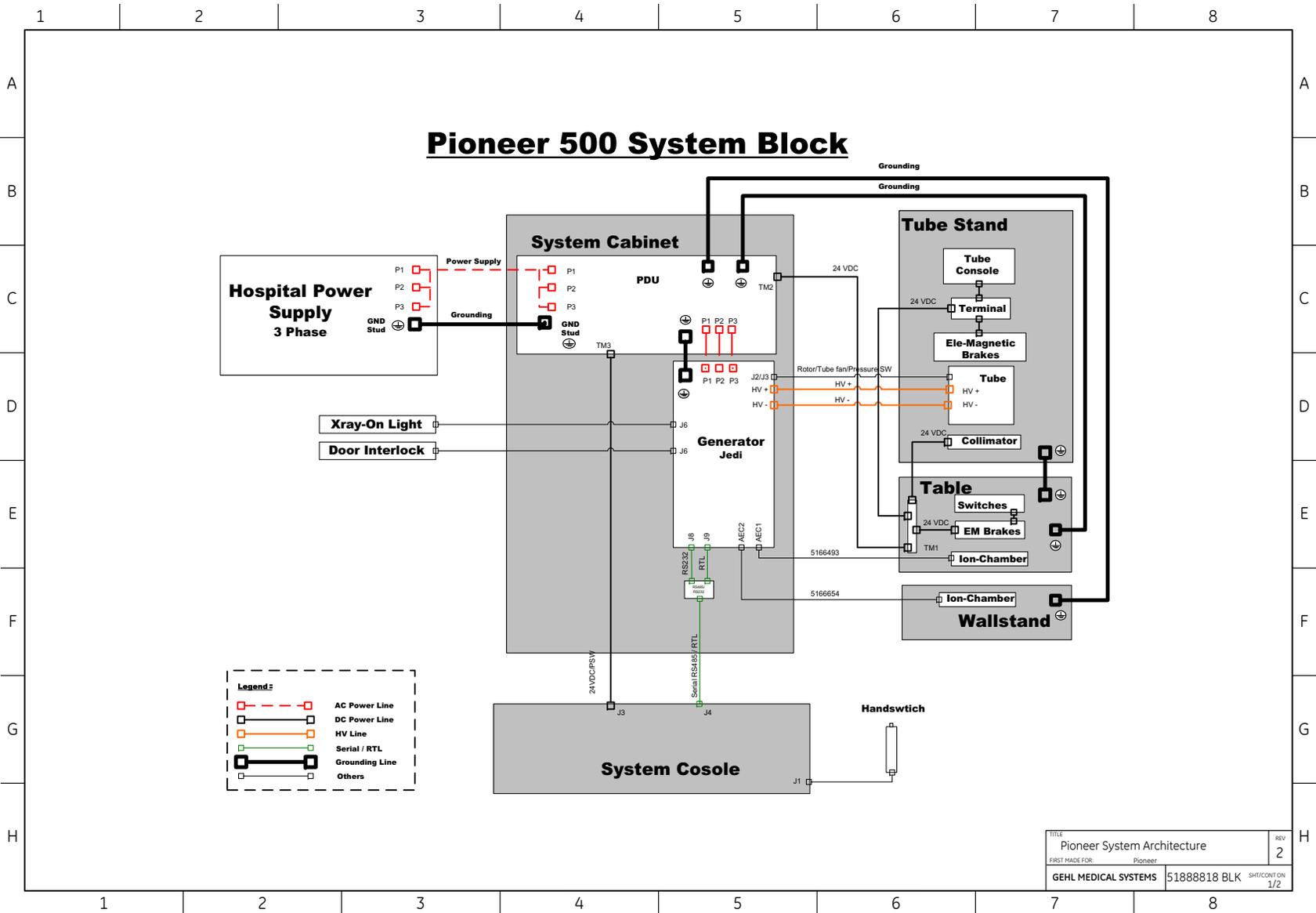
Remember, it is up to you to make sure that all cables are routed and connected in accordance with all regulatory laws that may apply.

## Section 2.0 Cable Information

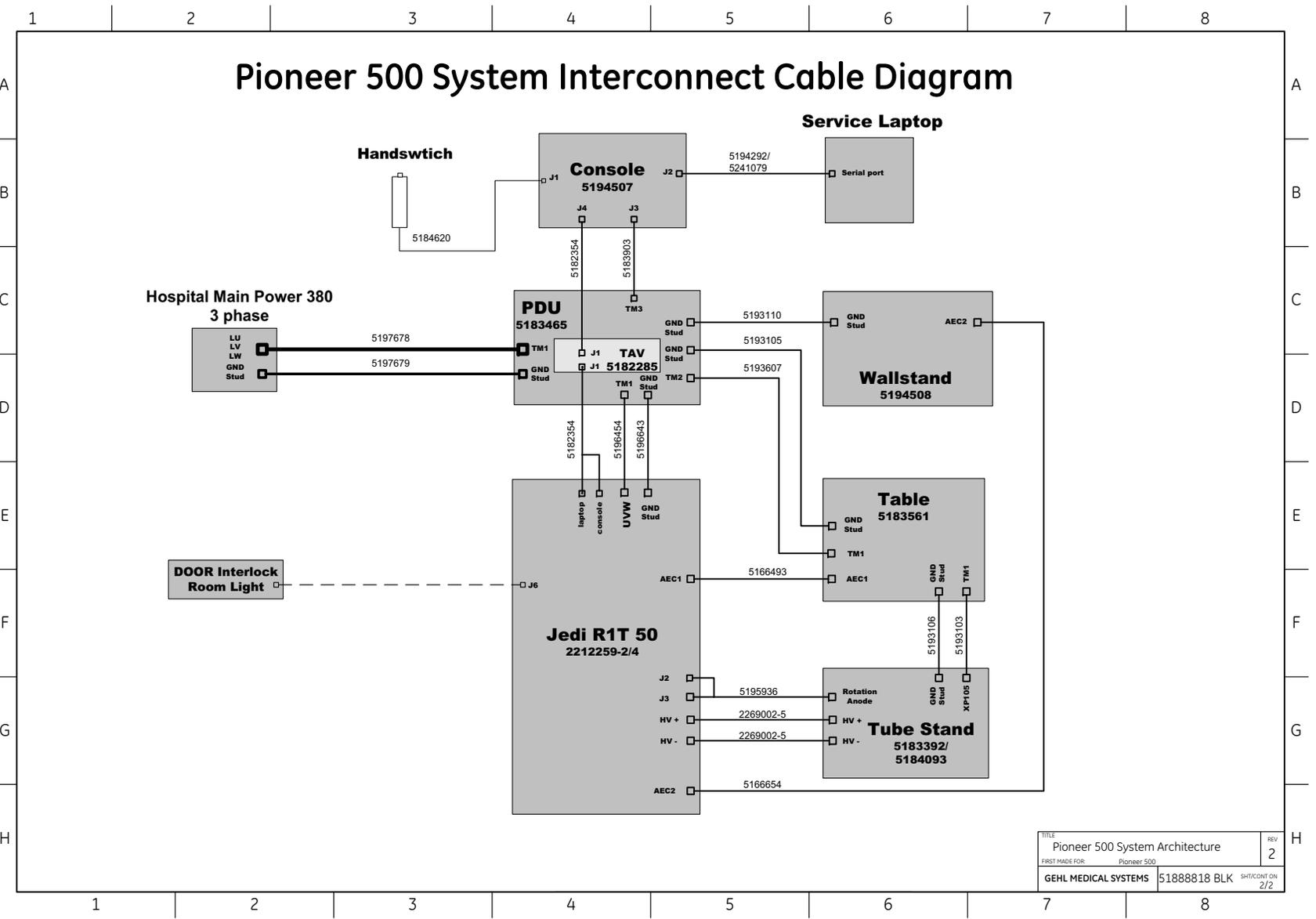
### 2.1 Cable Lengths and Characteristics

Item	Cable Number or Name	Voltage (V)	Length (M)	Usable Length (M)	Diameter (M)	Cable Specification	Connector One End	Plug Size One End	Connector The Other End	Plug Size The Other End
1	System Console Communication Cable (5182354)	5	15	13	10	UL2464#22*6P	TAV J1	55mm x 17mm	System Console J4	55mm x 17mm
2	System Console Power Cable (5183903)	24	15	13	10	UL2464#18*10C	PDU TM3	-	System Console J3	24mm (diameter)
3	Main Power Cable (5245375) - optional	380	15		17	UL 600	Main Power	-	PDU TM1	-
4	Main Grounding Cable (5245422) - optional	0	15		8	UL 600	Main Power	-	PDU TM1	-

# Section 3.0 - System Master Interconnect Schematic (MIS)



# Pioneer 500 System Interconnect Cable Diagram



TITLE Pioneer 500 System Architecture		REV 2
FIRST MADE FOR Pioneer 500		
GEHL MEDICAL SYSTEMS	51888818 BLK	SHT/CONT ON 2/2

# Appendix A - Electromagnetic Compatibility (EMC)

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## Section 1.0 Compliance Statement

This equipment complies with IEC 60601-1-2:2001+A1:2004 EMC standard for medical devices.

This equipment generates, uses, and can radiate radio frequency energy. The equipment may cause radio frequency interference to other medical and non-medical devices and radio communications.

To provide reasonable protection against such interference, this product complies the radiated emission as per CISPR11 Group1 Class A standard limits.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment is found to cause interference (which may be determined by turning the equipment on and off), the user (or qualified service personnel) should attempt to correct the problem by one or more of the following measure(s):

- Reorient or relocate the affected device(s)
- Increase the separation between the equipment and the affected device (see recommended separation distances)
- Power the equipment from a source different from that of the affected device
- Consult the point of purchase or service representative for further suggestions

Use of accessories, transducers, cables and other parts other than those specified by the manufacturer of this equipment may result in increased emissions or decreased immunity of the equipment.

The manufacturer is not responsible for any interference caused by using other than recommended interconnect cables or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the users' authority to operate the equipment.

All interconnect cables to peripheral devices must be shielded and properly grounded, except when technologically prohibited. Use of cables not properly shielded and grounded may result in the equipment causing radio frequency interference.

The XR 6000 is predominantly intended for use in non-domestic environments, and not directly connected to the Public Mains Network that supplies buildings used for domestic purposes.

The compatible accessories must be used within the recommended operating conditions outlined in the operation manuals. In addition to calibration and warm-up, other devices must be reset before and after use to ensure accurate dose measurements. Sustained exposure to electromagnetic fields (exceeding the test conditions) may cause false measurements. Failure to follow the recommended use may cause false measurements.

The magnetic field environment from a MRI device located nearby is a risk of interference.

All of the above are required to achieve the Electromagnetic Compatibility for a typical installation of the XR 6000. Further detailed data & requirements are described in the Use Recommendations and Installation Recommendations sections.

## Section 2.0 Compatibility Tables

This equipment complies with IEC 60601-1-2:2001+A1:2004 EMC standard for medical devices.

The XR 6000 is suitable to be used in an electromagnetic environment, as per the limits & recommendations described in the tables hereafter:

- Emission Compliance level & limits ([Table 1](#)).
- Immunity Compliance level & recommendations to maintain equipment clinical utility (see [Table 2](#) and [Table 3](#)).

Note: This system complies with above mentioned EMC standard when used with supplied cables. If different cable lengths are required, contact a qualified service representative for advice.

### 2.1 Electromagnetic Emission

Guidance and manufacturer’s declaration – Electromagnetic Emissions		
The XR 6000 is intended for use in the electromagnetic environment specified below. The customer or the user of the XR 6000 should assure that it is used in such an environment.		
Emissions Test	Compliance	Electromagnetic Environment Guidance
RF emission, CISPR 11	Group 1	The XR 6000 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions, CISPR 11	Class A	The XR 6000 is suitable for use in non-domestic environments, and not directly connected to the Public Mains Network. The XR 6000 is predominantly intended for use (e.g. in hospitals) with an appropriate power supply (see operation manual) and the recommended shielding for portable use.
Harmonic emissions, IEC 61000-3-2	Not applicable	
Voltage fluctuations/flicker emissions, IEC 61000-3-3	Not applicable	

**Table 1 XR 6000 Electromagnetic Emission**

## 2.2 Electromagnetic Immunity

Guidance and Manufacturer’s declaration – electromagnetic immunity.

The XR 6000 is intended for use in the electromagnetic environment specified below. The customer or the user of the XR 6000 should assure that it is used in such an environment.

Immunity Test	IEC 60601-1-2 Test Level	Compliance Level	Electromagnetic Environment Guidance
Electrostatic discharge (ESD), IEC 61000-4-2	+/- 6 kV contact. +/- 8 kV air.	+/- 6 kV contact. +/- 8 kV air.	Floors should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst, EC 61000-4-4	+/- 2 kV for power supply lines. +/- 1 kV for input/output lines.	+/- 2 kV for power supply lines. +/- 1 kV for input/output lines.	Mains power quality should be that of a typical commercial or hospital environment
Surge, IEC 61000-4-5	+/- 1 kV differential mode. +/- 2 kV common mode.	+/- 1 kV differential mode. +/- 2 kV common mode.	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines, IEC 61000-4-11	< 5% $U_T$ , (> 95% dip in $U_T$ ) for 0.5 cycle. 40% $U_T$ (60% dip in $U_T$ ) for 5 cycles. 70% $U_T$ (30% dip in $U_T$ ) for 25 cycles. < 5% $U_T$ , (> 95% dip in $U_T$ ) for 5 sec.	0% $U_T$ for 5 sec.	Mains power quality should be that of a typical commercial or hospital environment. If the user of the XR 6000 requires continued operation during power mains interruptions, it is recommended that the XR 6000 be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field, IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Note: These are guidelines. Actual conditions may vary.

**Table 2 XR 6000 Electromagnetic Immunity**

Guidance and Manufacturer's declaration - electromagnetic immunity. The XR 6000 is suitable for use in the specified electromagnetic environment. The customer or the user of the XR 6000 should assure that it is used in an electromagnetic environment as described below.

Immunity Test	IEC 60601-1-2 Test Level	Compliance Level	Electromagnetic Environment Guidance
Conducted IEC 61000-4-6  Radiated RF IEC 61000-4-3	RF, 3 Vrms, 150 kHz to 80 MHz  3 V/m, 80 MHz to 2.5 GHz	V1 = 3Vrms  E1 = 3V/m	Portable and mobile RF communications equipment should be used no closer to any part of the XR 6000, including cables, than the recommended separation distance calculated from the equation appropriate for the frequency of the transmitter. <b>Recommended Separation Distance</b>  $d = 1.2 \sqrt{P}$  $d = 1.2 \sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$  $d = 2.3 \sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ where, P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey <sup>a</sup> , should be less than the compliance level in each frequency range <sup>b</sup> . Interference may occur in the vicinity of equipment marked with the following symbol:  

<sup>a</sup> Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the XR 6000 is used exceeds the applicable RF compliance level above, the XR 6000 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the XR 6000.

<sup>b</sup> Over the frequency range 150 kHz to 80 MHz, field strengths should be less than [V1] V/m.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

**Table 3 XR 6000 Electromagnetic Immunity (Continued)**

Recommended separation distances between portable and mobile RF communications equipment and the XR 6000			
The XR 6000 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the XR 6000 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the XR 6000 as recommended below, according to the maximum output power of the communications equipment.			
Rated Maximum Output Power (P) of Transmitter Watts (W)	Separation distance according to frequency of transmitter		
	150 kHz to 80 MHz $d = 1.2 \sqrt{P}$ Separation Distance meters	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$ Separation Distance meters	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$ Separation Distance meters
0.01 (10 mW)	0.12	0.12	0.23
0.1 (100 mW)	0.38	0.38	0.74
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the separation distance can be estimated using the equation in the corresponding column, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. V1 and V2 are the COMPLIANCE LEVELS for the IEC 61000-4-6 test and E1 is the COMPLIANCE LEVEL for the IEC 61000-4-3 test. V1 and V2 are in V and E1 is in V/m.			
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			

Table 4 Recommended Separation Distances

## Section 3.0 Use Recommendations

This product complies with IEC 60601-1-2:2001+A1:2004 EMC standard for medical devices and with radio frequency emission requirements per CISPR11 Group1 Class A standard limits. The XR 6000 is predominantly intended for use in hospitals.

Do not use devices which intentionally transmit RF Signals (Cellular Phones, Transceivers, or Radio Controlled Products) in the vicinity of this equipment as it may cause performance outside the published specifications. Keep the power to these types of devices turned off when near this equipment.

Adhering to the distance separation recommended in [Table 4](#), between 150 kHz & 2.5 GHz, will reduce disturbances recorded at the image level but may not eliminate all disturbances. However, when installed and operated as specified herein, the system will maintain its essential performance by continuing to safely acquire controlled radiological X-ray exposures in a mobile radiography environment.

For example, a 1W mobile phone (800 MHz to 2.5 GHz carrier frequency) shall be put 2.3 meters apart from the XR 6000 (in order to avoid image interference risks).

The use of accessories, transducers, and cables other than those specified may result in degraded ELECTROMAGNETIC COMPATIBILITY of the XR 6000.

The medical staff in charge of this equipment is required to instruct technicians, patients, and other people who may be around this equipment to comply fully with the above equipment requirements.

## Section 4.0 Installation Recommendations

This system complies with above mentioned EMC standard when used with supplied cables. In order to minimize interference risks, the following requirements shall apply.

### 4.1 Cable Shielding & Grounding

All interconnect cables to peripheral devices must be shielded and properly grounded. Use of cables not properly shielded and grounded may result in the equipment causing radio frequency interference.

### 4.2 Subsystem & Accessories Power Supply Distribution

All components, accessories subsystems, systems which are electrically connected to the XR 6000, must have all AC power supplied by the same power distribution panel & line.

### 4.3 Stacked Components & Equipment

The XR 6000 should not be used adjacent to or stacked with other equipment; if adjacent or stacked use is necessary, the XR 6000 should be tested and verified in order to ensure normal operation in the configuration in which it will be used. Consult qualified personnel regarding device/system configurations.

### 4.4 Low Frequency Magnetic Field

Not applicable.

### 4.5 Electrostatic Discharge Environment & Recommendations

In order to reduce electrostatic discharge interference, install a charge dissipative floor material to avoid electrostatic charge buildup.

The relative humidity shall be at least 30 percent.

The dissipative material shall be connected to the system ground reference, if applicable.

## *Appendix B - Revision History*

Revision	Date	Reason for change
1	June 20, 2007	First Release
2	Nov. 5, 2007	Update subsystem drawings and room layout, add console cables' usable lengths
3	Feb. 15, 2008	Remove "LING LONG"
4	April 25, 2008	Error corrections Drawings update
5	Nov 5,2008	Add room layout with degraded function
6	Aug 18, 2011	Revise EMC standard version
7	Jun 30, 2012	Add requirement to meet the 3rd edition IEC60601 standards.
8	Jun 25, 2014	Remove CE mark.

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## *Appendix C - List of Effected Pages*

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<b>PAGES</b>	<b>REVISION</b>	<b>PAGES</b>	<b>REVISION</b>
1 to 84	1	1 to 84	7
1 to 84	2	1 to 84	8
1 to 84	3		
1 to 82	4		
1 to 82	5		
1 to 82	6		





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