| REFERENCE OF TENDER | DESCRIPTION OF TENDER | TIME PERIOD OF TENDER | DEPARTMENT/ DIVISION/UNIT REQUESTING TENDER | FEES | CLOSING DATE NOT LATER THAN 2.00PM | FOCAL PERSON |
|---|---|---|---|---|---|---|
| KK/167/2025/HTD | PROVISION OF MOBILE DIGITAL RADIOGRAPHY SYSTEM FOR RADIOLOGY DEPARTMENT, MINISTRY OF HEALTH | | DEPARTMENT OF HEALTHCARE TECHNOLOGY | $500.00 | 22ND JULY 2025 | Muhd Amirul Fazleen bin Haji Khalidin<br>Biomedical Engineer<br>Suri Seri Begawan Hospital (SSBH)<br>Ministry of Health<br>Negara Brunei Darussalam<br>Estet Management & Project Development<br>Ministry of Health<br>Negara Brunei Darussalam<br>Contact No.: 3335331 ext. 4222 |

**TENDER REFERENCE NO.: KK/167/2025/HTD**

# MINISTRY OF HEALTH
# NEGARA BRUNEI DARUSSALAM

## PROVISION OF MOBILE DIGITAL RADIOGRAPHY SYSTEM FOR RADIOLOGY DEPARTMENT, MINISTRY OF HEALTH

**TENDER FEES : $500.00**

**RECEIPT NO. :**

**CLOSING DATE : ON TUESDAY, 22nd JULY 2025**

**TIME : 2.00 PM**

**FOA :**

**THE CHAIRMAN**
**MINI TENDER BOARD, TENDER BOX**
**GROUND FLOOR, MINISTRY OF HEALTH**
**COMMONWEALTH DRIVE**
**BANDAR SERI BEGAWAN BB3910**
**NEGARA BRUNEI DARUSSALAM**

(CLUSTERING)

CONTENTS

**SECTION 2**

**SPECIFICATIONS AND REQUIREMENTS**

**TENDER REFERENCE NO: KK/167/2025/HTD**

**INVITATION TO TENDER**
**PROVISION OF MOBILE DIGITAL RADIOGRAPHY SYSTEM FOR RADIOLOGY DEPARTMENT, MINISTRY OF HEALTH**

| SCOPE OF WORK AND SUMMARY OF PRICES | |
|---|---|
| **DESCRIPTION** | **QTY** |
| **RAJA ISTERI PENGIRAN ANAK SALEHA (RIPAS) HOSPITAL, BRUNEI MUARA** | **5** |
| **PENGIRAN MUDA MAHKOTA PENGIRAN MUDA HAJI AL-MUHTADEE BILLAH (PMMPMHAB) HOSPITAL, TUTONG** | **3** |
| **SURI SERI BEGAWAN (SSB) HOSPITAL, KUALA BELAIT** | **2** |
| **PENGIRAN ISTERI HAJAH MARIAM (PIHM) HOSPITAL, TEMBURONG** | **1** |

| | |
|---|---|
| **1** | **ELEVEN (11) UNITS OF MOBILE DIGITAL RADIOGRAPHY SYSTEM** |
| | The Tenderer shall submit proposal for the supply, delivery, installation, testing, commissioning, warranty and maintenance of **eleven (11) units** of mobile digital radiography system for the following distributions: |
| 1.1 | **Five (5) units** for Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital, Brunei Muara. |
| 1.2 | **Three (3) units** for Pengiran Muda Mahkota Pengiran Muda Haji Al-Muhtadee Billah (PMMPMHAMB) Hospital, Tutong |
| 1.3 | **Two (2) units** for Suri Seri Begawan (SSB) Hospital, Kuala Belait |
| 1.4 | **One (1) unit** for Pengiran Isteri Hajah Mariam (PIHM) Hospital, Temburong |
| **2** | **SHENA REGISTRATION** |
| 2.1 | Tenderer must have an active registration with Safety, Health and Environment National Authority (SHENA), Brunei Darussalam for the relevant radiation licenses related to this tender.<br><br>**[Proof of Active Registration must be included]** |
| **3** | **SYSTEM ARHITECTURE** |
| 3.1 | Compact, easily transportable, digital mobile radiographic unit with articulated/telescopic arm with flat panel detector suitable for bedside X-Ray for In-patient wards, Intensive Care Unit (ICU) and Operation Theatres (OT). |
| **3.2** | **Ergonomics:** |
| 3.2.1 | Collapsible tube column for easy visibility during transportation. |
| 3.2.2 | The Equipment should be light weight and easy to manoeuvre.<br>Tenderer to state the weight of the System proposed. |
| 3.2.3 | It must have an articulated or telescopic arm for maximum positioning flexibility in any patient position. |
| 3.2.4 | Exposure release via hand switch or remote control. The hand switch should be detachable with a cord of at least 5 meters. |
| 3.2.5 | Keyless operation i.e., use of PIN code or numeric keypad. |
| 3.2.6 | The System can be locked without requiring a shutdown. |
| 3.2.7 | Forward/reverse motor drive with reduced speed feature and controlled at the main handle. |
| 3.2.8 | Storage bins for flat panel detectors as well as accessories such as pens, markers and wipes. |
| 3.2.9 | Storage bin should be equipped with a detector lock function for security against theft. |
| 3.2.10 | Hook for hanging lead apron(s) |
| **3.3** | **The Generator:** |
| 3.3.1 | High-voltage, at least 30 kW or higher |
| 3.3.2 | Display: should have a digital display of KV, mA, mAs or secs. |
| 3.3.3 | KV range: 40 KV to 125 KV or more |
| 3.3.4 | Maximum tube current: 400 mA or more |
| 3.3.5 | Current-Time product (mAs) range: up to 300 mAs or more in different steps. |

| | |
|---|---|
| 3.3.6 | Shortest exposure time: 1ms. |
| 3.3.7 | Anatomical Program selection of various body parts. |
| 3.3.8 | Should have indication for error, X-ray ON and Mains. |
| 3.3.9 | Should have protection against electric shock. |
| **3.4** | **X-ray Tube:** |
| 3.4.1 | Rotating anode tube and dual focus.<br>Tenderer to state the anode angle and anode speed. |
| 3.4.2 | Focal Spot Size: small focus range within 0.3-0.7mm / large focus range within 1.2-1.5mm.<br>Tenderer to state the focal spot sizes. |
| 3.4.3 | Anode heat storage capacity should be more than 100KHU.<br>Tenderer to state the heat storage capacity of the anode. |
| 3.4.4 | Multi-leaf collimation rotatable+/-90 degrees with collimation on/off light button. |
| 3.4.5 | Extractable measurable tape should be available. |
| 3.4.6 | Paediatric filter(s) to reduce the patient entry dose should be included.<br>Tenderer to state the strength of the filter(s) provided. |
| **3.5** | **Dose Monitoring:** |
| 3.5.1 | Each proposed System shall include integrated dose monitoring system that automatically record dose parameters for every exposure i.e kV, mAs, Dose Area Product (DAP) and Entrance Surface Dose (ESD). Tenderer to state the maximum measurable DAP |
| 3.5.2 | Display the estimated dose per exposure for operator's review |
| 3.5.3 | Export or transmit dose records in DICOM Radiation Dose Structure format. |
| 3.5.4 | Support audit or review of dose history for patients |
| **3.6** | **Flat panel detector (FPD):** |
| 3.6.1 | Detector technology: Caesium iodide scintillator with Amorphous silicon technology. |
| 3.6.2 | Inclusive of one (1) unit of wireless FPD with **at least 35cm x 43cm effective imaging area** with handle/grip **for each unit** or equivalent size |
| 3.6.3 | Inclusive of five (5) units of wireless FPD with **at least 24 x 30cm effective imaging area** with handle/grip for RIPASH (2 units), SSBH (1 unit), PMMPMHAMBH (1 unit) and PIHM (1 unit) or equivalent size |
| 3.6.4 | High resolution flat panel detector and small pixel pitch. |
| 3.6.5 | The Detector pixel matrix should be 2k x 2k or more<br>Tenderer to state the pixel matrix. |
| 3.6.6 | Pixel size should be not more than 160 µm.<br>Tenderer to state the pixel size or pitch of the detector. |
| 3.6.7 | Images can be viewed on the touch panel monitor in less than 4 sec.<br>Tenderer to state the data transmission in preview and full view. |
| 3.6.8 | Weight of the detector should be less than 4 kg.<br>Tenderer to state the size and weight of proposed detector. |
| 3.6.9 | The detector should have load bearing capacity of 150kg or more. |
| 3.6.10 | The detector should be designed and calibrated for General Radiography Purposes and must be fully integrated with the mobile unit including the controls. |
| 3.6.11 | The battery must be of latest Lithium-Ion type.<br>Two (2) units of batteries should be provided for each detector along with the battery charger. Tenderer shall state the battery operation time and the battery charging time. |

| | |
|---|---|
| 3.6.12 | The detector should be able to work at normal temperature and humidity. The detector system should not require frequent calibration on daily start up. |
| 3.6.13 | Removable clip-on grid shall be provided.<br>Tenderer to state the grid ratio. |
| 3.6.14 | Waterproofing to prevent ingress or liquids.<br>Tenderer to specify Waterproof ratings |
| **3.7** | **Battery:** |
| 3.7.1 | The proposed System should be able to run on mains as well as on battery supply.<br>Tenderer to state the battery life and number of exposures which can be done on battery. |
| **3.8** | **Display Console:** |
| 3.8.1 | The proposed system shall include display screen at the either display console or the x-ray tube or both for checking patient details and adjustment of exposure parameters with integrated digital image processing software. |
| 3.8.2 | Computer system shall be based on Windows 10 or better with user interface. |
| 3.8.3 | At least 19" colour high-contrast display with touch screen operation on the display console. |
| 3.8.4 | Image processing functions include but not limited to rotation, vertical and horizontal reversal, zoom, contrast and brightness, panning, text functions (annotate, image comments, R/L markers), noise reduction. |
| 3.8.5 | The System should be capable of performing quality assurance and provide statistics of rejected images. |
| 3.8.6 | The display console must be easy to clean and maintain hygiene |
| **3.9** | **Image Storage:** |
| 3.9.1 | Local storage can store a capacity of 7,000 images or more.<br>Tenderer to provide the Size of local storage and maximum number of images that can be stored locally. |
| 3.9.2 | Images can be USB exported |
| **3.10** | **Software:** |
| 3.10.1 | System must be provided with the latest software version. |
| 3.10.2 | Whole-life software license including any software updates. Upgrades shall be provided at no additional charges during warranty period. |
| 3.10.3 | The Tenderer shall be informed that any scheduled installation of software upgrades must be at a time that will have the least impact on the operations of the Ministry of Health and shall obtain prior approval of this schedule from the Ministry of Health |
| 3.10.4 | The Tenderer shall state availability of any future upgrades of the software after the warranty period. The Tenderer shall state the cost and process for future upgrades, if any. |
| **3.11** | **NETWORKING, CONNECTIVITY AND PACS INTEGRATION** |
| 3.11.1 | Must fully support and comply to DICOM 3.0 standards, including: |
| 3.11.1.1 | DICOM Image Storage |
| 3.11.1.2 | DICOM Modality Worklist (MWL) |
| 3.11.1.3 | DICOM Dose Structured Report |
| 3.11.1.4 | DICOM Query/Retrieve (Q/R) |
| 3.11.1.5 | DICOM Structured Reporting (SR) |

| | |
|---|---|
| 3.11.2 | Must support Modality Performed Procedure Step (MPPS) |
| 3.11.3 | Allow bidirectional data exchange for seamless workflow. |
| 3.11.4 | Image must be able to store as DICOM and PC format |
| 3.11.5 | System must have wireless connectivity and wired ethernet RJ45 port |
| 3.11.6 | System must be HL7 ready and activated |
| 3.11.7 | The proposed mobile digital radiography system shall be integrated and connected to Radiology PACS (RPACS) therefore ALL licenses for integration with PACS should be included.<br><br>Tenderer to include the cost of PACS integration quoted from PACS vendor.<br><br>Please refer to PACS vendor for information on PACS integration requirement.<br>Tenderer may contact the quotation of PACS integration for this project directly to the MOH's PACS vendor or through the Healthcare Technology Department, Ministry of Health |
| **4** | **STANDARD ACCESSORIES (FOR EACH UNIT)** |
| 4.1 | One (1) unit of Grid of appropriate ratio and size |
| 4.2 | Two (2) sets of Lead protective gowns (front and back cover up to knee length) comes with appropriate apron hanger for each apron. |
| 4.3 | Two (2) sets of Gonad protection shields (for male and female paediatrics) |
| **5** | **WARRANTY** |
| 5.1 | Tenderer to include comprehensive warranty period of **two (2) years for outright purchase** AND/OR **seven (7) years for the whole leasing period.** |
| 5.2 | Tenderers to **ACKNOWLEDGE** the Warranty Undertaking Form in Section 4 stating the terms of warranty provided for the equipment in the tender for the period of two years. |
| **6** | **OPTIONAL EXTENDED COMPREHENSIVE WARRANTY** |
| 6.1 | Tenderer to offer an extended comprehensive warranty period of **five (5) years** after the warranty (for outright purchase) |
| **7** | **END USER TRAINING** |
| 7.1 | Inclusive **of clinical application training** for all radiologists for at least seven (7) working days on-site for all the operation and applications offered with the system **by Manufacturer's Application Specialist** which includes but not limited to: |
| 7.1.1 | Basic user operation, including image transfers. |
| 7.1.2 | Application training for the use of the various applications provided with the system. |
| 7.1.3 | Basic maintenance, including troubleshooting |
| 7.2 | **Training certificate must be provided by manufacturer or tenderer after completion of training sessions.** |
| 7.3 | On-site **follow up application training by application specialist after three (3) months** of clinical use to ensure the system is fully optimised. |
| 7.4 | Two (2) sets of User/Operation Manual in English |
| 7.5 | Two (2) sets of Training Manual in English |
| 7.6 | Introductory **Technical Training** to Biomedical Engineers and Technicians at BME RIPASH Office by competent Tenderer's Engineer/Technicians that includes but not limited to: |

| | |
|---|---|
| 7.6.1 | Troubleshooting and basic corrective maintenance |
| 7.6.2 | Handling and basic inspection maintenance |
| **8** | **INTERNATIONAL STANDARDS** |
| | Equipment model offered must comply at least four (4) of the following standards or better: (Please provide the documentation/certification to support this compliance) |
| 8.1 | European Union (CE MARK) |
| 8.2 | Food and Drug Administration (FDA) USA |
| 8.3 | International Electrotechnical Commission (IEC) 60601-1 – Electrical safety |
| 8.4 | International Electrotechnical Commission (IEC) 60601-1-2 [EMC compliance] |
| 8.5 | International Electrotechnical Commission (IEC) 62304 |
| 8.6 | International Organization for Standardization (ISO) 14971 – Risk Management |
| 8.7 | International Organization for Standardization (ISO) 17025 – Test report certification |
| 8.8 | Medical Device Single Audit Program (MDSAP) or Unique Device Identification (UDI) compliance |

| SECTION 2 – PRICE PROPOSAL | |
|---|---|
| **<u>OPTION A</u>**<br>**OUTRIGHT PURCHASE** | ▪ Tenderer to offer the system on an outright purchase basis, with a **single full payment** made after delivery, installation, commissioning, and user training are completed.<br>▪ Includes a two (2) year comprehensive warranty, covering:<br>o All parts and labour<br>o On-site after-sales service support<br>o Software updates and upgrades<br>o Preventive Maintenance (minimum twice per year)<br>▪ Warranty coverage is as specified in the Warranty Undertaking Form. |
| **<u>OPTION B</u>**<br>**OUTRIGHT PURCHASE WITH EXTENDED COMPREHENSIVE WARRANTY** | ▪ Outright purchase with a single full payment after delivery, installation, commissioning, and user training.<br>▪ Includes a two (2) year comprehensive warranty, covering:<br>o All parts and labour<br>o On-site after-sales service support<br>o Software updates and upgrades<br>o Preventive Maintenance (at least twice per year)<br>▪ Followed by a **five (5) year extended comprehensive warranty** with the same coverage, under a separate contract starting after the initial two years comprehensive warranty.<br>▪ **Payments** for the extended warranty will be made on a **Per Preventive Maintenance (PPM)** basis, as stated in the extended warranty contract. |
| **<u>OPTION C</u>**<br>**LEASING PRICE FOR 7 YEARS** | ▪ Tenderer to offer the system on a 7-year leasing basis, with 33 quarterly payments over the period.<br>▪ Ownership remains with the tenderer during the lease.<br>▪ Tenderer is responsible for full maintenance and support throughout the lease, as per the Warranty Undertaking Form.<br>▪ **First payment** starts after delivery, installation, commissioning, and user training.<br>▪ **Final payment** is due in the last month of the 7th year.<br>▪ At the end of the lease, MOH has the option to purchase each unit for $1, subject to equipment condition and approval by the relevant committee. |

| SECTION 3 - PROCUMENT AND TECHNICAL SPECIFICATION |
| --- |
| **BRAND:** |
| **COUNTRY OF ORIGIN:** |
| **YEAR INTRODUCED TO MARKET:** |
| **PRICE VALIDITY:**<br>**[AT LEAST ONE (1) YEAR PRICE VALIDTY]** |
| **DELIVERY TIME:** |
| **AUTHORIZED DISTRIBUTOR:**<br>**(AUTHORIZED DISTRIBUTOR LETTER ATTACHED)** |
| **DETAILED BROCHURE INCLUDED** |
| **USER AND SERVICE MANUALS:** |
| **MAINS POWER SUPPLY:** |
| **POWER ADAPTER/CHARGER OUTPUT RATING:** |
| **NUMBER OF TECHNICAL SUPPORT (ENGINEER/TECHNICIAN)**<br>**Please provide training or certification for locals who is trained/certified** |
| **DIMENSIONS AND**<br>**WEIGHT OF MAIN UNIT:** |
| **EQUIPMENT WHOLE LIFE TIME SUPPORT:** |

## SECTION 4 – WARRANTY UNDERTAKING FORM (PAGE 1)

Tenderer, on behalf of the manufacturer, acknowledged and agrees that when equipment is under Warranty for either two (2) years for Outright Purchase or Leasing period of Seven (7) years, must cover the scope of comprehensive warranty at no additional cost:

- Warrants the supplied medical equipment and its accessories to be in good condition, in working order and free from defects to the extend such equipment do not comply with specifications, under normal use for the warranty period. The scope of warranty covers to its maximum extent permitted by applicable law.
- Inclusive of Comprehensive Maintenance Service (see below)
- **Exchange warranty**; Providing replacement units or OEM parts for:
  A. Warranty against defects – Manufacturing defects or Equipment malfunction resulted from mechanical, electrical or software failure during Commissioning or within the first six (6) months of use
  B. Faulty workmanship or unsatisfactory condition during delivery or commissioning
  C. If a unit or accessory is deemed used item or refurbished item (not a new unit) by the user and BME Unit.

**COMPREHENSIVE MAINTENANCE SERVICE**

Tenderer must provide a comprehensive maintenance during the warranty period. The scope for **Comprehensive Maintenance Service** consists of:

**A. Inspection Maintenance (IM)**
**B. Corrective Maintenance (CM) and**
**C. Planned Preventive maintenance (PPM)**
**D. Breakdown call**

**EXCLUSION FROM WARRANTY**

MOH understand that the following circumstances are not covered in the warranty and Tenderer may quote for repair and subject to MOH approval:

- Unauthorized modifications - an alteration or repair by anyone other than the Manufacturer or Authorized agent during warranty period.
- Accidental damage or problems caused by negligence or mishandling, subject to appropriate justification by both parties.
- Vandalism and Natural disasters

Tenderer may also attach a list of terms to be excluded from the warranty for MOH consideration and notification

| | SECTION 4 – WARRANTY UNDERTAKING FORM (PAGE 2) |
|---|---|
| **A** | **Inspection Maintenance (IM)**<br>▪ Must be conducted every six (6) months starting from commissioning date.<br>▪ Issuance of IM Report to End User and Biomedical Engineering Unit of respective Facilities (BME)<br>▪ Physical hardware checks on main unit/system and all supplied accessories<br>▪ System, Software and Application check-up – Update to latest version when available<br>▪ Performance and Functional testing<br>▪ Servicing/Cleaning of dust |
| **B** | **Corrective Maintenance (CM):**<br>▪ During warranty, tenderer must rectify issues arise from any mechanical, technical or software faulty as soon as it is reported including any cost of breakdown repairs.<br>▪ Repair and replacement of parts with new, quality, and compatible parts within thirty (30) days after receipt of reported problem by BME.<br>▪ Post repair tests with reports to ensure Electrical Safety Test, Performance Test and Functional Test is conducted.<br>▪ **One-time replacement of one unit of each Flat Panel Detector (FPD) type for each location. [35x43 and 24x30cm FDP]** |
| **C** | **Planned Preventive Maintenance (PPM):**<br>▪ **One time yearly Planned Preventive Maintenance (PPM)** according to Manufacturer's Preventive Maintenance Guideline, including replacements of PM Kits, any relevant parts to prolong equipment lifespan AND **one-time battery replacement during the 4$^{th}$ to 5$^{th}$ year, unless required earlier.**<br>▪ Provide Maintenance Due Date stickers after each PPM or booklet for easy monitoring |
| **D** | **Breakdown Call**<br>▪ Onsite response to assess and rectify any breakdown call within a maximum of two (2) hours after receipt of reported problem by BME Unit preferably during office hours, else after office hours or public holidays.<br>➢ **Deduction demerit shall be imposed if the Company fails to provide onsite response within the time above and the deduction amount shall be based on the frequency of event times certain rate to be formulated later.**<br>▪ Downtime: Not more than 24 hours after receipt of reported problem by BME unit<br>▪ If Downtime is expected to be more than 24 hours, Tenderer must notify formally to BME unit through email or letter immediately indicating the reason of delay with estimation of:<br>A. Estimated time of parts to arrive and<br>B. Expected no of days for repair completion<br>➢ **The downtime permitted after the first 24 hours with notification, should not be more than 72 working hours or else, a penalty fee of BND$50 per day per unit will be charge after the 72th downtime hour.** |

**SECTION 3**

**TENDER FORM**

To:

**TENDER REFERENCE NO: KK/167/2025/HTD**

**INVITATION TO TENDER**
**PROVISION OF MOBILE DIGITAL RADIOGRAPHY SYSTEM FOR RADIOLOGY DEPARTMENT, MINISTRY OF HEALTH**

| **SCOPE OF WORK AND SUMMARY OF PRICES** | | | | | | |
|---|---|---|---|---|---|---|
| **This tender is for the supply of eleven (11) units of Mobile Digital Radiography system for the following locations:** | | | | | | |
| **DESCRIPTION** | **QTY** | **Y** | **N** | **A** | **B** | **C** |
| **RAJA ISTERI PENGIRAN ANAK SALEHA (RIPAS) HOSPITAL, BRUNEI MUARA** | **5** | | | **TOTAL PRICE** BND$ | **TOTAL PRICE** BND$ | **TOTAL PRICE** BND$ |
| **PENGIRAN MUDA MAHKOTA PENGIRAN MUDA HAJI AL-MUHTADEE BILLAH (PMMPMHAB) HOSPITAL, TUTONG** | **3** | | | **TOTAL PRICE** BND$ | **TOTAL PRICE** BND$ | **TOTAL PRICE** BND$ |
| **SURI SERI BEGAWAN (SSB) HOSPITAL, KUALA BELAIT** | **2** | | | **TOTAL PRICE** BND$ | **TOTAL PRICE** BND$ | **TOTAL PRICE** BND$ |
| **PENGIRAN ISTERI HAJAH MARIAM (PIHM) HOSPITAL, TEMBURONG** | **1** | | | **TOTAL PRICE** BND$ | **TOTAL PRICE** BND$ | **TOTAL PRICE** BND$ |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE |
|---|---|---|---|---|
| | | YES | NO | |
| 1 | ELEVEN (11) UNITS OF MOBILE DIGITAL RADIOGRAPHY SYSTEM | | | |
| | The Tenderer shall submit proposal for the supply, delivery, installation, testing, commissioning, warranty and maintenance of **eleven (11) units** of mobile digital radiography system for the following distributions: | | | |
| 1.1 | **Five (5) units** for Raja Isteri Pengiran Anak Saleha (RIPAS) Hospital, Brunei Muara. | | | |
| 1.2 | **Three (3) units** for Pengiran Muda Mahkota Pengiran Muda Haji Al-Muhtadee Billah (PMMPMHAMB) Hospital, Tutong | | | |
| 1.3 | **Two (2) units** for Suri Seri Begawan (SSB) Hospital, Kuala Belait | | | |
| 1.4 | **One (1) unit** for Pengiran Isteri Hajah Mariam (PIHM) Hospital, Temburong | | | |
| 2 | SHENA REGISTRATION | | | |
| 2.1 | Tenderer must have an active registration with Safety, Health and Environment National Authority (SHENA), Brunei Darussalam for the relevant radiation licenses related to this tender.<br><br>**[Proof of Active Registration must be included]** | | | LICENCE NO:<br><br>EXPIRY DATE: |
| 3 | SYSTEM ARHITECTURE | | | |
| 3.1 | Compact, easily transportable, digital mobile radiographic unit with articulated/telescopic arm with flat panel detector suitable for bedside X-Ray for In-patient wards, Intensive Care Unit (ICU) and Operation Theatres (OT). | | | |
| **3.2** | **Ergonomics:** | | | |
| 3.2.1 | Collapsible tube column for easy visibility during transportation. | | | |
| 3.2.2 | The Equipment should be light weight and easy to manoeuvre.<br>Tenderer to state the weight of the System proposed. | | | **Weight of system:** |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE |
|---|---|---|---|---|
| | | YES | NO | |
| 3.2.3 | It must have an articulated or telescopic arm for maximum positioning flexibility in any patient position. | | | |
| 3.2.4 | Exposure release via hand switch or remote control. The hand switch should be detachable with a cord of at least 5 meters. | | | |
| 3.2.5 | Keyless operation i.e., use of PIN code or numeric keypad. | | | |
| 3.2.6 | The System can be locked without requiring a shutdown. | | | |
| 3.2.7 | Forward/reverse motor drive with reduced speed feature and controlled at the main handle. | | | |
| 3.2.8 | Storage bins for flat panel detectors as well as accessories such as pens, markers and wipes. | | | |
| 3.2.9 | Storage bin should be equipped with a detector lock function for security against theft. | | | |
| 3.2.10 | Hook for hanging lead apron(s) | | | |
| **3.3** | **The Generator:** | | | |
| 3.3.1 | High-voltage, at least 30 kW or higher | | | |
| 3.3.2 | Display: should have a digital display of KV, mA, mAs or secs. | | | |
| 3.3.3 | KV range: 40 KV to 125 KV or more | | | |
| 3.3.4 | Maximum tube current: 400 mA or more | | | |
| 3.3.5 | Current-Time product (mAs) range: up to 300 mAs or more in different steps. | | | |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE | |
|---|---|---|---|---|---|
| | | YES | NO | | |
| 3.3.6 | Shortest exposure time: 1ms. | | | | |
| 3.3.7 | Anatomical Program selection of various body parts. | | | | |
| 3.3.8 | Should have indication for error, X-ray ON and Mains. | | | | |
| 3.3.9 | Should have protection against electric shock. | | | | |
| **3.4** | **X-ray Tube:** | | | | |
| 3.4.1 | Rotating anode tube and dual focus.<br>Tenderer to state the anode angle and anode speed. | | | **Anode angle** | |
| | | | | **Anode Speed** | |
| 3.4.2 | Focal Spot Size: small focus range within 0.3-0.7mm / large focus range within 1.2-1.5mm.<br>Tenderer to state the focal spot sizes. | | | **Large** | |
| | | | | **Small** | |
| 3.4.3 | Anode heat storage capacity should be more than 100KHU.<br>Tenderer to state the heat storage capacity of the anode. | | | **Heat storage capacity of anode** | |
| 3.4.4 | Multi-leaf collimation rotatable+/-90 degrees with collimation on/off light button. | | | | |
| 3.4.5 | Extractable measurable tape should be available. | | | | |
| 3.4.6 | Paediatric filter(s) to reduce the patient entry dose should be included.<br>Tenderer to state the strength of the filter(s) provided. | | | **Strength of filter:** | |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE | |
|---|---|---|---|---|---|
| | | YES | NO | | |
| **3.5** | **Dose Monitoring:** | | | | |
| 3.5.1 | Each proposed System shall include integrated dose monitoring system that automatically record dose parameters for every exposure i.e kV, mAs, Dose Area Product (DAP) and Entrance Surface Dose (ESD). Tenderer to state the maximum measurable DAP | | | **Maximum measurable DAP:** | |
| 3.5.2 | Display the estimated dose per exposure for operator's review | | | | |
| 3.5.3 | Export or transmit dose records in DICOM Radiation Dose Structure format. | | | | |
| 3.5.4 | Support audit or review of dose history for patients | | | | |
| **3.6** | **Flat panel detector (FPD):** | | | | |
| 3.6.1 | Detector technology: Caesium iodide scintillator with Amorphous silicon technology. | | | | |
| 3.6.2 | Inclusive of one (1) unit of wireless FPD with **at least 35cm x 43cm effective imaging area** with handle/grip **for each unit** or equivalent size | | | **Model of FPD offered:** | |
| | | | | **Size of FPD:** | |
| | | | | **Effective imaging area:** | |
| 3.6.3 | Inclusive of five (5) units of wireless FPD with **at least 24 x 30cm effective imaging area** with handle/grip for RIPASH (2 units), SSBH (1 unit), PMMPMHAMBH (1 unit) and PIHM (1 unit) or equivalent size | | | **Model of FPD offered:** | |
| | | | | **Size of FPD:** | |
| | | | | **Effective imaging area:** | |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE | |
|---|---|---|---|---|---|
| | | YES | NO | | |
| 3.6.4 | High resolution flat panel detector and small pixel pitch. | | | | |
| 3.6.5 | The Detector pixel matrix should be 2k x 2k or more<br>Tenderer to state the pixel matrix. | | | **Pixel matrix:** | |
| 3.6.6 | Pixel size should be not more than 160 µm.<br>Tenderer to state the pixel size or pitch of the detector. | | | **Pixel size/pitch:** | |
| 3.6.7 | Images can be viewed on the touch panel monitor in less than 4 sec.<br>Tenderer to state the data transmission in preview and full view. | | | | |
| 3.6.8 | Weight of the detector should be less than 4 kg.<br>Tenderer to state the size and weight of proposed detector. | | | **Size of detector:**<br>**Weight of detector:** | 1<br>2<br>1<br>2 |
| 3.6.9 | The detector should have load bearing capacity of 150kg or more. | | | | |
| 3.6.10 | The detector should be designed and calibrated for General Radiography Purposes and must be fully integrated with the mobile unit including the controls. | | | | |
| 3.6.11 | The battery must be of latest Lithium-Ion type.<br>Two (2) units of batteries should be provided for each detector along with the battery charger.<br>Tenderer shall state the battery operation time and the battery charging time. | | | **Battery ratings:**<br>**Battery operation time:**<br>**Battery charging time:** | |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE | |
|---|---|---|---|---|---|
| | | YES | NO | | |
| 3.6.12 | The detector should be able to work at normal temperature and humidity. The detector system should not require frequent calibration on daily start up. | | | | |
| 3.6.13 | Removable clip-on grid shall be provided.<br>Tenderer to state the grid ratio. | | | **Grid ratio:** | |
| 3.6.14 | Waterproofing to prevent ingress or liquids.<br>Tenderer to specify Waterproof ratings | | | **Waterproof rating:** | |
| **3.7** | **Battery:** | | | | |
| 3.7.1 | The proposed System should be able to run on mains as well as on battery supply.<br>Tenderer to state the battery life and number of exposures which can be done on battery. | | | **Battery life:**<br>**Number of exposures on battery:** | |
| **3.8** | **Display Console:** | | | | |
| 3.8.1 | The proposed system shall include display screen at the either display console or the x-ray tube or both for checking patient details and adjustment of exposure parameters with integrated digital image processing software. | | | | |
| 3.8.2 | Computer system shall be based on Windows 10 or better with user interface. | | | | |
| 3.8.3 | At least 19” colour high-contrast display with touch screen operation on the display console. | | | | |
| 3.8.4 | Image processing functions include but not limited to rotation, vertical and horizontal reversal, zoom, contrast and brightness, panning, text functions (annotate, image comments, R/L markers), noise reduction. | | | | |
| 3.8.5 | The System should be capable of performing quality assurance and provide statistics of rejected images. | | | | |
| 3.8.6 | The display console must be easy to clean and maintain hygiene | | | | |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE | |
|---|---|---|---|---|---|
| | | YES | NO | | |
| **3.9** | **Image Storage:** | | | | |
| 3.9.1 | Local storage can store a capacity of 7,000 images or more.<br>Tenderer to provide the Size of local storage and maximum number of images that can be stored locally. | | | **Maximum number of images stored locally:** | |
| | | | | **Size of Storage:** | |
| 3.9.2 | Images can be USB exported | | | | |
| **3.10** | **Software:** | | | | |
| 3.10.1 | System must be provided with the latest software version. | | | | |
| 3.10.2 | Whole-life software license including any software updates. Upgrades shall be provided at no additional charges during warranty period. | | | | |
| 3.10.3 | The Tenderer shall be informed that any scheduled installation of software upgrades must be at a time that will have the least impact on the operations of the Ministry of Health and shall obtain prior approval of this schedule from the Ministry of Health | | | | |
| 3.10.4 | The Tenderer shall state availability of any future upgrades of the software after the warranty period. The Tenderer shall state the cost and process for future upgrades, if any. | | | | |
| **3.11** | **NETWORKING, CONNECTIVITY AND PACS INTEGRATION** | | | | |
| 3.11.1 | Must fully support and comply to DICOM 3.0 standards, including: | | | | |
| 3.11.1.1 | DICOM Image Storage | | | | |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE |
|---|---|---|---|---|
| | | YES | NO | |
| 3.11.1.2 | DICOM Modality Worklist (MWL) | | | |
| 3.11.1.3 | DICOM Dose Structured Report | | | |
| 3.11.1.4 | DICOM Query/Retrieve (Q/R) | | | |
| 3.11.1.5 | DICOM Structured Reporting (SR) | | | |
| 3.11.2 | Must support Modality Performed Procedure Step (MPPS) | | | |
| 3.11.3 | Allow bidirectional data exchange for seamless workflow. | | | |
| 3.11.4 | Image must be able to store as DICOM and PC format | | | |
| 3.11.5 | System must have wireless connectivity and wired ethernet RJ45 port | | | |
| 3.11.6 | System must be HL7 ready and activated | | | |
| 3.11.7 | The proposed mobile digital radiography system shall be integrated and connected to Radiology PACS (RPACS) therefore ALL licenses for integration with PACS should be included.<br><br>Tenderer to include the cost of PACS integration quoted from PACS vendor.<br><br>Please refer to PACS vendor for information on PACS integration requirement.<br>Tenderer may contact the quotation of PACS integration for this project directly to the MOH's PACS vendor or through the Healthcare Technology Department, Ministry of Health | | | |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE |
|---|---|---|---|---|
| | | YES | NO | |
| 4 | STANDARD ACCESSORIES (FOR EACH UNIT) | | | |
| 4.1 | One (1) unit of Grid of appropriate ratio and size | | | |
| 4.2 | Two (2) sets of Lead protective gowns (front and back cover up to knee length) comes with appropriate apron hanger for each apron. | | | |
| 4.3 | Two (2) sets of Gonad protection shields (for male and female paediatrics) | | | |
| 5 | WARRANTY | | | |
| 5.1 | Tenderer to include comprehensive warranty period of **two (2) years for outright purchase** AND/OR **seven (7) years for the whole leasing period.** | | | |
| 5.2 | Tenderers to **ACKNOWLEDGE** the Warranty Undertaking Form in Section 4 stating the terms of warranty provided for the equipment in the tender for the period of two years. | | | |
| 5 | OPTIONAL EXTENDED COMPREHENSIVE WARRANTY | | | |
| 6.1 | Tenderer to offer an extended comprehensive warranty period of **five (5) years** after the warranty (for outright purchase) | | | PRICE OF EXTENDED COMPREHENSIVE WARRANTY PER UNIT:<br>BND$<br><br>TOTAL PRICE OF EXTENDED COMPREHENSIVE WARRANTY FOR 11 UNITS:<br>BND$ |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE |
|---|---|---|---|---|
| | | YES | NO | |
| 7 | END USER TRAINING | | | |
| 7.1 | Inclusive **of clinical application training** for all radiologists for at least seven (7) working days on-site for all the operation and applications offered with the system **by Manufacturer's Application Specialist** which includes but not limited to: | | | |
| 7.1.1 | Basic user operation, including image transfers. | | | |
| 7.1.2 | Application training for the use of the various applications provided with the system. | | | |
| 7.1.3 | Basic maintenance, including troubleshooting | | | |
| 7.2 | **Training certificate must be provided by manufacturer or tenderer after completion of training sessions.** | | | |
| 7.3 | On-site **follow up application training by application specialist after three (3) months** of clinical use to ensure the system is fully optimised. | | | |
| 7.4 | Two (2) sets of User/Operation Manual in English | | | |
| 7.5 | Two (2) sets of Training Manual in English | | | |
| 7.6 | Introductory **Technical Training** to Biomedical Engineers and Technicians at BME RIPASH Office by competent Tenderer's Engineer/Technicians that includes but not limited to: | | | |
| 7.6.1 | Troubleshooting and basic corrective maintenance | | | |
| 7.6.2 | Handling and basic inspection maintenance | | | |
| 8 | INTERNATIONAL STANDARDS | | | |

| REF. NO. | DESCRIPTION | Tick (✓) | | STATE OR SPECIFY OR REMARKS OR BROCHURE PAGE |
|---|---|---|---|---|
| | | YES | NO | |
| | Equipment model offered must comply at least four (4) of the following standards or better: (Please provide the documentation/certification to support this compliance) | | | |
| 8.1 | European Union (CE MARK) | | | |
| 8.2 | Food and Drug Administration (FDA) USA | | | |
| 8.3 | International Electrotechnical Commission (IEC) 60601-1 – Electrical safety | | | |
| 8.4 | International Electrotechnical Commission (IEC) 60601-1-2 [EMC compliance] | | | |
| 8.5 | International Electrotechnical Commission (IEC) 62304 | | | |
| 8.6 | International Organization for Standardization (ISO) 14971 – Risk Management | | | |
| 8.7 | International Organization for Standardization (ISO) 17025 – Test report certification | | | |
| 8.8 | Medical Device Single Audit Program (MDSAP) or Unique Device Identification (UDI) compliance | | | |

| SECTION 2 – PRICE PROPOSAL | |
|---|---|
| **OPTION A**<br>**<u>OUTRIGHT PURCHASE</u>** | ▪ Tenderer to offer the system on an outright purchase basis, with a **single full payment** made after delivery, installation, commissioning, and user training are completed.<br>▪ Includes a two (2) year comprehensive warranty, covering:<br>o All parts and labour<br>o On-site after-sales service support<br>o Software updates and upgrades<br>o Preventive Maintenance (minimum twice per year)<br>▪ Warranty coverage is as specified in the Warranty Undertaking Form. |
| **OPTION B**<br>**<u>OUTRIGHT PURCHASE WITH EXTENDED COMPREHENSIVE WARRANTY</u>** | ▪ Outright purchase with a single full payment after delivery, installation, commissioning, and user training.<br>▪ Includes a two (2) year comprehensive warranty, covering:<br>o All parts and labour<br>o On-site after-sales service support<br>o Software updates and upgrades<br>o Preventive Maintenance (at least twice per year)<br>▪ Followed by a **five (5) year extended comprehensive warranty** with the same coverage, under a separate contract starting after the initial two years comprehensive warranty.<br>▪ **Payments** for the extended warranty will be made on a **Per Preventive Maintenance (PPM)** basis, as stated in the extended warranty contract. |
| **OPTION C**<br>**<u>LEASING PRICE FOR 7 YEARS</u>** | ▪ Tenderer to offer the system on a 7-year leasing basis, with 33 quarterly payments over the period.<br>▪ Ownership remains with the tenderer during the lease.<br>▪ Tenderer is responsible for full maintenance and support throughout the lease, as per the Warranty Undertaking Form.<br>▪ **First payment** starts after delivery, installation, commissioning, and user training.<br>▪ **Final payment** is due in the last month of the 7th year.<br>▪ At the end of the lease, MOH has the option to purchase each unit for $1, subject to equipment condition and approval by the relevant committee. |

| | | | |
|---|---|---|---|
| **FIVE (5) UNITS FOR RAJA ISTERI PENGIRAN ANAK SALEHA (RIPAS) HOSPITAL** | | | |
| **A** | **TOTAL PRICE:**<br>**BND$** | **UNIT PRICE:**<br>**BND$** | |
| **B** | **TOTAL PRICE:**<br>**BND$** | **UNIT PRICE:**<br>**BND$** | **Extended Warranty Cost per Preventive Maintenance per Unit:**<br>**BND$** |
| **C** | **TOTAL PRICE:**<br>**BND$** | **QUARTERLY INSTALMENT PRICE:**<br>**BND$** | |
| **THREE (3) UNITS FOR PENGIRAN MUDA MAHKOTA PENGIRAN MUDA HAJI AL-MUHTADEE BILLAH (PMMPMAB) HOSPITAL** | | | |
| **A** | **TOTAL PRICE:**<br>**BND$** | **UNIT PRICE:**<br>**BND$** | |
| **B** | **TOTAL PRICE:**<br>**BND$** | **UNIT PRICE:**<br>**BND$** | **Extended Warranty Cost per Preventive Maintenance per Unit:**<br>**BND$** |
| **C** | **TOTAL PRICE:**<br>**BND$** | **QUARTERLY INSTALMENT PRICE:**<br>**BND$** | |

| | | | |
|---|---|---|---|
| **TWO (2) UNITS FOR SURI SERI BEGAWAN (SSB) HOSPITAL** | | | |
| **A** | **TOTAL PRICE:**<br>**BND$** | **UNIT PRICE:**<br>**BND$** | |
| **B** | **TOTAL PRICE:**<br>**BND$** | **UNIT PRICE:**<br>**BND$** | **Extended Warranty Cost per Preventive Maintenance per Unit:**<br>**BND$** |
| **C** | **TOTAL PRICE:**<br>**BND$** | **QUARTERLY INSTALMENT PRICE:**<br>**BND$** | |
| **ONE (1) UNIT FOR PENGIRAN ISTERI HAJAH MARIAM (PIHM) HOSPITAL** | | | |
| **A** | **TOTAL PRICE:**<br>**BND$** | **UNIT PRICE:**<br>**BND$** | |
| **B** | **TOTAL PRICE:**<br>**BND$** | **UNIT PRICE:**<br>**BND$** | **Extended Warranty Cost per Preventive Maintenance per Unit:**<br>**BND$** |
| **C** | **TOTAL PRICE:**<br>**BND$** | **QUARTERLY INSTALMENT PRICE:**<br>**BND$** | |

| | |
|---|---|
| **TOTAL OUTRIGHT PRICE FOR ELEVEN (11) UNITS** | **TOTAL PRICE:**<br>**BND$** |
| **TOTAL OUTRIGHT PRICE FOR ELEVEN (11) UNITS WITH EXTENDED COMPREHENSIVE WARRANTY** | **TOTAL PRICE:**<br>**BND$** |
| **TOTAL LEASING PRICE FOR SEVEN (7) YEARS FOR ALL ELEVEN (11) UNITS** | **TOTAL PRICE:**<br>**BND$**<br><br>**QUARTERLY INSTALMENT PRICE:**<br>**BND$** |

| SECTION 3 - PROCUMENT AND TECHNICAL SPECIFICATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| BRAND: | | | | | MODEL: | | | |
| COUNTRY OF ORIGIN: | | | | | | | | |
| YEAR INTRODUCED TO MARKET: | | | | | | | | |
| PRICE VALIDITY:<br>[AT LEAST ONE (1) YEAR PRICE VALIDTY] | | | | | | | | |
| DELIVERY TIME: | | | | | | | | |
| AUTHORIZED DISTRIBUTOR:<br>(AUTHORIZED DISTRIBUTOR LETTER ATTACHED) | | | | | APPOINTED BRUNEI DISTRIBUTOR | | | |
| | | | | | PROCURE FROM OVERSEA AUTHORIZED DISTRIBUTOR | COMPANY NAME: | | |
| | | | | | | COMPANY ORIGIN: | | |
| DETAILED BROCHURE INCLUDED | | YES | | NO | **☑ or specify where appropriate** | | | |
| USER AND SERVICE MANUALS: | | YES | | NO | Tenderers to acknowledge that they must provide at least TWO sets of USER AND SERVICE manuals when applying commissioning form. One Set for End User, One Set for BME. (Please provide hardcopy or softcopy) | | | |
| MAINS POWER SUPPLY: | | 220V-240V | | | BATTERY [ ] YES [ ]NO | | | |
| | | 50-60HZ | | | Type of Battery: | | Rating: | |
| | | OTHERS: | | | | RECHARGEABLE | | NON-RECHARGEABLE |
| POWER ADAPTER/CHARGER OUTPUT RATING: | | | | | EQUIPMENT AMBIENT OPERATING TEMPERATURE RANGE: | | | |
| NUMBER OF TECHNICAL SUPPORT (ENGINEER/TECHNICIAN)<br><br>Please provide training or certification for locals who is trained/certified | | LOCAL | | | | □ Trained / Certified<br>□ Not yet trained on the product | | |
| | | OVERSEA<br>(SPECIFY LOCATION) | | | NEAREST LOCATION: | | | |
| DIMENSIONS AND WEIGHT OF MAIN UNIT: | | | | | □ mm<br>□ cm<br>□ inch | | □ Kilogram (Kg)<br>□ Gram(g)<br>□ Pound (lbs) | |
| EQUIPMENT WHOLE LIFE TIME SUPPORT: | The supplier shall ensure that spare parts for the equipment are available for a minimum of 8 years after installation, with the support period extending beyond the expected lifecycle of the equipment.<br>No of years: _____ (Please specify) | | | | | | | |

## SECTION 4 – WARRANTY UNDERTAKING FORM (PAGE 1)

Tenderer, on behalf of the manufacturer, acknowledged and agrees that when equipment is under Warranty for either two (2) years for Outright Purchase or Leasing period of Seven (7) years, must cover the scope of comprehensive warranty at no additional cost:

- Warrants the supplied medical equipment and its accessories to be in good condition, in working order and free from defects to the extend such equipment do not comply with specifications, under normal use for the warranty period. The scope of warranty covers to its maximum extent permitted by applicable law.
- Inclusive of Comprehensive Maintenance Service (see below)
- **Exchange warranty**; Providing replacement units or OEM parts for:
  A. Warranty against defects – Manufacturing defects or Equipment malfunction resulted from mechanical, electrical or software failure during Commissioning or within the first six (6) months of use
  B. Faulty workmanship or unsatisfactory condition during delivery or commissioning
  C. If a unit or accessory is deemed used item or refurbished item (not a new unit) by the user and BME Unit.

**COMPREHENSIVE MAINTENANCE SERVICE**

Tenderer must provide a comprehensive maintenance during the warranty period. The scope for **Comprehensive Maintenance Service** consists of:

A. **Inspection Maintenance (IM)**
B. **Corrective Maintenance (CM) and**
C. **Planned Preventive maintenance (PPM)**
D. **Breakdown call**

| **EXCLUSION FROM WARRANTY** | **TENDERER ACKNOWLEDGMENT ON WARRANTY UNDERTAKING FORM PAGE 1** |
|---|---|
| MOH understand that the following circumstances are not covered in the warranty and Tenderer may quote for repair and subject to MOH approval:<br>▪ Unauthorized modifications - an alteration or repair by anyone other than the Manufacturer or Authorized agent during warranty period.<br>▪ Accidental damage or problems caused by negligence or mishandling, subject to appropriate justification by both parties.<br>▪ Vandalism and Natural disasters<br><br>Tenderer may also attach a list of terms to be excluded from the warranty for MOH consideration and notification | **COMPANY CHOP AND SIGNATURE** |

| SECTION 4 – WARRANTY UNDERTAKING FORM (PAGE 2) | |
|---|---|
| **A. Inspection Maintenance (IM)**<br>▪ Must be conducted every six (6) months starting from commissioning date.<br>▪ Issuance of IM Report to End User and Biomedical Engineering Unit of respective Facilities (BME)<br>▪ Physical hardware checks on main unit/system and all supplied accessories<br>▪ System, Software and Application check-up – Update to latest version when available<br>▪ Performance and Functional testing<br>▪ Servicing/Cleaning of dust | **TENDERER ACKNOWLEDGMENT ON WARRANTY UNDERTAKING FORM PAGE 2**<br><br>**COMPANY CHOP AND SIGNATURE** |
| **B. Corrective Maintenance (CM):**<br>▪ During warranty, tenderer must rectify issues arise from any mechanical, technical or software faulty as soon as it is reported including any cost of breakdown repairs.<br>▪ Repair and replacement of parts with new, quality, and compatible parts within thirty (30) days after receipt of reported problem by BME.<br>▪ Post repair tests with reports to ensure Electrical Safety Test, Performance Test and Functional Test is conducted.<br>▪ **One-time replacement of one unit of each Flat Panel Detector (FPD) type for each location. [35x43 and 24x30cm FDP]**<br><br>**C. Planned Preventive Maintenance (PPM):**<br>▪ **One time yearly Planned Preventive Maintenance (PPM)** according to Manufacturer's Preventive Maintenance Guideline, including replacements of PM Kits, any relevant parts to prolong equipment lifespan AND **one-time battery replacement during the 4th to 5th year, unless required earlier.**<br>▪ Provide Maintenance Due Date stickers after each PPM or booklet for easy monitoring<br><br>**D. Breakdown Call**<br>▪ Onsite response to assess and rectify any breakdown call within a maximum of two (2) hours after receipt of reported problem by BME Unit preferably during office hours, else after office hours or public holidays.<br>➢ **Deduction demerit shall be imposed if the Company fails to provide onsite response within the time above and the deduction amount shall be based on the frequency of event times certain rate to be formulated later.**<br>▪ Downtime: Not more than 24 hours after receipt of reported problem by BME unit<br>▪ If Downtime is expected to be more than 24 hours, Tenderer must notify formally to BME unit through email or letter immediately indicating the reason of delay with estimation of:<br>A. Estimated time of parts to arrive and<br>B. Expected no of days for repair completion<br>➢ **The downtime permitted after the first 24 hours with notification, should not be more than 72 working hours or else, a penalty fee of BND$50 per day per unit will be charge after the 72th downtime hour.** | |