







Revision History

| Revision | Date | Descriptions |
|----------|------------|-----------------|
| 1.0 | 2012-06-08 | Initial Release |



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Safety and Regulatory

Safety Notice

The following safety notices are used to emphasize certain safety instructions. Follow the safety instructions in this manual along with warnings and cautions symbols. Ignoring such warnings or cautions while handling the product may results in serious injury or accident. It is important for you to read and understand the contents of this manual before attempting to use the product.

| Symbols | Descriptions | |
|---------|--|--|
| WARNING | Indicates a potentially hazardous situation which will cause death, severe personal injury or substantial property damage if the instructions are ignored. | |
| CAUTION | Indicates a potentially hazardous situation which may cause minor personal injury or property damage if the instructions are ignored. | |
| i | Provides additional information that is helpful to you. It may emphasize certain information regarding special tools or items to check before operating the product. | |



Safety Information

This product is designed and manufactured to ensure maximum safety of operation and to meet all the safety requirements applicable to electronic medical equipment. However, anyone attempting to operate the system must be fully aware of potential safety hazards. It should be operated and maintained in strict compliance with the following safety precautions and operating instruments contained herein:

| CAUTION | Caution : Federal law restricts this device to sale by or on the order of a physician or a licensed practitioner. |
|---------|--|
| WARNING | Always be alert when operating this device. If a malfunction occurs, do not use this device until qualified personnel correct the problems. |
| WARNING | The product should be installed, maintained and serviced according to Vieworks maintenance procedures and by Vieworks personnel or other qualified maintenance personnel approved in writing by Vieworks. Operation and maintenance should be done in strict compliance with the operation instructions contained in the manuals. |
| WARNING | The system, in whole or in part, cannot be modified in any way without written approval from Vieworks. |
| CAUTION | Before authorizing any person to operate the system, verify that the person has read and fully understand the Service Manual. The owner should make certain that only properly trained and fully qualified personnel are authorized to operate the equipment. An authorized operators list should be maintained. |
| WARNING | Prevent unauthorized personnel from access to the system. |
| CAUTION | It is important that this Service Manual be kept at hand, studied carefully and reviewed periodically by the authorized operators. |
| CAUTION | The owner should ensure continuous power supply to the system, with voltage and current according to the product specifications. If power failures are frequent, an Uninterrupted Power Supply (UPS) should be installed to avoid loss of data. |
| CAUTION | If the product does not operate properly or if it fails to respond to the controls described in this manual, the operator should immediately contact Vieworks field service representative. |
| CAUTION | User must not contact a fuse holder or contacts of connector (ex: Inlet connector) with a patient simultaneously during operating the equipment and not allow patient to touch the fuse holder or contacts of connector. |



| • | The images and calculations provided by this system are intended to be used as tools for | | | |
|--|--|--|--|--|
| | the competent user. They are explicitly not to be regarded as a sole incontrovertible basis | | | |
| CAUTION | for clinical diagnosis. Users are encouraged to study the literature and reach their own | | | |
| GROTION | professional conclusions regarding the clinical utility of the system. | | | |
| \wedge | The user should be aware of the product specifications and of the system's accuracy and | | | |
| | stability limitations. These limitations must be considered before making any decision | | | |
| CAUTION | ON based on quantitative values, in case of doubt, please consult a Vieworks representative | | | |
| | Do not install the equipment in a location with the conditions listed below. Otherwise, it | | | |
| | may result in failure or malfunction, fall or cause fire or injury. | | | |
| | Close to facilities where water is used. | | | |
| | Locations exposed to direct sunlight. | | | |
| | Close to air-conditioner or ventilation equipment. | | | |
| \mathbf{A} | Close to heat source such as a heater. | | | |
| | Prone to vibration. | | | |
| CAUTION | Insecure place. | | | |
| | Dusty environment. | | | |
| | Saline or sulfurous environment. | | | |
| | High humidity. | | | |
| | • Ambient temperature is higher than the operating temperature stated in this Service | | | |
| | Manual. | | | |
| \mathbf{A} | Occasionally, this product may have defect pixels caused by TFT characteristics. When | | | |
| | the defect pixels are found, perform the Defect detection. For details about how to correct | | | |
| CAUTION | defect pixels, refer to 5.4.3 Defect Correction. | | | |
| \mathbf{A} | Do not inflict excessive shock and mechanical vibration. Otherwise, it may result in por | | | |
| | bo not inflict excessive shock and mechanical vibration. Otherwise, it may result in poor | | | |
| CAUTION Image quality caused by noise. | | | | |
| | Do not unscrew or loosen the screws on the detector surface since all the screws are | | | |
| | secured properly at the time of shipment. Otherwise, it may result in poor image quality or | | | |
| CAUTION | damage to equipment. | | | |
| | This product may malfunction due to electromagnetic interference (EMI) caused by | | | |
| \wedge | telecommunication devices, transceivers, electronic devices, etc. To prevent the | | | |
| | electromagnetic wave from badly influencing the product, be sure to avoid placing it in | | | |
| CAUTION | close proximity to the product. Or, change direction or position of the product or move into | | | |
| | the shielded place to reduce electromagnetic interference. | | | |
| $\mathbf{\Lambda}$ | To reduce the risk of electric shock, do not remove cover. No user-services he part inside | | | |
| | Refer servicing to qualified service personnel | | | |
| CAUTION | ר איז | | | |



Battery Pack and Battery Charger Safety Information

Before using the battery pack and battery charger dedicated to ViVIX-S Wireless, read all applicable warnings and cautions.

Not following these instructions could result in electrical shock, fire, explosion or other conditions which may cause death, injury or property damages.

| | Do not use the battery pack as a power source for equipment other than ViVIX-S Wireless |
|--------------------|--|
| | detectors. Be sure to use only the dedicated battery pack for the ViVIX-S Wireless |
| WARNING | detector. |
| \mathbf{A} | The battery charger is designed for the dedicated battery pack. Do not use the battery |
| | charger other than the dedicated one. Otherwise, a battery explosion or a battery leak |
| WARNING | may occur, resulting in fire or electrical shock. |
| | |
| | Do not operate the battery charger using any type of power supply other than the one |
| WARNING | indicated on the rating label. |
| | |
| | Do not handle the product with wet hands. |
| WARNING | |
| | De not place because chiests such as medical equipment on apples and cords, or do not |
| | built hand hundle, or step on them to provent their sheeth from being demograd |
| WARNING | puil, bend, bundle, or step on them to prevent their sneath from being damaged. |
| | |
| | Do not attempt to disassemble, alter, or apply heat to the product. |
| WARNING | |
| $\mathbf{\Lambda}$ | Avoid dropping or subjecting the product to severe impacts. To avoid the risk of injury do |
| | not touch the internal parts of the battery if it has been cracked or otherwise damaged |
| WARNING | |
| $\mathbf{\Lambda}$ | Stop using the battery pack immediately if it emits smoke, a strange smell, or otherwise |
| | behaves abnormally. |
| WARNING | |
| $\mathbf{\Lambda}$ | Do not let the battery pack and battery charger come into contact with water or other |
| | liquids and do not allow them to get wet. |
| WARNING | |
| \wedge | Do not clean with substances containing organic solvents such as alcohol, benzene, |
| | thinner, or other chemicals. Otherwise, fire or electrical shock may result. |
| WARNING | |



| | Do not allow dirt or metal objects (such as hair pins, clips, staples or keys) to contact the |
|----------|---|
| | terminals. Otherwise, battery explosion or leakage of electrolyte may occur, resulting in |
| | fire, injury or pollution of surrounding area. If the battery leaks and the electrolytes come |
| WARNING | into contact with your eyes, mouth, skin or clothing, immediately wash it away with running |
| | water and seek medical attention. |
| | Do not leave, store, or place the product in a location near heat sources, or in a place |
| | subject to direct sunlight, high temperature, high humidity, excessive dust, or mechanical |
| | shock. Otherwise, battery leakage, overheating or damage to the product may occur, |
| CAUTION | resulting in electrical shock, burns, injury or fire. |
| | Do not attempt to use a battery pack that has deteriorated. Using a battery pack that has |
| | exceeded its life cycle may lead to everbacting, fire or explosion |
| CAUTION | exceeded its life cycle may lead to overheating, life of explosion. |
| | The Lithium ion/polymer battery is recyclable. |
| • | Battery slowly discharges even if not in use. The battery pack may have expired if it |
| | discharges immediately after being fully charged. You can purchase an optional battery |
| | pack to replace an exhausted one. |
| Cho mon | The battery pack is a consumable item. If a fully charged battery is consumed quickly, use |
| | a new and fully charged battery pack. |
| | Be sure to charge the battery periodically (once a year) if it is not used for an extended |
| | period of time. The battery pack cannot be charged if it has been over discharged |
| CAUTION | pende of time. The battery pack cannot be charged in thas been over discharged. |
| \wedge | Before discarding the battery pack, cover the terminals with adhesive tape or other |
| | insulators. Contact with other metal materials may cause fire or explosion. |
| CAUTION | |

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General Hazards

Radiation Hazards

This system can be connected to x-ray generating equipment. Be certain to follow the safety instructions and specifications for wearing proper lead apron when x-ray exposures are planned or possible. All personnel should wear protective equipment including dosimeters during all phases of installation, operation and maintenance of the system.

Electric Shock Hazards

To reduce the electric shock hazard, the system must be connected to an electrical ground. A three conductor AC power cable is supplied with this system to provide the proper electrical grounding. The power cable must be plugged into an UL-approved three-contact electrical outlet.

Do not disassemble or modify the product as it may result in fire or electric shock. There are no operator serviceable parts or adjustments inside the systems. Only trained and qualified personnel should be permitted access to the internal parts of the system.

Explosion Hazards

Do not operate the equipment in the presence of flammable or explosive liquids, vapors or gases. Do not plug in or turn on the system where hazardous substances are detected.

If flammable substances are detected after the system has been turned on, do not attempt to turn off the system or unplug it. Evacuate and ventilate the area before turning the system off.

Implosion Hazards

Do not hit or drop the equipment. The equipment may be damaged if it receives a strong jolt, which may result in fire or electric shock if the equipment is used without it being repaired.

Owner's Responsibility

The owner is responsible for ensuring that anyone using the system reads and understands the Service Manual and other relevant literature, and fully understands them. Vieworks makes no representation, however, that the act of reading this manual renders the reader qualified to operate, test and calibrate the system.



Do not use the system if unsafe conditions are known to exist. In case of hardware failure that could cause hazardous conditions (smoke, fire and etc), turn the power OFF and unplug the power cords of all sub-systems.



Notes for Using the Equipment

System Diagnostic

The *VXSetup* software runs a system diagnostic. Run *VXSetup* software after installing the system and at least once a year. If an error occurs, report the detailed error information to Vieworks local dealer or distributor.



The owner is responsible for ensuring that the system diagnostic is performed every year. Do not try to use the system if the system diagnostic is failed.

Calibration

To ensure optimal performance of the system, it is important to verify that the system is calibrated.



The owner is responsible for ensuring that the system calibration is performed after the system installation is completed or the system is repaired. Do not try to use the system if system calibration is not performed.

Distances measurements

Distances measurements in millimeters are possible only after distance calibration has been performed using a reference object (refer to VXvue User Manual).



The operator is responsible for performing distance calibration with a reference object and verifying the results of the distance calibration before taking any distance measurements on an image.

Left/Right Marker

The operator is responsible for the correct and clear marking on the left or right side of the image to eliminate possible errors.

The software includes an option to mark the image with L (left) or R (right) indicator from acquisition phase through printing and archiving. If the operator chose, for any reason, not to use L/R markers, he must use an alternative way to eliminate any possible mistake.



Image Backup

To avoid missing images which might result in patient being exposed to additional doses of radiation, it is important to backup the images by filming or by using a CD or DVD option. This should be done as a routine operation for every patient.

If the hard disk of your workstation is about to full, the operator should backup images and delete the images to make room on the hard disk for new patient.

User Limitations

The VXvue software has the technician mode which could only be operated with the inputting PASSWORD. The technician mode should be operated by the personnel who are qualified by Vieworks.

Cleaning the System

Use a dry cloth to clean surfaces of the system. Do not use detergents or organic solvents to clean the system. Strong detergent, and organic cleaners may damage the finish and cause structural weakening. Do not clean the system with turning the power on.

Disposal

Disposal of this product in an unlawful manner may have negative effects on health and on the environment. When disposing of this product, therefore, be absolutely sure to follow the procedure which is in conformity with the laws and regulations applicable in your area.



The expected life span of ViVIX-S Wireless system is about 3 years.

Overheating

Do not block the ventilation ports of the detector to prevent overheating of the detector. Overheating can cause system malfunction and damages.

Electrical fire

- This equipment is not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
- Conductive fluids that drain into the active circuit components of the system may cause short circuits that can result in electrical fire. Therefore, do not place fluids or food on any part of the system.
- To avoid electric shocks and burns caused by use of the wrong type of fire extinguisher, make sure that the fire extinguisher at the site has been approved for use on electrical fires.



Handling the Equipment

The Equipment must be handled with care to avoid personal injury damage to the internal image sensor.

| CAUTION | • | Do not put pressure on the detector locally since it will cause permanent damage to |
|---------|---|---|
| | | the internal image sensor. |
| | • | Excessive weight on the equipment may damage the internal image sensor. |
| | • | It is recommended to use the case, in case if a patient should be positioned to put |
| | | pressure on the detector while acquiring images. |

| Load Limit | Specifications | |
|--------------|--|--|
| Uniform Load | 150 kg over the whole area of the detector surface | |
| Local Load | 100 kg on an area 40 mm in diameter | |

Pediatric Application

- Every request should be reviewed by the pediatric radiologist prior to beginning the examination to insure correct study is being performed.
- If the technologist notices an unusual request, they should contact the pediatric radiologist. An example should be from pediatric clinic where they order a Full Cervical, Thoracic, and Lumbar Spine series. The pediatric radiologist should contact ordering physician and decide which study is the best for this pediatric patient.
- The technologist should use the proper technique for the patient's size to decrease the radiation dose when the technologist acquires diagnostic images.
- ALL Pediatric patients shall be shielded for their x-ray examinations, except for when the shield will
 obscure the region of interest, as in a pelvic or SI joint xray for trauma or arthritis, or when it is physically
 or clinically unreasonable to shield the patient. For routine Hip X-Rays, ALL male children shall have
 their scrotum shielded using the small gonadal shield, females may not be shielded as this would
 obscure the hips.
- To minimize motion in infants and young children, swaddle the infant. Use distraction tools to improve cooperation and projectors with child-friendly themes, music, toys with flashing lights or music, child-friendly images on the ceiling or walls, singing, counting, and a parent reading and talking to the child through the console all can help reduce anxiety and comfort the child.
- A Scoliosis series will consist of a single frontal standing view of the spine. No lateral view or supine view is needed, unless specifically asked for by the Orthopedist or Radiologist. If the female's breasts can be shielded without obscuring the spine, breast shields should be used.



Regulatory

Medical Equipment Classifications

| Type of protection against electrical shock | Class I equipment |
|---|--|
| Degree of protection against ingress of water | IPXO |
| Mode of operation | Continuous operation |
| Flammable anesthetics | NOT suitable for use in the presence of a flammable |
| | anesthetic mixture with air or with oxygen or nitrous oxide. |

Equipment Standards

| IEC/EN/UL 60601-1 | Medical electrical equipment |
|---------------------|--|
| CSA C22.2 No. 601.1 | Part 1: General requirements for safety |
| IEC/EN 60601-1-2 | Medical electrical equipment Part 2: Electromagnetic compatibility-requirements and tests |
| IEEE 802.11a/b/g/n | Wireless Communications |



Guidance and Manufacturer's Declaration for EMC Directive

This device has been tested for EMI/EMC compliance, but interference can still occur in an electromagnetically noisy location. Attempt to maintain a suitable distance between electrical devices to prevent malfunction.

Electromagnetic Emissions

The Equipment Under Test (EUT) is intended for use in the electromagnetic environment specified below. The customer or user of the EUT should assure that it is used in such an environment.

| Immunity Test | Compliance | Electromagnetic Environment – Guidance |
|-----------------------|------------|---|
| RF Emissions | Group 1 | The EUT uses RF energy only for its internal function. Therefore, its |
| CISPR 11 | | RF emissions are very low and are not likely to cause any |
| | | interference in nearby electronic equipment. |
| RF Emissions | Class A | The EUT is suitable for use in all establishments other than |
| CISPR 11 | | domestic and those directly connected to the public low-voltage |
| Harmonic emissions | Class A | power supply network that supplies buildings used for domestic |
| IEC 61000-3-2 | | purposes. |
| Voltage fluctuations/ | Complies | |
| Flicker emissions | | |
| IEC 61000-3-3 | | |



Electromagnetic Immunity

The EUT is intended for use in the electromagnetic environment specified below.

The customer or user of the EUT should assure that it is used in such an environment.

| Immunity Test | IEC 60601 Test Level | Compliance Level | Electromagnetic Environment – Guidance |
|---------------------|--|--|--|
| Electrostatic | ±6 kV | ±6 kV | Floors should be wood, concrete or ceramic tile. If |
| discharge (ESD) | contact | contact | floors are covered with synthetic material, the relative |
| IEC 61000-4-2 | ±8 kV air | ±8 kV air | humidity should be at least 30%. |
| Electrical fast | ±2 kV for | ±2 kV for | Mains power quality should be that of a typical |
| transient/burst | lines | power supply lines | commercial or hospital environment. |
| IEC 61000-4-4 | ± 1 kV for input/output lines | ± 1 kV for input/output lines | |
| Surge | ±1 kV | ±1 kV | Mains power quality should be that of a typical |
| IEC 61000-4-5 | mode | mode | commercial or hospital environment. |
| | ±2 kV common mode | ±2 kV common mode | |
| Voltage dips, short | <5% UT | <5% UT (> 05% din in | Mains power quality should be that of a typical |
| interruptions and | UT) for 0.5 | (>95% dip in UT) for 0.5 | commercial or hospital environment. If the user of the |
| voltage variations | cycle. | cycle. | EUT image intensifier requires continued operation |
| on power supply | 40% Ut (60% din in | 40% Uτ (60% dip in Uτ) for 5 cycles. | during power mains interruptions, it is recommended |
| input lines | UT) for 5 | | that the EUT image intensifier be powered from an |
| IEC 61000-4-11 | cycles. | | uninterruptible power supply or a battery. |
| | 70% Uτ (30% dip in Uτ) for 25 cycles. | 70% Uτ (30% dip in Uτ) for 25 cycles. | |
| | <5% Uт (<95% dip in Uт) for 5 sec. | <5% Uт (<95% dip in Uт) for 5 sec. | |
| Power frequency | 3 A/m | 3 A/m | Power frequency magnetic fields should be at levels |
| (50/60 Hz) | | | characteristic of a typical location in a typical |
| magnetic field | | | commercial or hospital environment. |
| IEC 61000-4-8 | | | |

NOTE: $U\tau$ is the a.c. mains voltage prior to application of the test level.



| Immunity Test | IEC 60601 Test Level | Compliance Level | Electromagnetic Environment – Guidance |
|---------------|----------------------------|----------------------------|--|
| Conducted RF | 3 Vrms 150 | 3 Vrms 150 | Portable and mobile RF communications equipment |
| IEC 61000-4-6 | | KAZ LO OO MAZ | should be used no closer to any part of the EUT, |
| | | | including cables, than the recommended separation |
| | | | distance calculated from the equation applicable to the |
| Radiated RF | 3 V/m 80 MHz | 3 V/m 80 MHz | frequency of the transmitter. |
| IEC 61000-4-3 | 3 V/m 80 MHz to 2.5 GHz | 3 V/m 80 MHz to 2.5 GHz | Recommended separation distance $d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$ $d = \left[\frac{3.5}{V_1}\right]\sqrt{P} 80 \text{ MHz to 800 MHz}$ $d = \left[\frac{7}{E_1}\right]\sqrt{P} 80 \text{ MHz to 800 MHz}$ 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 meters (m). |
| | | | Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey ^a , should be less than the compliance level in each frequency range. ^b Interference may occur in the vicinity of equipment marked with the following symbol: |

NOTE 1: At 80 $\,$ MHz and 800 $\,$ MHz, 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.

^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than $[V_1]$ V/m.

^a 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 EUT is used exceeds the applicable RF compliance level above, the EUT should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the EUT.



VIVIX-S Wireless Service Manual

Label and Symbols

Detectors

FXRD-1417WA Vieworks CE 0434 Digital Imaging Systems ViVIX-S Part No.: FXRD-1417WA Flat Panel Detector VP09P112001 Rating: 4,000mAh / 24V---Max. 0.5A ww 2012.03 Date of manufacture: March UL 60601-1/CAN/CAS US C22.2 No. 601.1 Caution: Federal law restricts this device to sale by or on the order of a physician or a licensed practitioner. CAUTION: To reduce the risk of electric shock, do not remove cover. No user-serviceable part inside. Refer servicing to qualified service personnel. Manufacturer: Vieworks Co., Ltd. #107-108, 801-810 Suntechnity II, 52, Sagimakgol-ro, Jungwon-gu, Seongnam-si, Gyeonggi-do, 462-808 MADE IN KOREA South Korea







System Control Unit



Battery Charger







Symbols

| Symbol | Description |
|----------------|--|
| | Direct Current |
| \sim | Alternating Current |
| | Protective Earth (Ground) |
| Å | Equipotentiality |
| 0 | Power Off |
| \triangle | Attention, consult accompanying documents |
| | Power On |
| ASSIFIA | Medical Equipment |
| , U), | With Respect to electric shock, fire, and mechanical hazards only |
| | In accordance with UL60601-1 and CAN/CSA C22.2 No. 601.1. |
| C€ 0434 | This mark shows compliance of the equipment with Directive 93/42/EEC. |
| | Read and understand all instructions and warning labels in the product |
| | documentation before using the equipment. |
| | Keep manual for future reference. |



1. Overview

The *ViVIX-S Wireless* is advanced wireless flat panel X-ray imaging system designed for digital radiography. The lightweight wireless digital radiography is designed to be compatible with conventional X-ray film cassettes so that the users who are not familiar with Digital Radiography (DR) can easily understand and use the *ViVIX-S* system. In addition, the wireless communication (IEEE 802.11a/b/g/n) feature improves the operability and high-speed processing.

1.1 Features

- Wireless LAN communication (IEEE 802.11a/b/g/n) feature
- Supporting Conventional 35 \times 43 X-ray film cassette
- Compatible with not only new X-ray generators based on DR interface but also conventional X-ray generators
- Designed with simple wiring and lightweight for portable applications
- Image digitization, image inversion, image processing, zooming, panning, window level adjustment, contrast adjustment, and various features enable the operator to see diagnostic details that is difficult to see by using conventional non-digital techniques.
- Depending on the operating environment, the Ether Con Cable (optional) enables the device to be used through expansion to a wired connection.

1.2 Intended Use

The *ViVIX-S* Digital X-ray detector is indicated for digital imaging solution designed for providing general radiographic diagnosis of human anatomy. This device is intended to replace film or screen based radiographic systems in all general purpose diagnostic procedures. This device is not intended for mammography applications.



1.3 Standard Configuration



Figure 1.1 ViVIX-S Wireless System Configuration

Wireless communication is established between the ViVIX-S Wireless detector and System Control Unit. The ViVIX-S system is compliant with IEEE 802.11a/b/g/n (2.4 GHz / 5 GHz). The available frequency band may vary depending on local radio laws and system requirements. Consult your local dealer for the frequency available in your area.

| i | Use of multiple WLAN devices within the same frequency band may interfere with each wireless communication and cause a decline in transmission speed. |
|---|---|
| i | Do not cover or block the wireless module of the detector. Otherwise, the transmission speed or operable distance may be reduced. |
| i | Recommended maximum operating distance of wireless communication between the detector and System Control Unit is 8 meters. |



2. Product Description

ViVIX-S Wireless system consists of detector, system control unit (SCU), battery charger, battery pack, software and its accessories.

2.1 Product Components

Detector

- FXRD-1417WA (scintillator: CsI (TI))
- FXRD-1417WB (scintillator: Gadox)

System Control Unit (SCU)

• FXRS-03A

Battery Charger and Battery Pack

- FXRC-01A
- FXRB-01A

Software

- Viewer: VXvue
- Calibration and Diagnostic: VXSetup





Accessories (Cables)

- AC Power Cable (2M)
- Generator Interface Cable (15M)
- Direct LAN Cable 15M (1000BASE-T)
- Tether Interface Cable (3M)

The use of accessories and cables other than those specified, with the exception of *ViVIX-S Wireless* accessories and cables sold by Vieworks Co., LTD. as replacement parts for internal components, may result in increased emissions or decreased immunity of the equipment.



Accessory equipment connected to the analog and digital interfaces must be certified according to the respective IEC standards. All combinations of equipment must be in compliance with IEC 60601-1-1 system requirements. Any person who connects additional equipment to the signal input or signal output ports configures a medical system, and is therefore responsible for ensuring that the system complies with the requirements of the system standard IEC 60601-1. If in doubt, consult Vieworks technical support representative.

Workstation (Recommended but NOT included)

| • | Operating System | Microsoft Windows XP 32 bit SP3 (Professional Edition), | |
|---|------------------|---|--|
| | | Windows 7 32 bit SP1 (Professional Edition or higher) or | |
| | | Windows 7 64 bit SP1 (Professional Edition or higher) | |
| • | CPU | Intel Core i5 2600 or higher (or equivalent AMD chips) | |
| • | Memory | 2 GB or higher | |
| • | Hard Disk | 1 TB or higher | |
| • | Ethernet (NIC) | Intel® PRO 1000 Series (PT, CT, etc) | |
| | | Min. Requirements: 1Gbps, Jumbo Frames - 9K, Receive Descriptors - 2K | |
| • | Monitor | 1280 \times 800 or higher | |
| • | CD-Rom | CD or DVD R/W or blu-ray | |



2.2 Detector

2.2.1 Detector Specifications

| ltem | Description | | |
|--|--------------------------------------|---|--|
| Model | FXRD-1417WA(B) | | |
| Purpose | General radiography | | |
| Image Matrix Size | 2560 × 3072 pixels | | |
| Pixel Pitch | 140 µm | | |
| Effective Imaging Area | 358 mm × 430 mm | | |
| Grayscale | 14 bit, 16,384 grayscale | e | |
| Scintillator | CsI (Cesium Iodide) or | Gadox (Gadolinium Oxysulfide) | |
| Image Acquire and Transfer Time | Preview: 2 s, Image Pre | ocessing: 6.5 s (2 s when using Tether Interface) | |
| Spatial Resolution | Min. 3.5 line pair/mm | | |
| Rated Power Supply | DC +24 V, Max. 0.5 A | | |
| Wireless | Powered by the ba | attery pack (4,000 mA h) | |
| • Wired | Powered by the SC | CU using tether interface | |
| Power Consumption | Max. 12 W | | |
| Wireless Communications | IEEE 802.11a/b/g/n (2.4 GHz / 5 GHz) | | |
| [†] Tether Interface (Optional) | Gigabit Ethernet (1000 | BASE-T) via [‡] PoE | |
| Imaging Plate | Carbon Fiber Plate | | |
| Cooling | Air cooling | | |
| Dimensions ($H \times W \times D$) | 384 mm × 460 mm × 15 | mm | |
| Weight | 3.0 kg (including batte | ry pack) | |
| Environmental Requirements | | | |
| Operation | Temperature: | +10 ~ +35℃ | |
| | Humidity: | 30 \sim 85% (Non-Condensing) | |
| | Atmospheric pressure: | $70 \sim 106 \text{ kPa}$ | |
| | Altitude: | Maximum 2000 meters | |
| Storage and transportation | Temperature: | -15 ∼ +55 ℃ | |
| | Humidity: | 10 \sim 90% (Non-Condensing) | |
| | Atmospheric pressure: | $50~\sim~106~$ kPa | |
| | Altitude: | Maximum 2000 meters | |

Table 2.1Detector Specifications

[†]Tether Interface: Allows the detector to communicate with SCU via Ethernet cabling when wireless communications is

not available or higher speed data transfer is necessary.

[‡]**PoE (Power over Ethernet)**: Delivers electrical power over LAN cabling to the networked device.



2.2.2 Detector Components



Figure 2.1 Detector Components

| No. | Name | Description |
|-----|-------------------|---|
| 1 | Status Indicators | A: Data LED, Indicates communication and transmission status Blue |
| | | B: Active LED, Indicates the detector is ready to work Orange |
| | | C: Power LED, Indicates power on/off status Green |
| | Power button | D: Power button, Press to power on or off the detector. |
| 2 | Wireless Module | Transmits data with wireless communications (IEEE 802.11a/b/g/n). |
| 3 | Tether Interface | Allows the detector to communicate with SCU via PoE cabling (Gigabit Ethernet |
| | | 1000BASE-T) |
| 4 | Battery Pack | Supplies electrical power to the detector while communicating wirelessly. |

 Table 2.2
 Detector Components Description



- 6-6

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2.2.3 Detector Dimension



Figure 2.2 Detector Dimension



2.3 System Control Unit

2.3.1 System Control Unit Specifications

| Item | Description |
|--------------------------------------|--|
| Model | FXRS-03A |
| Power Supply | Input: AC100 to 240V, 50/60 Hz, Max. 200VA |
| | Output: DC +24V 3.3A, 80W |
| Cabling Ports | Gigabit Ethernet Ports – 3EA |
| | Power over Ethernet Ports – 2EA (Only for FXRD-1417) |
| Wireless Communications | IEEE 802.11a/b/g/n (2.4 GHz / 5 GHz) |
| Dimensions (W \times H \times D) | 300 mm × 235.8 mm × 58 mm, Antenna Height – 105 mm |
| Weight | 2.5 kg |
| Environmental Requirements | |
| Operation | Temperature: +10 ~ +35℃ |
| | Humidity: $30 \sim 85\%$ (Non-Condensing) |
| | Atmospheric pressure: 70 \sim 106 kPa |
| | Altitude: Maximum 2000 meters |
| Storage and transportation | Temperature: -15 ~ +55 ℃ |
| | Humidity: $10 \sim 90\%$ (Non-Condensing) |
| | Atmospheric pressure: 50 \sim 106 kPa |
| | Altitude: Maximum 2000 meters |

 Table 2.3
 System Control Unit Specifications



2.3.2 System Control Unit Components





Figure 2.3 System Control Unit (Front)

| No. | Name | Description | |
|-----|--------------|--|--|
| 1 | Power Switch | Turns on or off the SCU. | |
| 2 | Fan | Expels heated air inside of the SCU. | |
| 3 | Antenna | Assists communications between the detector and SCU. | |
| 4 | Status LED | Indicates status of SCU operation and connection. | |
| | | Blinking Green: Startup in progress | |
| | | Blue: Connected to Wi-Fi network | |

 Table 2.4
 System Control Unit Components (Front)





Figure 2.4 System Control Unit (Back)

| No. | Name | | Description |
|-----|----------------|---|---|
| 1 | EXT_INF | • | Provides connection to the X-ray generator. |
| 2 | Port 1 | • | Provides Gigabit Ethernet (1000BASE – T) communication |
| | | | between the workstation and SCU. |
| | | • | Gigabit Ethernet (1000BASE – T) Port |
| | Port 2, Port 3 | • | Provides communication between FXRD-1717 and SCU when |
| | | | configuring multiple detectors. |
| | | • | Gigabit Ethernet (1000BASE – T) Port |
| 3 | Status LED | • | Indicates Port 4 and Port 5 status (Green: 1Gbps, Orange: |
| | | | 100Mbps) |
| 4 | Port 4, Port 5 | • | Connection interface to communicate with the detector and to |
| | | | supply electrical power to the detector (Only for FXRD-1417). |
| | | • | Power over Ethernet Port (1000BASE-T) |
| 5 | Power Supply | • | Connection interface to supply power to a FXRD-1717 detector. |
| | | • | Max. DC +24V/24W (×2 ports) |
| 6 | P.E | • | Provides connection to equipotential ground. |
| 7 | AC Input | • | Connect the power cable to the power socket. |
| | | • | 100 ~ 240V, 50/60 Hz, T2AL250V Fuse (2 EA) |

Table 2.5 System Control Unit Components (Back)



P.E (Potential Equalization) of SCU is used to keep equipotential between SCU and an equipment to be used with ViVIX-S Wireless. To connect to P.E of equipment, use a ground cable.



ViVIX-S Wireless Service Manual

2.3.3 SCU Dimension



Figure 2.5 SCU Dimension



2.3.4 Fuse

Two fuses are installed inside of SCU to prevent electrical accidents due to an error such as overcurrent occurred in the AC Input. Stop immediately using SCU when fuses break.

| Item | Description |
|----------------|---------------------------------------|
| Model | Littlefuse [®] 218002 (2 EA) |
| Туре | Time Lag Cartridge Fuse |
| Amp Rating | 2 A |
| Voltage Rating | 250 V |

Replacing Fuses

| | • | Turn off SCU and its peripheral equipment, and pull the plug out of the power socket |
|---------|---|--|
| | | before replacing fuses. |
| | • | When fuses break, resolve the cause of overcurrent first, and then replace the fuses |
| | | with extra fuses (optional items, one set of two) or equivalent rating fuses. |
| WARNING | • | User must not contact a fuse holder with a patient simultaneously during operating |
| | | the equipment and not allow patient to touch the fuse holder. |

1. Pull the fuse holder out from its receptacle under AC Input on the back panel of SCU.



2. Check the fuse(s) and replace it if necessary, using the fuse type and rating specified above.



3. Push the fuse holder back.



2.4 Battery Charger and Battery Pack

2.4.1 Battery Charger Specifications

| Item | Description |
|-------------------------------------|--------------------------------|
| Model | FXRC-01A |
| Simultaneous Charging | Battery Pack 3 EA |
| Charging Time | 2 hours |
| Rated Power Supply | DC +24V, 2.7 A Max. |
| Dimension (W \times H \times D) | 192.0 mm × 167.5 mm × 223.4 mm |
| Weight | 1.2 kg |

| Table 2.6 | Battery | Charger | Specifications |
|-----------|---------|---------|-----------------------|
| | | | |

2.4.2 Battery Charger Components



Figure 2.6 Battery Charger

| No. | Name | Description |
|-----|---------------------|--|
| 1 | Battery Compartment | Insert the battery pack to charge. |
| 2 | Charging Indicator | Indicates the charging status. |
| | | (Orange: Charging, Green: Fully Charged) |
| 3 | Power Indicator | Indicates the power on/off status. |
| 4 | DC Input | Connect the DC adapter to supply electrical power to the battery |
| | | charger. |

Table 2.7 Battery Charger Components



ViVIX-S Wireless Service Manual

2.4.3 Battery Charger Dimension





Figure 2.7 Battery Charger Dimension



2.5 Battery Pack

2.5.1 Battery Pack Specifications

| Item | Description |
|-------------------------------------|------------------------------|
| Model | FXRB-01A |
| Туре | Lithium Polymer |
| Rated Power Supply | Output: DC +7.4V |
| Capacity | 4000 mA h |
| Number of Cell | 2S1P (2 Series 1 Parallel) |
| Dimension (W \times H \times D) | 144.4 mm × 143.4 mm × 7.0 mm |
| Weight | 220 g |

Table 2.8Battery Pack Specifications





2.5.2 Battery Pack Dimension




2.5.3 Charging Battery Pack

The battery pack supplies power to the detector during wireless connection. Be sure to use only the dedicated battery pack and fully charge it before use.

- 1 Connect the power cable (adapter not included) to the DC Input port of the battery charger and the power cord to the power source to supply power. The power LED lights in green indicating the presence of direct current (DC) power.
- 2 Insert the battery pack into the battery charger. Charging starts automatically. The charge LED lights orange when the battery pack is being charged. After the battery pack is charged completely, the charge LED lights in green.
- 3 Gently pull the charged battery pack to remove from the battery charger.

| WARNING | Securely plug the power cord into the power source. If contact failure occurs, or if dust or |
|--------------|--|
| | metal objects come into contact with the exposed metal prongs of the plug, fire or |
| | electrical shock may occur. |
| \mathbf{A} | Be sure to stop charging the battery pack when the charge LED lights in green beyond the |
| | specified charging time. Not doing so may result in battery pack overheating or smoking or |
| CAUTION | in explosion or fire. |
| CAUTION | You must use the power adaptor that is certified with IEC 60950 or IEC 60601-1. |

| i | Three batteries can be charged at the same time. |
|---|--|
| i | It takes approximately two hours to fully charge a battery pack. The required charging time may vary depending on the temperature and remaining battery level. |



2.6 X-ray Generator Interface

2.6.1 X-ray Exposure Mode

| Mode | | Description |
|-----------------|---|---|
| DR Trigger Mode | 1 | The detector receives EXP_REQ signal that X-ray generator is prepared to |
| | | generate X-rays. |
| | 2 | The detector prepares image acquiring and then responds EXP_OK signal to the |
| | | X-ray generator. |
| | 3 | The X-ray generator confirms EXP_OK signal and generates X-rays, then the |
| | | detector performs image acquiring according to Image Acquisition Time and |
| | | transmits the image data. |
| | • | EXP_REQ (Generator \rightarrow Detector), EXP_OK (Detector \rightarrow Generator) |
| AED Mode | • | The detector detects actual amount of X-rays without any connection to the X-ray |
| | | generator, and then performs image acquiring according to Image Acquisition Time |
| | | and transmits the image data. |
| | • | No signal used (No need to connect Generator Interface Cable.) |

Table 2.9 Exposure Mode

2.6.1.1 DR Trigger Mode



Figure 2.10 DR Trigger Mode Configuration

• DR Trigger is the most common and recommended exposure mode. User can achieve the best quality images with DR Trigger Mode.



2.6.1.2 AED Mode





Figure 2.11 AED Configuration

• AED is available for acquiring images without any connection to X-ray generator. Generator interface cable is not required.

| | • | Make sure to follow operating environmental requirements (Temp: +10 \degree ~ +35 \degree). |
|---------|---|--|
| CAUTION | • | If you use AED Mode out of operating environmental requirements, unwanted image |
| | | can be acquired without X-ray image acquiring. |
| | • | Do not hit or drop the equipment. Unwanted images may be acquired in the AED |
| | | Mode if it receives strong jolt. |
| | • | If you use a Grid under general imaging condition (Dose) or image a thick object in |
| | | the AED Mode, the efficiency of X-ray transformation may be reduced about 0% ~ 2% |
| | | compared to the DR Trigger Mode according to the thickness of the target. |
| | • | If you image a thick object in the AED Mode with low X-ray tube voltage, an image |
| | | may not be acquired or horizontal line noise may occur. |



2.6.2 Timing of Signals (DR Trigger Mode)



Figure 2.12 Timing of Exposure signal

- Image Acquisition Time+
 - Exposure request signal A (EXP_REQ) should be applied first, then exposure respond signal B (EXP_OK).
 - Image Acquisition Time can be set from 40 ms to 4,000 ms with 1 ms increment when default value is 500 ms.

2.6.3 EXT_INF Port Pin Assignment



Figure 2.13 EXT_INF port pin assignments





| No. | Signal Name | I/O | Color | Description | |
|-----|----------------|--------|-------------|--|--|
| | | | | Detector receives signal that X-ray generator is | |
| 4 | | loout | Red | prepared to generate X-rays. | |
| I | EXP_REQ+_A | input | Reu | Contact Type – On: Closed, Off: Open | |
| | | | | For the 1st DR Interface of Generator | |
| 2 | EXP_REQA | Input | Black | Return signal from EXP_REQ+_A. | |
| | | | | Detector receives signal that X-ray generator is | |
| | | | | prepared to generate X-rays. | |
| 3 | EXP_REQ_TTL_A | Input | Orange | TTL (Voltage) Type – On: VCC, Off: GND | |
| | | | | • Current (5 mA ~ 10 mA), Voltage (12 V ~ 24 V) | |
| | | | | For the 1st DR Interface of Generator | |
| 4 | EXP_REQ_GND_A | Input | Gray | Return signal from EXP_REQ_TTL_A | |
| | | | | Power of TTL signal coming from X-ray generator | |
| 5 | EXP_OK_POWER_A | Input | Yellow | • This is for the 1st DR Interface of Generator, but | |
| | | | | it can be shared with the 2nd DR Interface. | |
| | | | | Detector responds to X-ray generator about X- | |
| | | | | ray generation. | |
| 6 | | Output | Croon | The X-ray generator generates X-rays according | |
| 0 | EXF_OR+_A | Output | Gleen | to this signal and then the detector performs X- | |
| | | | | ray image acquiring. | |
| | | | | For the 1st DR Interface of Generator | |
| 7 | EXP_OKA | Output | Brown | Return signal from EXP_OK+_A | |
| 8 | | Output | Blue | Same as "EXP_OK+_A" for the 2nd DR Interface of | |
| | | Output | Dide | Generator. | |
| 9 | | Output | Pink | Same as "EXP_OKA" for the 2nd DR Interface of | |
| | | Output | | Generator. | |
| 10 | Reserved | - | - | Do not connect. Reserved for testing. | |
| 11 | EXP REO+ B | Innut | White | Same as "EXP_REQ+_A" for the 2nd DR Interface of | |
| | | input | VVIIIC | Generator. | |
| 12 | EXP REO- B | Innut | Purole | Same as "EXP_REQA" for the 2nd DR Interface of | |
| | | input | | Generator. | |
| 13 | | Input | White/Red | Same as "EXP_REQ_TTL_A" for the 2nd DR | |
| | | input | vvnite/Keu | Interface of Generator. | |
| 14 | | Innut | White/Black | Same as "EXP_REQ_GND_A" for the 2nd DR | |
| | | input | | Interface of Generator. | |
| 15 | Reserved | - | - | Do not connect. Reserved for testing. | |

Table 2.10EXT_INF1 port pin description (1 ~ 15)





| No. | Signal Name | I/O | Color | Description |
|-----|----------------|--------|--------|---|
| 16 | EXP_REQ+_C | Input | Red | Same as "EXP_REQ+_A" for the 3rd DR Interface of Generator. |
| 17 | EXP_REQC | Input | Black | Same as "EXP_ REQA" for the 3rd DR Interface of Generator. |
| 18 | EXP_REQ_TTL_C | Input | Orange | Same as "EXP_REQ_TTL_A" for the 3rd DR Interface of Generator. |
| 19 | EXP_REQ_GND_C | Input | Gray | Same as "EXP_REQ_GND_A" for the 3rd DR Interface of Generator. |
| 20 | EXP_OK_POWER_C | Input | Yellow | Same as "EXP_OK_POWER _A" for the 3rd DR Interface of Generator. |
| 21 | EXP_OK+_C | Output | Green | Same as "EXP_OK+_A" for the 3rd DR Interface of Generator. |
| 22 | EXP_OKC | Output | Brown | Same as "EXP_OKA" for the 3rd DR Interface of Generator. |
| 23 | EXT_A+ | Input | - | Detector receives the 1st status signal that it is equipped on/in the table or in the wall stand. Contact Type – On: Closed, Off: Open |
| 24 | EXT_A- | Input | - | Return signal from EXT_A+ |
| 25 | EXT_B+ | Input | - | Same as "EXT_A+" for the 2nd status signal |
| 26 | EXT_B- | Input | - | Same as "EXT_A-" for the 2nd status signal |
| 27 | EXT_C+ | Input | - | Same as "EXT_A+" for the 3rd status signal |
| 28 | EXT_C- | Input | - | Same as "EXT_A-" for the 3rd status signal |
| 29 | EXT_D+ | Input | - | Same as "EXT_A+" for the 4th status signal |
| 30 | EXT_D- | Input | - | Same as "EXT_A-" for the 4th status signal |

Table 2.11EXT_INF2 port pin description (16 ~ 30)



2.6.4 Input and Output Circuits

The following diagrams describe exposure request and exposure OK circuits.



Figure 2.14 Exposure Request Input Circuit



Figure 2.15 Exposure Respond Output Circuit



3. Packaging and Contents

| Detector (FXRD-1417WA/B) | System Control Unit (FXRS-03A) |
|--|--------------------------------|
| | |
| Battery Charger | Battery Pack |
| | |
| Generator Interface Cable (15M) | LAN Cable (Gigabit LAN, 15M) |
| | |
| AC Power Cable | Tether Interface |
| Contraction of the second seco | |
| Installation | Software CD |
| Viewer: | VXvue |
| Calibration SW: | VXSetup |
| Calibration Data | |





4. How to Install

4.1 Hardware Installation

This section describes how to connect the flat panel imaging system (detector) whose model name is FXRD-1417WA(B).



Installation of this equipment should be made by licensed and authorized personnel.

4.1.1 FXRD-1417WA (B)

1 Connect the one end of the generator interface cable to the EXT_INF port of SCU, and the other to the port of the X-ray generator.



2 Connect the one end of the LAN cable to Port 1 of SCU, and the other to the LAN Card Connector of workstation assigned for the Data Transfer.





3 Make an antenna of SCU stand upright.



4 To transmit image data using Tether Interface, connect the one end of the Tether Interface cable to Port 4 or Port 5 of SCU.







5 Connect the power cable to the AC port of the SCU to supply power.



This equipment must only be connected to a supply mains with protective earth.



6 Turn on the power switch in front of the SCU.





7 Attach a fully charged battery pack to the detector. To attach the battery pack, slide the battery pack into the battery compartment of the detector. Make sure that the claws on the battery pack are aligned with the groove on the battery compartment. Slide the battery lock lever until it clicks into place.



8 Press and hold the power button of the detector for 3 seconds to turn on the detector.



9 When you have finished using the detector, press and hold the power button for 3 seconds to turn off the detector. Remove the battery pack if the detector will not be used for some time. To remove the battery pack, slide the battery lock lever to release it, put your fingers on the battery compartment groove that lifts up, and then pull out the battery pack.



When the detector is not be used for some time, remove the battery pack. Otherwise, over discharge may occur, resulting in shortened battery life.



4.2 Software Installation

4.2.1 Intel Gigabit Controller Driver Installation and Setting

| i | Before installing Intel Gigabit Controller Driver, make sure your Ethernet Card is properly |
|---|--|
| | installed on the workstation. |
| | The recommended Ethernet Card is Intel [®] Gigabit CT or later. And also, Ethernet Card |
| | supporting 1 Gbps or above is available. |
| | Gigabit LAN card must support the following requirements. |
| | [Jumbo Frames: 9014 Byte], [Receive Descriptors: 2048] |
| | |



This is not a component of ViVIX-S but recommend component. So, you have to use installation package designed for your Gigabit Controller.
1~8 steps may differ according to Gigabit Controller to use.
Following procedures are provided as an example to refer to.

1 Click **PROXP.exe** to start InstallShield Wizard, and then click the **Run** button.





2 Click the **Next** button.



3 Accept the license agreement and click the **Next** button.

| License Agreement Please read the following license agree | eement carefully. | | (intel |
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| Do not use or load this software a "Software") until you have careful loading or using the Software, you do not wish to so agree, do not ins LICENSES: Please Note: | nd any associated lly read the followin a agree to the term stall or use the Sof | l materials (colle ng terms and co s of this Agreen tware. | ectively, the inditions. By nent. If you |
| Do not use or load this software a "Software") until you have careful loading or using the Software, you do not wish to so agree, do not ins LICENSES: Please Note: Laccept the terms in the license agre Lo not accept the terms in the license agre | nd any associated ly read the followin a gree to the term stall or use the Sof sement use agreement | l materials (colle ng terms and co is of this Agreen tware. | ectively, the inditions. By nent. If you |
| Do not use or load this software a "Software") until you have careful loading or using the Software, you do not wish to so agree, do not ins LICENSES: Please Note: I accept the terms in the license agre I go not accept the terms in the licen stallShield | nd any associated ly read the followi I agree to the term stall or use the Sof sement ise agreement | I materials (colle ng terms and co is of this Agreen tware. | ectively, the inditions. By nent. If you |



4 Select the components to install and click the **Next** button.

| ntel(R) Network Connections | × |
|--|--------------|
| Setup Options Select the program features you want installed. | (intel) |
| Install: | |
| Drivers Totel(R) PROSet for Windows* Device Manager Device Manager Device Manager Device Manager District (R) Network Services Intel(R) Network Connections SNMP Agent | |
| Feature Description | |
| < Back | ext > Cancel |

5 Click the **Install** button.

| cuty to instancie i rogram | (intel |
|--|----------------------------------|
| The wizard is ready to begin installation. | under |
| Click Install to begin the installation. | |
| If you want to review or change any of your installation setti exit the wizard. | ngs, click Back. Click Cancel to |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



6 When the following message appears, click the **Continue Anyway** button.



7 Installation status bar appears in Installing Intel® Network Connections dialog box.

| 🙀 Intel(R) | Network Connections - InstallShield Wizard | <u>- 🗆 ×</u> |
|------------------------|---|--------------|
| Installing The prog | Intel(R) Network Connections ram features you selected are being installed. | (intel) |
| P | Please wait while the InstallShield Wizard installs Intel(R) Network Connections. This may take several minutes. | |
| | Status: | |
| | Compiling MOFs | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| InstallShield - | | |
| | < Rarb Mavt N | Cancel |
| | < Dark Maxes | Callud |



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8 Click the **Finish** button.



4.2.2 Gigabit Controller Setting on Windows XP

1 Click Start > Setting > Control Panel > Network Connections to open the Network Connections dialog box, and then rename Local Area Connection with GigE.

| SNetwork Connections | | | | | <u>_0×</u> |
|--|---------------|-------------------|---|--|--|
| File Edit View Favorites | <u>T</u> ools | Adva <u>n</u> ced | Help Jers | | <u></u> |
| Address 🔊 Network Connectio | ns | | | | 💌 🛃 Go |
| | | Name | Туре | Status | Device Name |
| Network Tasks Image: Create a new connection Image: Create a new connection Image: Set up a home or small office network Image: Change Windows Firewall settings | * | LAN or His | gh-Speed In LAN or LAN or LAN or | ternet Network cabl Connected Limited or no | Broadcom NetXtreme Gigabit Ethernet # Broadcom NetXtreme 57xx Gigabit Cont Intel(R) PRO/1000 GT Desktop Adapter |
| See Also | * | | | | |



It is not necessary to change name with GigE. It just distinguishes between that connection and other connections.

2 Right-click the **GigE** and then click the **Properties**.



3 Uncheck all checkboxes except Vieworks Image Filter Driver or GigaLinx Image Filter Driver and Internet Protocol [TCP/IP].

| | 100 GT Desktop Adap | <u>C</u> onfigure |
|---|--|---------------------------|
| his c <u>o</u> nnection uses I | Location: Slot 5 he f(MAC Address: 00-1 | B-21-19-4E-9F |
| Pile and Printe QoS Packet | er Sharing for Microsoft N Scheduler col (TCP/IP) | letworks |
| l <u>n</u> stall | <u>U</u> ninstall | Properties |
| Description Quality of Service P provides network tra prioritization service | acket Scheduler. This co affic control, including rat s. | omponent e-of-flow and |
| | nation area when conner | ted |
| Show icon in notify | | 160 |

4 Click the **Internet Protocol [TCP/IP]** and set the IP as shown below, and then click the **Advanced** button.

| | | - | - | | Ŀ |
|--|----------------------------|------------------|---------------|---------------------|--------------------|
| eneral | | | | | |
| You can get IP settings assigned au his capability. Otherwise, you need t the appropriate IP settings. | tomatically to ask your | if your netwo | netv ork a | vork su dministr | pports ator for |
| C <u>O</u> btain an IP address automatin | cally | | | | |
| Use the following IP address: - | | | | | |
| IP address: | 169 | 254 | 0 | . 50 | |
| S <u>u</u> bnet mask: | 255 | 255 | 0 | . 0 | |
| <u>D</u> efault gateway: | | | 3 | 10 | |
| C Obtain DNS server address au | Itomatically | 2 | | | |
| • Use the following DNS server a | addresses: | | | | |
| Preferred DNS server: | | | 3 | -13 | |
| Alternate DNS server: | | | 6 | • | |
| | | | | Adva | anced |
| | Ē | ſ | IK | | Cancel |



5 Click the **OK** button to close the dialog box.

| 🖕 GigE Properties | ? × |
|---|------------------------|
| General Advanced | |
| Connect using: | |
| Intel(R) PRO/1000 GT Desktop Adap | <u>C</u> onfigure |
| Location: Slot 5 This connection uses the fqMAC Address: 00-1B | -21-19-4E-9F |
| Glein for Microsoft Networks File and Printer Sharing for Microsoft Ne QoS Packet Scheduler Se Internet Protocol (TCP/IP) | tworks |
| Description Quality of Service Packet Scheduler. This con provides network traffic control, including rate- prioritization services. | nponent of-flow and |
| Show icon in notification area when connect Notify me when this connection has limited or | ed no connectivity |
| OK | Cancel |

6 Click Start > Setting > Control Panel > Network Connections to open the Network Connections dialog box, and right-click GigE, and then click Properties to open the GigE Properties dialog box. Click the Configure button to open the following dialog box, and then go to the Advanced tab.

| a(R) PF | RO/1000 GT Des | sktop Adapter #2 Properties |
|------------------------------|--|---|
| Teamin Genera | g VLANs al Link Spea | Boot Options Driver Resources ad Advanced Power Management |
| | Intel(R) PRO/100 | 00 GT Desktop Adapter #2 |
| | Device type: | Network adapters |
| | Manufacturer: | Intel |
| | Location: | PCI Slot 5 (PCI bus 5, device 4, function 0) |
| This o | device is working p | properly. |
| This o If you start t | device is working p are having proble he troubleshooter. | properly. |
| This of If you start t | device is working p i are having proble the troubleshooter. usage: s device (enable) | properly. ms with this device, click Troubleshoot to |
| This of If you start t | device is working p i are having proble the troubleshooter. usage: s device (enable) | properly. ms with this device, click Troubleshoot to |



7 Set the **Jumbo Frames** to the maximum value.

| tel(R) PRO/1 | 000 GT Deskto | p Adapter #2 | Properties | ? > |
|--|--|---|---|-------------------------|
| Teaming General | VLANs E Link Speed | 8oot Options Advanced | Driver Power M | Resources fanagement |
| (intel) | Advanced Ada | pter Settings | | |
| Settings: | | | <u>/</u> alue: | |
| Gigabit Mast | er Slave Mode | | Disabled | • |
| Locally Admi | es nistered Address te Event | | Disabled 4088 Bytes 9014 Bytes | |
| Performance | e Options Tegging | | 16128 Bytes | |
| TCP/IP Offic Wait for Link | ading Options | • | Use <u>D</u> e | fault |
| Jumbo Fram | ies | | | |
| To help this file | protect your secu from showing activ | rity, Internet Ex ve content that | plorer has rest could access ye | ricted 🗙 |
| Enables Ju where larg latency car utilization a | mbo Frame capab le packets make u n be tolerated, Jun nd improve wire e | ility for TCP/IP pa p the majority of nbo Frames can afficiency. | ackets. In situa traffic and add reduce CPU | tions |
| Jumbo Fra are approx | nes are larger tha imately 1.5k in siz | n standard Ethe e. | rnet frames, w | /hich |
| | | | ОК | Cancel |

8 Choose **Performance Options** in the list of Settings and click the **Properties** button on the right.

| el(R) PRO/1 | 000 GT Desl | ktop Adapter #2 | Properties | ? |
|---------------------------|---------------------|----------------------|-------------|---------------|
| Teaming | VLANs | Boot Options | Driver | Resources |
| General | Link Speed | H Advanced | Powe | er Management |
| (intel) | Advanced | Adapter Settings | | |
| <u>S</u> ettings: | | | r | |
| Gigabit Mast | er Slave Mode es | | Prop | perties |
| Locally Admi | nistered Addre | ess | | |
| Log Link Stat | e Event | 2007 | | |
| Performance OoS Packet | Options Tagging | | | |
| TCP/IP Offlo | ading Options | | | |
| Wait for Link | | _ | | |
| Performance | e Options | | | |
| Configures performand | the adapter to | ouse settings that d | can improve | adapter 🔀 |
| | | | | |
| | | | 04 | |





9 Choose **Flow Control** in the list of Settings and **Generate & Respond** in the list of Value as shown below.



10 Choose **Interrupt Moderation Rate** in the list of Settings and **Extreme** in the list of Value as shown below.

| jecangs: | <u>V</u> alue: |
|---|---|
| Adaptive Inter-Frame Spacing Flow Control | Extreme |
| Interrupt Moderation Rate Receive Descriptors Transmit Descriptors | Minimal Low Medium High |
| Interrupt Moderation Rate | Extreme Adaptive |
| This sets the rate at which the co | ntroller moderates or delays the sossible to optimize network |
| generation or interrupts making it p throughput and CPU utilization. The adjusts the interrupt rates dynamic and network usage. Choosing a d network and system performance | e default setting (Adaptive) cally depending on traffic type ifferent setting may improve in certain configurations. |



11 Choose **Receive Descriptors** and set to the maximum value.



12 Click the **OK** button.



4.2.3 Gigabit Controller Setting on Windows 7

1 Click Start > Control Panel > Network and Internet > Network and Sharing Center > Change

Adapter Setting and then rename Local Area Connection with GigE.





It is not necessary to change name with GigE. It just distinguishes between that connection and other connections.

2 Right-click the **GigE** and then click the **Properties**.



3 Uncheck all checkboxes except Vieworks Image Filter Driver or GigaLinx Image Filter Driver and Internet Protocol [TCP/IP].

| GigE Properties |
|---|
| Networking Sharing |
| Connect using: |
| Intel(R) PRO/1000 PT Desktop Adapter |
| Configure |
| This connection uses the following items: |
| Ahnlab Light Weight Filter O Co S Packet Scheduler File and Printer Sharing for Microsoft Networks Internet Protocol Version 6 (TCP/IPv6) Internet Protocol Version 4 (TCP/IPv4) Link-Layer Topology Discovery Mapper I/O Driver Link-Layer Topology Discovery Responder III |
| Description GigaLinx Image Filter Driver |
| OK Cancel |

4 Click the **Internet Protocol [TCP/IP]** and set the IP as shown below, and then click the **Advanced** button.

| Internet Protocol Version 4 (TCP/IPv4) | Properties |
|---|--|
| General | |
| You can get IP settings assigned autor this capability. Otherwise, you need to for the appropriate IP settings. | matically if your network supports o ask your network administrator |
| Obtain an IP address automatical | ly |
| Use the following IP address: | |
| IP address: | 169.254.0.55 |
| Subnet mask: | 255.255.0.0 |
| Default gateway: | · · · |
| Obtain DNS server address auton | natically |
| • Use the following DNS server add | resses: |
| Preferred DNS server: | |
| <u>A</u> lternate DNS server: | · · · |
| Validate settings upon exit | Ad <u>v</u> anced |
| | OK Cancel |



5 Click Start > Control Panel > Network and Internet > Network and Sharing Center > Change
 Adapter Setting, right-click GigE, and then click Properties to open the GigE Properties dialog box.
 Click the Configure button to open the following dialog box, and then go to the Advanced tab.

| Intel(R) PR | 0/1000 PT Deskto | p Adapter Properties | × |
|-------------|-----------------------------------|---------------------------------|--------|
| General | Advanced Driver | Details Power Management | |
| 2 | Intel(R) PRO/1000 |) PT Desktop Adapter | |
| | Device type: | Network adapters | |
| | Manufacturer: | Intel | |
| | Location: | PCI bus 2, device 0, function 0 | |
| ⊂ Devic | e status device is working pro | operty. | ~ |
| | | | |
| | | OK | Cancel |

6 Set the **Jumbo Packet** to the maximum value.

| is network adapter. Olick , and then select its value |
|--|
| |
| ⊻alue: |
| 9014 Bytes (Alteon) 🔻 |
| |
| |
| |
| |



7 Choose Flow Control in the list of Property and select Rx & Tx Enabled in the list of Value as shown below.



8 Choose Interrupt Moderation Rate in the list of Property and Extreme in the list of Value as shown below.





9 Choose **Receive Buffers** and set to the maximum value.

| Property: | | <u>V</u> alue: | |
|---|---|----------------|--|
| How Control Interrupt Moderation Interrupt Moderation Rate IPv4 Checksum Offload Jumbo Packet Large Send Offload (IPv4) Link Speed & Duplex Locally Administered Address Number of Coalesce Buffers Phonty & VLAN Receive Buffers TCP Checksum Offload (IPv4) Transmit Buffers UDP Checksum Offload (IPv4) | · | 2048 | |

10 Click the **OK** button.



4.2.4 VXvue Installation

User must follow instructions below to protect against cyber security threats such as virus and worms.

- Prior to installing and using VXvue, scan the computer system with anti-virus software to make sure the system is virus free.
- Install, setup and enable adequate anti-virus software.
- The operating system should be updated frequently to protect VXvue against harmful activities.
- If you have a cyber security problem, contact the manufacturer on the phone or by email referring to the contact information in this manual.
- 1 Insert the CD/DVD into the CD Drive.
- 2 Run Setup.exe.
- 3 Click the **Yes** button when the following dialog appears. The dialog may not appear depending on your Windows settings.

| 😗 Use | er Account Control | |
|-------|--|--|
| 0 | Do you want to allow the following program from an unknown publisher to make changes to this computer? | |
| | Program name: Publisher: File origin: | setup.exe Unknown Hard drive on this computer |
| ي چ | Show details | Yes No |
| | | Change when these notifications appear |



4 The prerequisites for VXvue installation are displayed in the **VXvue – InstallShield Wizard** dialog, then click the **Install** button. The installation may take several minutes depending on your system environment.

| VXvue - In | istallShield Wizard |
|------------|---|
| ٹ | VXvue requires the following items to be installed on your computer. Click Install to begin installing these requirements. |
| Status | Requirement |
| Pending | g vcredist_x86_2010 |
| Pending | Microsoft SQL Server 2008 Express R2 (x86) |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | Install |



The items listed under the **Requirement** may from the above figure depending on your system environment.



5 When the prerequisites for VXvue installation have been installed, click the **Next** button.



6 A driver for recognizing license hardware key will be installed on your system during setup process. If the window installing the driver appears, do not close the window and wait for the installation to complete.





7 Choose the application type and click the **Next** button.

| VXvue - InstallShield Wizard | x |
|---|-------------|
| Setup Type Select the setup type that best suits your needs. | |
| Select the application type. | |
| Xvue for Human. | |
| ○ VXvue for Vet. | |
| | |
| | |
| | |
| | |
| InstallShield | |
| < <u>B</u> ack Nex | kt > Cancel |

8 Choose the folder location where you want to save VXvue data. The default destination is D:\Database. To change the folder location, click the **Browse** button to locate the folder.

| VXvue - InstallShield Wizard | × |
|------------------------------|--------------------------------------|
| Choose Database Folder | |
| Select the application type. | |
| | |
| | |
| | |
| | |
| | |
| Destination Folder | |
| D:\Database | Browse |
| InstallShield | |
| | < <u>B</u> ack <u>N</u> ext > Cancel |



9 Click the **Install** button to begin VXvue installation.

| VXvue - InstallShield Wizard |
|---|
| Ready to Install the Program The wizard is ready to begin installation. |
| Click Install to begin the installation. |
| If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard. |
| InstallShield ———————————————————————————————————— |

10 The installation process will continue and a progress bar will be displayed in the **Setup Status** window.

| VXvue - InstallShield Wizard | — × — |
|--|--------------|
| Setup Status | |
| The InstallShield Wizard is installing VXvue | |
| Copying new files | |
| InstallShield | Cancel |



11 When the installation is complete, click the **Finish** button.



12 When Filter Driver installation dialog appears after installing VXvue, choose **BroadLinx Universal Filter Driver** and click the **Next** button.

| GigE Conn | ect Driver Manager |
|-----------|--|
| <i>[</i> | Please select the type of the driver to install, uninstall or configure |
| (| BroadLinx Universal Filter Driver Can be installed over any network adapter card |
| | - Provides excellent performance |
| | |
| | |
| | < Back Next > Cancel |



13 Select the network interface card connected to SCU and click the **Next** button.

| GigEConnect Driver Manager | |
|--|--------|
| Configure BroadLinx Universal Filter Driver | |
| Install BroadLinx Universal Filter Driver on these network interfaces: | |
| ▼ Intel(R) PRO/1000 MT Network Connection | |
| | |
| | |
| | |
| | |
| | |
| | |
| O Uninstall BroadLinx Universal Filter Driver | |
| | |
| < Back Next > | Cancel |



The above figure may vary depending on your system environment.

14 The progress of Filter Driver installation will be displayed.

| GigEConnect Driver Manager | | | | |
|-------------------------------------|-----------------------------|---------------------------|--------------|--|
| Please wait while Driver Man | ager configures your system | | | |
| | | | | |
| | | | | |
| Installing BroadLinx Universal Filt | er Driver | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | < <u>B</u> ack <u>N</u> e | ext > Cancel | |



15 Click **Install this driver software anyway** when the following dialog appears.



16 After completing installation, click the **Yes** button to restart the computer.



- 17 Now the VXvue software and data are successfully installed in each directory as shown below.
 - Software: C:\program files\VXvue
 - Image and other data: D:\Database or user defined folder
 - Executable File

_

- VXvue.exe: Image Viewer
- VXSetup.exe: Calibration Software



4.2.5 Allowing VXvue to communicate through Windows Firewall on Windows XP

- 1 Click Start > Setting > Control Panel > Windows Firewall and then click the Exceptions tab.
- 2 Click the **Add Program...** button.

| 🐸 Windows Firewall 🛛 🔀 |
|--|
| General Exceptions Advanced |
| Windows Firewall is blocking incoming network connections, except for the programs and services selected below. Adding exceptions allows some programs to work better but might increase your security risk. |
| Programs and Services: |
| Name |
| ☐ File and Printer Sharing ☑ Network Diagnostics for Windows XP ☑ Remote Assistance □ Remote Desktop □ UPnP Framework |
| Add Program Add Port Edit Delete |
| Display a notification when Windows Firewall blocks a program |
| What are the risks of allowing exceptions? |
| OK Cancel |

3 Click the **Browse** button and locate C:\Program files\VXvue\VXvue.




4 Click the **Open** button.



5 Select the **VXvue** and then click the **OK** button.

| Add a Program 🛛 | < |
|--|---|
| To allow communications with a program by adding it to the Exceptions list, select the program, or click Browse to search for one that is not listed. | |
| Programs: | |
| 📀 Internet Reversi 🔼 | |
| internet Spades | |
| Winesweeper | |
| MSN . | |
| 🗐 Outlook Express | |
| Service Pinball | |
| Solitaire | |
| Spider Solitaire | |
| VAvue Vindeue Messenger | |
| Windows Messeriger | |
| | |
| Path: C:\Program Files\VXvue\VXvue.exe Browse | |
| | ' |
| | |
| | |
| Change scope OK Cancel | |



6 Check the **VXvue** to select and then click the **OK** button.

| 🐱 Windows Firewall 🛛 🔀 |
|--|
| General Exceptions Advanced |
| Windows Firewall is blocking incoming network connections, except for the programs and services selected below. Adding exceptions allows some programs to work better but might increase your security risk. |
| Programs and Services: |
| Name |
| ☐ File and Printer Sharing ☑ Network Diagnostics for Windows XP |
| VXvue Remote Assistance Remote Desktop UPnP Framework |
| Add Program Add Port Edit Delete |
| Display a notification when Windows Firewall blocks a program |
| What are the risks of allowing exceptions? |
| OK Cancel |





4.2.6 Allowing VXvue to communicate through Windows Firewall on Windows 7

- 1 Click Start > Control Panel > Windows Firewall.
- 2 Click Allow a program or feature through Windows Firewall.

| 🕒 🗢 📾 🕨 Control Panel 🕨 | All Control Panel Items 	 Windows Firewall | | - 4 Search Con 🔎 |
|--|--|---|------------------|
| Control Panel Home | Help protect your computer with | h Windows Firewall | 0 |
| Allow a program or feature through Windows Firewall | Windows Firewall can help prevent hacker through the Internet or a network. | rs or malicious software from gaining access to your computer | |
| 😵 Change notification settings | How does a firewall help protect my comp | puter? | |
| Turn Windows Firewall on or off | What are network locations? | | |
| Restore defaults | Home or work (private) | networks Not Connected 😒 | |
| Advanced settings Troubleshoot my network | Ublic networks | Connected 📀 | |
| Troubleshoot my network | Networks in public places such as airport | ts or coffee shops | |
| | Windows Firewall state: | On | |
| | Incoming connections: | Block all connections to programs that are not on the list of allowed programs | |
| | Active public networks: | Unidentified network | |
| | Notification state: | Notify me when Windows Firewall blocks a new program | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| Action Center | | | |
| Network and Sharing Center | | | |

3 Click the **Change settings** button if it is enabled and then click the **Allow another program** button.

| Control Panel + All Control Panel Items + Windows Firewall + Allowed Programs Control Panel + All Control Panel Items + Windows Firewall To add, change, or remove allowed programs and pots, click Change settings. What are the risks of allowing a program to communicate? What are the risks of allowing a program to communicate? What are the risks of allowing a program to communicate? Image: State Control Panel Items What are the risks of allowing a program to communicate? Image: State Control Panel Items What are the risks of allowing a program to communicate? Image: State Control Panel Items Image: State Control Items Image: State Control Panel Items Image: State Control Items Image: State Control Panel Items Image: State Control Panel Items Image: State Control Panel Items Image: State Contrel Items I | | | | | | C |
|---|-------------------------|---|---------------------|-----------------|----------|-----|
| Allow programs to communicate through Windows Firewall To add, change, or remove allowed programs and pots, click Change settings. What are the risks of allowing a program to communicate? | 🔾 🕞 🚽 🕨 Control Panel 🕨 | All Control Panel Items Windows Firewall Allowed Program | 5 | | ▼ 4 Sear | rch |
| Allow programs to communicate through Windows Firewall To add, change, or remove allowed programs and ports, click Change settings. What are the risks of allowing a program to communicate? | | | | | | |
| To add, change, or remove allowed programs and ports, click Change settings. What are the risks of allowing a program to communicate? Allowed programs and features: Name Home/Work (Private) Public Annuele - Content Retrieval (Uses HTTP) BranchCache - Hosted Cache Server (Uses HTTP) BranchCache - Hosted Cache Server (Uses HTTP) BranchCache - Hosted Cache Server (Uses HTTP) ChameleonSetup ChameleonSetup ChameleonSetup ChameleonSetup Datemonu.exe Details Remove Allow another program. | | Allow programs to communicate through Window | s Firewall | | | |
| What are the risks of allowing a program to communicate? <pre></pre> | | To add, change, or remove allowed programs and ports, click Cha | nge settings | | | |
| Allowed programs and features: Allowed programs and features: Mame Home/Work (Private) Public Appendix BranchCache - Content Retrieval (Uses HTTP) BranchCache - Hosted Cache Client (Uses HTTP) BranchCache - Hosted Cache Server (Uses HTTP) BranchCache - Hosted Cache Server (Uses HTTP) ChameleonSetup ChameleonSetup ChameleonSetup Connect to a Network Projector Demonu.exe Demonu.exe Allow another program | | te each annight of the termine programs and point, and an | (a) ch- | | | |
| Allowed programs and features: Name Home/Work (Private) Public Ø AnnLa Report Ø BranchCache - Content Retrieval (Uses HTTP) Ø Ø BranchCache - Hosted Cache Client (Uses HTTPS) Ø Ø BranchCache - Peor Discovery (Uses HTTPS) Ø Ø Ø ChameleonSetup Ø Ø Ø ChameleonSetup.exe Ø Ø Connect to a Network Projector Ø Ø Ø Daemonu.exe Ø Ø Daemonu.exe Ø Ø | | what are the risks of allowing a program to communicate: | () Cha | nge settings | | |
| Name Home/Work (Private) Public Ø Antuk Begori Ø BranchCache - Content Retrieval (Uses HTTP) Ø BranchCache - Hosted Cache Server (Uses HTTPS) Ø BranchCache - Peer Discovery (Uses HTTPS) Ø Ø ChameleonSetup Ø Ø chameleonSetup.exe Ø Connect to a Network Projector Ø Ø Daemonu.exe Ø Daemonu.exe Ø Branch.exe Ø Datajis Remove | | Allowed programs and features: | | | | |
| AhnLab Report Image: Content Retrieval (Uses HTTP) Image: Content Retrieval (Uses HTTP) BranchCache - Hosted Cache Client (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) BranchCache - Peor Discovery (Uses WSD) Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) ChameleonSetup Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) ChameleonSetup Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) ChameleonSetup Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) ChameleonSetup Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) ChameleonSetup Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) ChameleonSetup Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) Content (Uses (Uses HTTP5)) Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) Demonsultiple Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) Demonsultiple Image: Content Retrieval (Uses HTTP5) Image: Content Retrieval (Uses HTTP5) Demonsultiple Image: Content (Uses HTTP5) Image: Content (Us | | Name | Home/Work (Private) | Public 🖍 | | |
| BranchCache - Content Retrieval (Uses HTTPS) | | AhnLab Report | | = | | |
| BranchCache - Hosted Cache Client (Uses HTTPS) | | BranchCache - Content Retrieval (Uses HTTP) | | | | |
| BranchCache - Hostel Cache Server (Uses HTTPS) Image: Cache - Hostel Cache Server (Uses WSD) BranchCache - Peer Discovery (Uses WSD) Image: Cache - Hostel - Hostel Cache - Hostel - Hostel Cache - Hostel Cache - Hostel Cache - Hostel | | BranchCache - Hosted Cache Client (Uses HTTPS) | | | | |
| BranchCache - Peer Discovery (Uses WSD) Image: ChameleonSetup Image: ChameleonSetup ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup Connect to a Network Projector Image: ChameleonSetup Image: ChameleonSetup Core Networking Image: ChameleonSetup Image: ChameleonSetup Daemonu.coe Image: ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup Image: ChameleonSetup< | | BranchCache - Hosted Cache Server (Uses HTTPS) | | | | |
| Image: ChameleonSetup Image: ChameleonSetup.exe Image: Chameleonsetup.exe Image: Chameleonsetup.exe Image: Core Network Projector Image: Core Network Projector Image: Core Network Projector Image: Core Network Projecto | | BranchCache - Peer Discovery (Uses WSD) | | | | |
| ChameleonSetup.exe Image: Connect to a Network Projector Image: Connect to a Network Projector Corner to a Networking Image: Connect to a Network Projector Image: Connect to a Network Projector Deemonu.exe Image: Connect to a Network Projector Image: Connect to a Network Projector Deemonu.exe Image: Connect to a Network Projector Image: Connect to a Network Projector Deemonu.exe Image: Connect to a Network Projector Image: Connect to a Network Projector Deemonu.exe Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to | | ChameleonSetup | | | | |
| Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect to a Network Projector Image: Connect | | □ ChameleonSetup | | | | |
| Connect to a Network Projector Image: Connect to a Network Projector Core Networking Image: Connect to a Network Projector Daemonu.exe Image: Connect to a Network Projector Deemonu.exe Image: Connect to a Network Projector Details Remove Allow another program | | Chameleonsetup.exe | | | | |
| Core Networking Core Networking Daemonu.exe Details Remove Allow another program | | Connect to a Network Projector | | | | |
| Deemonu.exe Detaijs Remove | | Core Networking | | | | |
| Daemonu.exe Detaijs Allow another program | | Daemonu.exe | | | | |
| Details Remove Allow another program | | Daemonu.exe | | V - | | |
| Allow another program | | | Detai <u>l</u> s | Re <u>m</u> ove | | |
| Anot official programme | | | Allow anothe | er program | | |
| | | | , more direction | i programm | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | ОК | Cancel | | |
| OK Cancel | | | | | | |



4 Click the **Browse** button and locate C:\Program files\VXvue\VXvue.exe.

| Add a Program |
|--|
| Select the program you want to add, or click Browse to find one that is not listed, and then click OK. |
| Programs: |
| AhnLab Report |
| KAhnLab V3 Internet Security 8.0 |
| Araxis Merge v6.5 |
| Build Notifications |
| CD & DVD Copy Demo |
| Configure HHD Device Monitoring Studio 6.35 |
| Create a System Repair Disc |
| Data CD, DVD Burner Full Demo |
| EData CD.DVD burning Mire Denio (Unicode) |
| Device Monitoring Studio |
| Path: C:\Program Files\AhnLab\V3IS80\AhnRp Browse |
| What are the risks of unblocking a program? |
| You can choose which network location types to add this program to. |
| Network location types Add Cancel |

5 Click the **Open** button.

| Irganize + New folde | 8 | | | | 温• 🖬 | - 4 |
|---|-----------------|------------------|-------------|--------|------|-----|
| Favorites | Name | Date modified | Туре | Size | | |
| E Desktop | 😹 DriverManager | 2012-04-10 오후 1: | File folder | | | |
| bownloads | 📕 GenICam | 2012-04-10 오루1 | File folder | | | |
| Recent Places | kins 🔒 | 2012-04-22 오声 5: | File folder | | | |
| | VXSetup.exe | 2012-04-19 오루 1 | Application | 490 KB | | |
| Libraries | O VXvue.exe | 2012-04-19 9 # 1 | Application | 824 KB | | |
| Documents | | | | | | |
| Music | | | | | | |
| Pictures | | | | | | |
| Videos | | | | | | |
| | | | | | | |
| Computer | | | | | | |
| Computer | | | | | | |
| Computer Local Disk (C:) DATAL (D:) | | | | | | |
| Computer Local Disk (C:) DATAL (D:) DATAL (D:) | | | | | | |
| Computer Local Disk (C:) DATAL (D:) DATA2 (E:) DVD Drive (M:) VSTF | | | | | | |
| Computer Local Disk (C:) DATA1 (D:) DATA2 (E:) DVD Drive (M:) VSTF | | | | | | |
| Computer Local Disk (C:) DATA1 (D:) DATA2 (E:) DVD Drive (M:) VSTF Network | | | | | | |
| Computer Local Disk (Ci) DATAL (Di) DATA2 (Ei) DVD Drive (M) VSTF Network | | | | | | |

6 Select the **VXvue** and then click the **Add** button.





Add **VXSetup** (located in C:\Program files\VXvue\VXSetup.exe) in the same manner as described above.



5. Prerequisite for Operation

5.1 Preparing the SCU

1 Turn on the System Control Unit (SCU).



- 2 Make sure the LED lamp (power and status) is lit green. It means SCU is ready to work normally.
- 3 Press and hold the power button of the detector for 3 seconds.
- 4 The detector Power LED is lit green and Active LED is lit orange simultaneously when the detector is ready to operate.
- 5 Blinking green status LED indicates the startup process is in progress. Then status LED turns blue indicating Wi-Fi network is connected.



5.2 Generator Configuration

1 Run VXSetup.

| Product : None | | | | | | | | | |
|--------------------------------------|-------------|-------------|-----------------|-------------------|--------------|--------------------|--|--|--|
| scu | | | | | | | | | |
| Model No, Serial No, IP Address Port | | | | | | | | | |
| | FXRS | -03A | 1234567890 | 169, 254, 2, 100 |) | 5001 | | | |
| ID 1 | Model No, | Serial No, | IP Address | Mac Address | Line Trigger | Discovery Found | | | |
| 2 | FXRD-1417WA | D3CABH-D004 | 169, 254, 1, 15 | 00:0E:8E:27:E0:BD | | Found | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

2 Select a generator model from the dropdown list located beside Product in the Generator item. Input proper values into Param1 and Param2 according to the generator model.

| Generator | Communication | Settings | Remarks |
|--------------|----------------------|--------------------------------|-------------|
| None | | | No console |
| LISTEM | Serial | Param 1: Port | |
| | | Param 2: 'true' - Use AEC | |
| | | 'false' - No AEC | |
| | | | |
| | | 115200 bps / data 8 / stop 1 / | |
| | | none / none | |
| GXR | UDP packet | UDP 5001 Port | |
| POSKOM | Will be supported so | pon. | |
| DK (Accuray) | Serial | Port COM 1 | OCX Control |
| | | 19200 bps / data 8 / stop 1 / | |
| | | none / none | |





| Generator | Communication | Settings | Remarks |
|-----------|---------------|-------------------------------|--------------------------|
| CPI | Serial | Port COM 1 | |
| | | 19200 bps / data 8 / stop 2 / | |
| | | none / none | |
| EMD | Serial | Port COM 3 | Set WorkStation 2, 3 |
| | | 19200 bps / data 8 / stop 1 / | |
| | | none / none | |
| SEDECAL | Shared memory | Window title: 'window title' | For Human in DRApp.ini |
| | | | [SETTINGS] |
| | | | DRAppName = window title |
| | | | |
| | | | For Vet in AppName.ini |
| | | | [CONFIG] |
| | | | APPNAME= window title |

5.3 Detector Configuration

In this phase, defect pixels are corrected and gained pixels are calibrated using installed x-ray generator and x-ray tube. The detector needs to warm up at least 30 minutes before performing the calibration. The calibration should be performed on the following cases.

- Detector installation
- X-ray generator replacement
- X-ray tube replacement
- Exposure section Value change
- Gain Type change



5.3.1 Detector Setting

1 Run VXSetup.

| up | | | | | | | | | | | |
|--------------------------------------|-------------|-------------|-----------------|------|------------------------------|--------------|-----------|--|--|--|--|
| Generator Product : None | | | | | | | | | | | |
| SCU | | | | | | | | | | | |
| Model No, Serial No, IP Address Port | | | | | | | | | | | |
| | FXRS | 6-03A | 1234567890 | | 169, 254, 2, 100 | | 5001 | | | | |
| Detect | tors | 1 | | 1 | | 1 | | | | | |
| ID | Model No, | Serial No, | IP Address | 1 | Mac Address | Line Trigger | Discovery | | | | |
| 1 | FXRD-1717SA | V09D11802P | 169, 254, 1, 14 | 00:1 | 1E:13:40:FF:19 | | Found | | | | |
| 2 | FXHD-1417WA | D3CABH-D004 | 169,254,1,15 | 00:0 | E:8E:27:E0:8D | | Found | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | Refresh dev | vice list | | | | |
| | | | | < 뒤로 | 같(<u>B</u>) 다음(<u>N</u>) | > 취: | 소 | | | | |

2 The connected detectors will be displayed under **Detectors**. If all the detectors are not displayed, click the **Refresh device list** button to refresh the list.



3 To register connected detector to the system, double click the detector or select the detector and then click the **Select** button activated on the bottom left.

| Select | Befresh device list | |
|--------|---------------------|--|
| Belect | Hellesh device hat | |



4 To deselect the registered detector, double click the detector or select the detector and then click the **Release** button activated on the bottom left.

| Detectors | | | | | | | | | | |
|-----------|---|-------------|-----------------|-------------------|--------------|-----------|--|--|--|--|
| ID | Model No, | Serial No. | IP Address | Mac Address | Line Trigger | Discovery | | | | |
| 1 | FXRD-1717SA | V09D11802P | 169, 254, 1, 14 | 00:1E:13:40:FF:19 | | Found | | | | |
| | FXRD-1417WA | D3CABH-D004 | 169, 254, 1, 15 | 00:0E:8E:27:E0:BD | | Found | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| _ | | | | | | | | | | |
| Re | Release ↑ ↓ Refresh device list | | | | | | | | | |

- 5 To sort the registered detectors, select the detector and then click the arrow button activated on the bottom left.
- 6 To change the settings of connected detector or SCU, select the item and then click the right mouse button.
 - SCU

| Configure |
|-----------------|
| Change IP |
| Remove Registry |

- Configure: Changes the settings related to SCU described in chapter <u>5.3.2.1</u>.
- Change IP: Changes the SCU IP.
- Remove Registry: Removes the data stored in the registry.
- Detector

| Release |
|-----------|
| Change IP |

- Release: Deregisters the selected detector.
- Change IP: Changes the detector IP.
- 7 After completing configuration of detectors, click the **Next** button to synchronize the registered detectors with SCU and proceed to next phase.



5.3.2 Configuring Devices

| VXSetup | × |
|--|---|
| SCU Status : Connected | Configuration |
| Detector 1 : FXRD-1717SA (V09D11802P) [00:1E:13:40: Status : Initialization OK Last calibration time : [2012/05/20 18:44] | FF:19] Configuration Calibration Diagnosis |
| Detector 2 : FXRD-1417WA (D3CABH-D004) [00:0E:8E Status : Initialization OK Last calibration time : [Unknown] | 27:E0:BD] Configuration Diagnosis |
| | |
| | |
| | |
| | |
| | < 뒤로(B) |

- 1 The list of connected SCU and registered detectors will be displayed.
- 2 Click the **Configuration** button on the right side of SCU to display the **SCU Configuration** window described in chapter <u>5.3.2.1</u>.
- 3 Click the **Configuration** button on the right side of Detector to display the **Detector Configuration** window described in chapter <u>5.3.2.2</u>.
- 4 Click the **Calibrate** button on the right side of Detector to display the **Calibration** window described in chapter <u>5.4</u>.
- 5 After completing calibration of the detector, the **Diagnose** button will be activated. Click the button to move to <u>Diagnosis Mode</u> described in chapter <u>5.5</u>.



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5.3.2.1 Configuring SCU

| CU Configurati | on | | | | | × |
|----------------|---------------|---------|-----------|------------|---------|------|
| System | | | AP | | | |
| Model No. | FXRS-03A | - | AP On/Off | On | Off | |
| F/W | V00.00.RC96 | Upgrade | Frequancy | 2.4 GHz | 🔘 5 GHz | |
| Serial No. | 1234567890 | | Country | KR | | • |
| Boot loader | V00.00.RC12 | Upgrade | Band | 20 MHz | | • |
| Kernel | V00.00.RC28 | Upgrade | Channel | - | 6 | • |
| Natural | | | SSID | park_test | | |
| IP Address | 169 . 254 . 2 | . 100 | key | 1234567890 |) | |
| Net Mask | 255 . 255 . 0 | . 0 | security | psk2 | | • |
| | | | Gi | 400 | 800 | |
| Gateway | 169 . 254 . 2 | . 100 | Test Mode | | | |
| Trigger | | | On/Off | On On | Off | |
| Pace | ket 🔘 L | ine | Period | 15 | | sec. |
| | Set Config | | Log | Cance | 4 | |

The SCU Configuration window allows you to configure the following items.

System

| | Model No.: | Model number of SCU |
|----|--------------------------|------------------------|
| | F/W: Version of firmware | |
| | Serial No.: | Serial number of SCU |
| | Boot loader: | Version of Boot loader |
| | Kernel: | Version of Kernel |
| | | |
| Ne | twork | |

| IP Address: | IP address of SCU |
|-------------|------------------------|
| Net Mask: | Netmask of SCU |
| Gateway: | Gateway address of SCU |

- Trigger
 - Packet: Use SW Trigger.
 - Line: Use HW Trigger.





- AP
 - AP On/Off: Configures whether to run SCU as AP mode.
 - Frequency: Frequency channel of wireless network
 - Country: Country code of wireless network
 - Band: Wireless network bandwidth
 - Channel: Wireless network channel
 - SSID: Wireless network ID
 - Key: Wireless network key value
 - Security: Authentication protocol for wireless network
 - Gi: Guard Interval of wireless network
- Test Mode
 - On/Off: Configures whether SCU transmits Trigger Packet within specified period.
 - Period: Configures the period of transmitting Trigger Packet in a second unit.



5.3.2.2 Configuring Detector

| System | | AP | | |
|---------------------------|---------------------|---------------|-------------------------|------|
| Model No. | FXRD-1417WA 👻 | AP | ⊙ On | |
| FirmWare | V00.00.RC95 Upgrade | Frequancy | ② 2.4 GHz ③ 5 GHz ③ | |
| FPGA | 00.01 RC06 | Country | JP | - |
| Serial | D3CABH-D004 | Band | 40 MHz | - |
| BootLoader | V00.00.RC12 Upgrade | Channel | + | Ŧ |
| Kernel | V00.00.RC28 Upgrade | SSID | vivix | |
| Network | 099.000 | key | 1234567890 | |
| IP | 160 254 1 15 | security | psk2 | Ŧ |
| NetMask | 169 . 254 . 1 . 1 | Gi | 400 | |
| Gateway | Gateway 255 255 0 0 | | | |
| Galeway 255 . 255 . 0 . 0 | | Туре | Off | • |
| WNetwork | | | | |
| SSID | park_test | Image TimeOut | | _ |
| Кеу | 1234567890 | Time | 60 | sec. |
| Sleep Mode | | | | |
| On/Off | ◉ On ◯ Off | | | |
| Period | 60 | | | |
| | | | | |

The Detector Configuration window allows you to configure the following items.

• System

| Model No.: | Name of device |
|------------|-------------------|
| | 1101110 01 001100 |

- FirmWare: Version of detector's firmware
- FPGA: Version of detector's FPGA
- Serial: Serial number of detector
- BootLoader: Version of detector's Boot loader
- Kernel: Version of detector's Kernel
- Network
 - IP: Network IP address of detector
 - NetMask: Network Netmask of detector
 - Gateway: Network Gateway address of detector





WNetwork

| SSID: | Wireless network ID of detector |
|-------|---------------------------------|
| | |

- Key: Wireless network key value of detector
- Sleep Mode
 - On/Off: Configures whether the detector uses Sleep Mode.
 - Period: Configures the time of entering Sleep Mode.
- AP
 - AP On/Off: Configures whether to run Detector as AP mode.
 - Frequency: Frequency channel of wireless network
 - Country: Country code of wireless network
 - Band: Wireless network bandwidth
 - Channel: Wireless network channel
 - SSID: Wireless network ID
 - Key: Wireless network key value
 - Security: Authentication protocol for wireless network
 - Gi: Guard Interval of wireless network
- Test Pattern
 - Type: Type of detector's test pattern image
- Image TimeOut

Time Set timeout not to request transmission when acquired image is not transmitted within specified time.



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|---------|-------------------------|
|---------|-------------------------|

5.4 Detector Calibration

5.4.1 Configuring the Detector

1 Select **System Configuration** in the left Step item.

2 The information for the selected detector will be displayed.

| ibration FXRD-1417 WIRELE | SS [00:0E:8E:27:E0:BI | 0] | | (Walker et |
|--|--------------------------------|--|---|-------------|
| tep ystem configuration Iffset Calibration - Normal ain Calibration - Normal ain Calibration - Normal elector configuration | Status Done Done Done | Exposure Mode DR Trigger Drable preview Exposure Timing Exposure section : Pre Exposure section : EXP OK Delay section : Debounce_AED : | AED AED Set Set Set Set Set | |
| ок | Cancel | Gain Type © 0 © 1 | © 2 © 3 | |



5.4.1.1 Setting Exposure Mode

User can set the detector to three different exposure modes according to the connection type to the X-ray generator. Select the desired mode on **System configuration**.

| i | For detailed information on X-ray exposure mode, refer to <u>2.6.1 X-ray Exposure Mode</u> . |
|---|--|
| | - Exposure Mode |

| Exposure Mode | |
|---------------|-----|
| OR Trigger | AED |
| | |
| | |

5.4.1.2 Timing Setting

To acquire correct images, exact timing setting must be made according to the characteristics of the X-ray generator.

| Exposure section : | 500 | Set |
|------------------------|------|-----|
| Pre Exposure section : | 14 0 | Set |
| EXP OK Delay section : | 1 | Set |
| Debounce_DR : | 3 | Set |
| Debounce_AED : | 3 | Set |
| | | |





Exposure section

| Exposure section : | 500 | Set |
|--------------------|-----|-----|
|--------------------|-----|-----|

Exposure section indicates the period (unit: ms) that the detector converts X-rays to image signals. This value needs to be set longer than the exposure time of X-ray generator to prevent X-rays loss while converting X-rays to image signals. If you change the time settings, refresh the Post-offset data and generate new GAIN data to acquire optimized images.



The recommended Exposure section value is 500 ms (Standard).

Pre Exposure section

| Pre Exposure section : | 14 | 0 | Set |
|------------------------|----|---|-----|
|------------------------|----|---|-----|

The Pre Exposure section is allowed to use when delay is occurred until the generator receives EXP-OK signal from the detector and prepares X-ray generation. Pre Exposure section is set as 0 ms normally, however, it is recommend to set the actual delay time of generator's X-ray generation with measurements to achieve the best performance of the detector. The detector sends EXP_OK signal to the generator, then transforms X-ray into image signal after the time set in the Pre Exposure section.

EXP OK Delay section

| EXP OK Delay section : | 1 | Set |
|------------------------|---|-----|
|------------------------|---|-----|

EXP OK Delay section is delay time from when the detector detects exposure request signal (EXP_REQ) from the X-ray generator to when the detector sends exposure respond signal (EXP_OK) to the X-ray generator. Some X-ray generators need some time to prepare detecting EXP_OK signal after sending EXP_REQ signal. This value is determined according to the specifications of X-ray generator. The default value is 1 ms.



Debounce_DR

| Debounce_DR: 3 | | Set |
|----------------|--|-----|
|----------------|--|-----|

Debounce_DR is used to remove unwanted trigger signal occurred due to external noise when DR Trigger is set as Exposure Mode. It is recommended to use the Debounce_DR setting value as default 3 ms. We recommend setting the minimum exposure time of X-ray generator to more than 3 ms. If the value is set to less than 3 ms, the detector may not acquire images.

Debounce_AED

| Debounce_AED : | 3 | Set |
|----------------|---|-----|
| | | |

Debounce_AED is used to prevent unwanted imaging occurred due to external noise when AED is set as Exposure Mode. It is recommended to use the default values set by manufacturer. We recommend setting the minimum exposure time of X-ray generator to more than the value set in the Debounce_AED. If the value is set to less than the settings in the Debounce_AED, the detector may not acquire images. If unwanted images are acquired without X-ray exposure while operating the equipment, set Debounce_AED with 1 ms increments. However, make sure not to exceed 5 ms since an image degradation may appear in the image if Debounce AED exceeds 5 ms.

5.4.1.3 Gain Type Setting



To acquire X-ray image with proper brightness, adjust the Gain Type setting. You can select the Gain Type to adjust the sensitivity of the detector, then you can acquire X-ray images with desired brightness according to the specifications of X-ray generator or the type of objects. The default gain type is 1. The following table describes each Gain Type of the sensitivity ratio.

| Gain | 0 | 1 | 2 | 3 | |
|----------------|-------------------|------|---|------|------|
| Gadox Detector | Sensitivity ratio | 0.86 | 1 | 1.2 | 1.5 |
| Csl Detector | Sensitivity ratio | 0.62 | 1 | 1.14 | 1.33 |



The owner is responsible for ensuring that the Gain Pixel Correction is performed after adjusting the Gain Type.



5.4.2 Offset Calibration

5.4.2.1 Pre-offset Calibration

1 Select **Dark acquisition–Normal** and click the **Load pre-offset** button to apply pre-offset data which is provided with the flat panel detector.

| itep | Status | Pre-offset calibration |
|---|--------|------------------------|
| Vistem configuration Vistem Configuration - Normal Viste Catalaration - Normal visit Catalaration - Normal Netector configuration | | Current Value : |
| OK | Cancel | |

- 2 When you create new pre-offset data, input the number of images to be acquired to **Stage** in the Preoffset calibration item and then click the **Run pre-offset calibration** button.
- 3 Acquiring image process will be proceeded automatically, then the average value of acquired images will be displayed in **Current Value** and the current status will be displayed in **Stage**.
- 4 After acquiring images, a window for saving created pre-offset data appears, then specify a directory to save the data.

| 다른 이름으로 저장 | | | | | | × |
|------------|--------------------------|---|-----------|--------------------------------|-------------|---|
| () ▼ > 2 | 퓨터 🕨 Working (D:) | CalibrationData + FXRD- | 1717S | ✓ ✓ FXRD-1 | 717S 검색 | ٩ |
| 구성 ▼ 새 폴더 | 1 | | | | | 0 |
| 이름 | * | 수정한 날짜 | 유형 | 크기 | | |
| | | 일치하는 힘 | !목이 없습니다. | | | |
| | | | | | | |
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| | | | | | | |
| 파일 이름(N): | pre.dat | | | | | • |
| 파일 형식①: | Pre-offset data files (* | .dat) | | | | • |
| 🍝 폴더 숨기기 | | | | 저장(| <u>)</u> 취소 | |



5.4.2.2 Post-offset Calibration

- 1 Click the Get Post offset button to locally save the offset file that is backed up on the detector.
- 2 When you create new post-offset data, input the number of images to be acquired to **Stage** in the Post-offset calibration and click the **Run post-offset calibration** button.

| Step | Status | Pre-offset calibration |
|--|--------|------------------------|
| System configuration Sifest Calibration - Normal Defet Calibration - Normal Sain Calibration - Normal Netector configuration | | Current Value : |
| | |] |

- 3 Acquiring image process will be proceeded automatically, then the average value of acquired images will be displayed in **Current Value** and the current status will be displayed in **Stage**.
- 4 After acquiring images, a window for saving created post-offset data appears, then specify a directory to save the data.
- 5 To save the previously created post-offset file to the detector, click the **Upload post offset** button and then select the file to upload.



The offset data that is already uploaded to the detector will be used for acquiring images with wireless detector instead of the data stored in the local.



5.4.3 Defect Correction

5.4.3.1 Load defect map

1 Select **Defect detection – Normal** in the left Step item.

| Step | Status | Defect map | |
|---|--------|---|--|
| System configuration Offset Calibration - Normal | Done | Load defect map Auto defect detection Manual defect detection | |
| Sain Calibration - Normal | | Derect map path : N/A | |
| Detector configuration | | | |
| | | | |
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| | | | |
| | | | |
| | | | |
| OK | Cancel | | |
| UN E | Cancel | | |

2 Click the **Load defect map** button to apply the defect data which is provided with the flat panel detector.



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|----------|-------------------------|
|----------|-------------------------|

5.4.3.2 Auto defect detection

1 To create new defect map, apply the Defect data which is provided with the flat panel detector and then click the **Auto defect detection** button.

| Defect map auto gene | eration | | X |
|----------------------|------------|--------------|--------------|
| Current value | | St | age: of 5 |
| Get flat data | | | |
| Target Valu | Je | Save acquir | ed data |
| Flat30 : 250 | Get Flat30 | Load Flat30 | Not ready |
| Flat60 : 500 | Get Flat60 | Load Flat60 | Not ready |
| No. | (x, y) | (Level, Avg) | |
| No. | (x, y) | (Level, Avg) | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

2 Acquire X-ray images and adjust the doses of radiation to match the Current value to the Target Value of Flat30. When the Current value reaches within 10% of Target Value, keep the doses of radiation at that point.



For Flat30 and Flat60 the recommended Target Values are respectively 250 and 500.

- 3 To save the collected image data, check the **Save acquired data** checkbox. Once the images of Flat30 and Flat 60 are acquired, it is allowed to save as a file.
- 4 Click the **Get Flat30** button to acquire as many images as the number set at the top of the Stage. Or, load the Flat30 image which is previously saved by clicking the **Load Flat30** button.



- 5 Acquire X-ray images and adjust the doses of radiation to match the Current Value to the Target Value of Flat60. When the Current value reaches within 10% of Target Value, keep the doses of radiation at that point.
- 6 Click the **Get Flat60** button and acquire as many images as the number set at the top of the Stage. Or, load the Flat60 image which is previously saved by clicking the **Load Flat60** button.
- 7 Enter the detection range of Defect data into the **Tolerance** field based on the acquired images.



The recommended Tolerance value is 3%.

8 Click the **Generate Defect Map** button, create the new Defect Map Data file, and then save it.



No need to click the **Load defect map** button since the Defect Map file is automatically created and loaded.



5.4.3.3 Manual defect detection

1 To create the new defect map manually, click the **Manual defect detection** button after applying Defect data provided accordingly.



To use the Manual defect detection feature, the previously acquired dark image is needed. The dark image can be acquired in the Diagnosis Mode.

2 Select the original image file of the detector to find the defect data.





Defect info marking

| Defect inf | fo marking | |
|------------|-------------------------|------|
| All | Selected 📈 A | pply |
| | | |
| Туре | Position | |
| Pixel | x=199, y=204 | |
| Pixel | x=431, y=236 | |
| Pixel | x=241, y=552 | |
| Pixel | x=252, y=1157 | |
| Pixel | x=1420, y=541 | |
| Pixel | x=1073, y=1599 | |
| Pixel | x=699, y=2062 | = |
| Pixel | x=1510, y=2515 | |
| Pixel | x=1936, y=2215 | |
| Pixel | x=2778, y=1120 | |
| Pixel | x=1605, y=715 | |
| Pixel | x=1836, y=1720 | |
| Pixel | x=2583, y=2062 | |
| Pixel | x=2362, y=2615 | |
| V-Line | x=1783, y1=431, y2=1252 | - |
| | Delete | |

- Apply: Apply Defect information of selected items from the list to image.
- All: Apply all items from the list.
- Selected: Apply the only selected items from the list.
- Delete: Delete the selected items from the list.



Operation / Zoom control

| Operation | | | | | | | | | | | | Zoom cont | rol |
|------------------|-----------|------------|------------|--------------|---------------|---------------|------|-----|-----|--------|-----|-----------|-----|
| Get Bad Pixel | Add Pixel | Add V-Line | Add H-Line | Delete Pixel | Delete V-Line | Delete H-Line | Zoom | W/L | Pan | 💙 Show | ROI | 1:1 | Fit |
| | | | | | | | | | | | | | |

• Get Bad Pixel: Automatically detect the defect pixel from the currently displayed image.



When you select the **Get Bad Pixel** feature, all items of the Defect info marking list are automatically applied to the image.

| Pi | xel List | | × | Γ |
|----|------------|------|-----------|---|
| | x | Y | Value | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | Threshold: | 3 % | Offset: 0 | |
| | Se | arch | Add | |

- 1 Enter the value of threshold and offset to detect the defect pixel.
- 2 Click the **Search** button to search the automatically detected list.





- 3 Select an item to add to the Defect list, and then click the **Add** button.
 - Add Pixel: Add one pixel unit of defect pixel.
 - Add V-Line: Add line type of defect pixels vertically.
 - Add H-Line: Add line type of defect pixels horizontally.
 - Delete Pixel: Delete one pixel unit of defect pixel.
 - Delete V-Line: Delete line type of defect pixels vertically.
 - Delete H-Line: Delete line type of defect pixels horizontally.
 - Zoom: Zoom in or out the image.
 - W/L: Adjust the window level of the image.
 - Pan: Move the image.
 - Show: Determine whether to display the selected defect pixel on the image.
 - ROI: Automatically adjust the window level based on the Min. and Max. value of the selected area.
 - I:1: Display the image at one to one ratio.
 - Fit: Display the image to fit into the screen.
- 4 Once it is finished to display the defect pixels in the image, save the newly created defect map file and complete the process by clicking the **Save and close** button. To cancel it, click the **Close** button.



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5.4.4 Gain Pixel Correction

Before performing Gain Pixel Correction, consider followings:

- Recommended SID is 150 cm (distance between X-ray tube and Detector).
- Open the collimator of X-ray tube completely.
- Align the center of the detector with the center of collimator.
- Keep everything away from the detector surface.
- Select Gain acquisition Normal in the left Step item. Expose X-rays and adjust dose of X-rays so that Current Value reaches TargetValue. Keep the quantity of X-rays when Current Value remains within 10% difference of TargetValue.



Recommended TargetValue is 2000.

| Char. | Chabus | Gain calibration |
|---|--------------|--|
| Step System configuration Offset Calibration - Normal Defect Calibration - Normal Gain Calibration - Normal | Done Done | Target/alue : 2000 Current Value : |
| Detector configuration | | Stage : of 10 Get Cancel Load gain Gain path : N/A |
| | | |
| | | |
| ОК | Cancel | |

- 2 Click the **Get** button and expose X-rays ten times.
- 3 Save the Gain data to the desired folder.
- 4 Once all the procedures are completed, the OK button will be activated. Click the **OK** button to close the dialog box.



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| |

5.4.5 Detector Preference

| Step | Status | Detector direction compensation | Preview |
|---|----------------------|---|------------------|
| System configuration Offset Calibration - Normal Defect Calibration - Normal Gain Calibration - Normal Detector configuration | Done Done Done | © CW 0° / CCW 0° © W 90° / CCW 270° © CW 180° / CCW 180° © CW 270° / CCW 90° | |
| | | Effective Area | |
| | | Top: 0 0 pixel | |
| | | Bottom : 3071 0 pixel | |
| | | Left: 0 0 pixel | |
| | | Right : 2559 0 pixel | |
| | | Select Area | |
| | | Select Area Snow Area | |
| | | Offset refresh setting | |
| | | | |
| | | Pixel ptich calibration | |
| | | 0.140 mm 140.0 µm | |
| | | Ruler pixel | |
| | | pile | |
| | | | |
| | | Set | Pan Zoom W/L Hit |

- 1 If you need to rotate the detector, select the value of Detector direction compensation.
- 2 To exclude the particular area of an image, select the desired area by clicking the **Show Area** button after acquiring an image, or click the **Select Area** button after entering the size of image in the **Effective Area** field.
- 3 To renew the automatic offset of the detector, check the **Use offset refresh** checkbox and set time interval, temperature, the number of acquiring images.



Once the **Use offset refresh** checkbox is checked, the temperature of detector is monitored at the time interval specified. If there is difference between the current temperature and the specified one, images are acquired according to the number of acquiring images which you have already set, and then the offset is renewed.

- 4 Click the **Ruler** button after acquiring an image, measure the length of it, and then enter the value.
- 5 Enter all the data you need, and then save the setting by clicking the **Set** button at the bottom.



5.5 Diagnosis Mode

In Diagnosis Mode you can review the images acquired by using the trigger or clicking the **Normal Grab** button. The number of images, pixel value and ROI value will be displayed on the right side of the **Diagnose** window.

Click the **Save Image** button to save the acquired image.





The **Diagnose** window provides the following function buttons to manipulate the acquired image.

| • | Pan: | Move an image. |
|-----|------------|---|
| • | Zoom: | Press and hold the left mouse button and then drag to zoom in or out. |
| • | W/L: | Press and hold the left mouse button and then move the mouse up, down, left or |
| | | down to adjust Window Level. Basically this function is also available by using the |
| | | right mouse button without clicking the W/L button. |
| • | Fit: | Fit the panned image to the center. |
| • | Statistic: | Press and hold the left mouse button and then drag to specify a region. |
| | | The coordinates of image, Min/Max value, mean deviation, standard deviation, |
| | | etc will be displayed in the Pickup ROI. |
| • | ROI: | Press and hold the left mouse button and then drag to specify a region. |
| | | The Window Level will be adjusted automatically based on Min and Max value of |
| | | the region. |
| Zoc | m ×1~ ×16: | Magnify the image $\times 1$ to $\times 16$. |



6. Operation



For the detailed operation, refer to the VXvue User Manual.

- 1 Register a patient.
- 2 Register Body parts.
- 3 Arrange the patient in the correct position to have detector aligned with the target body part.
- 4 Position the X-ray generator to adjust the exposure field.
- 5 Adjust kVp, mA, ms and mAs for best condition depending on body part and projection.
- 6 Press the exposure switch of the X-ray generator. You can check the images on the monitor after image processing.





7. Maintenance

7.1 Function Test

| Item | Period | Description |
|------------------------|-----------|---|
| Power consumption | Daily | Confirm that the power operation of detector is normal. |
| Temperature | Daily | Check the monitoring in order to minimize the characteristic |
| | | changes of Flat panel caused by external temperature changes. |
| Hard disk space | Deily | Check if the hard disk is enough to save images and allow the |
| | Dally | consecutive shootings. |
| Worklist connection | Daily | Check the worklist connection to allow consecutive shootings. |
| PACS server connection | Daily | Check the PACS server connection to send images. |
| Printing Test | Daily | Check the printer connection and print images |
| Auto offset | Daily | Check that Flat panel's offset changes caused by the increased |
| | | heat are automatically corrected. |
| Resolution | Monthly | Confirm the resolution of the detector. |
| Image Acquisition Time | Monthly | Confirm the acquisition of time required to get image designed |
| | | with optimal specifications. |
| Linearity | Quarterly | Evaluate the distinct characteristics of detector through the |
| | | amount of radiation coming into Flat Panel Detector, resolution |
| | | and contrast of images/projections, and the unification of noises |
| | | of projection. |
| DQE | Quarterly | Evaluate the distinct characteristics of detector through the |
| | | amount of radiation coming into Flat Panel Detector, resolution |
| | | and contrast of images/projections, and the unification of noises |
| | | of projection. |
| MTF | Quarterly | Evaluate the distinct characteristics of detector through the |
| | | amount of radiation coming into Flat Panel Detector, resolution |
| | | and contrast of images/projections, and the unification of noises |
| | | of projection. |
| Calibration | Annually | Compensates defect pixels and calibrates pixel gain using the |
| | | installed X-ray generator and X-ray tube. |



7.2 Maintenance Guidelines for Users and Test Forms

Maintenance

If you have any inquiries about trouble shooting or the product seems to have a problem, please contact Vieworks. For optimal performance, we recommend that the working area be kept clean.



Federal law restricts this device to be dealt or operated by a physician or medical assistant.

Contact Information

| Address: | Vieworks Co., Ltd |
|----------|--|
| | #107-108, 601-610 Suntechcity II |
| | 52, Sagimakgol-ro (307-2 Sangdaewon-dong), |
| | Jungwon-gu, Seongnam-si, Gyeonggi-do |
| | 462-806 South Korea |
| Phone: | +82-70-7011-6161 |
| Fax: | +82-31-737-4954 |
| email: | vieworks@vieworks.com |

Cleaning

Use a dry cloth to clean surfaces of the system. Do not use detergents or organic solvents to clean the system.



Do not use abrasive brush, scraper, or acid/alkaline cleaner when cleaning your product.



Test Forms

| | Power Consumption | | | | | | |
|--|-------------------|----------------|-------------|--|--|--|--|
| Test ITEM (1) | Frequency | D: Daily | M: Monthly | | | | |
| | | Q: Quarterly D | A: Annually | | | | |
| Objective: | | | | | | | |
| Confirm that the power operation of detector is normal. | | | | | | | |
| | | | | | | | |
| Equipment: | | | | | | | |
| Workstation, VXvue S/W | | | | | | | |
| Power supply, Power Meter | | | | | | | |
| Inspection Report Form, | | | | | | | |
| | | | | | | | |
| Procedure: | | | | | | | |
| Turn on the power of the system. | | | | | | | |
| Run VXvue. | | | | | | | |
| Read the data indicated by Power Meter. | | | | | | | |
| | | | | | | | |
| Performance and Corrective Action: | | | | | | | |
| Power Consumption of Max. 200VA is secured. | | | | | | | |
| Light green colored LED should be turned on. | | | | | | | |
| If the power consumption exceeds the tolerance limit, service assistance is necessary. | | | | | | | |
| If the LED is not turned on, service assistance is necessary. | | | | | | | |
| Record result on Inspection Report Form. | | | | | | | |
| | | | | | | | |
| Result: | | | | | | | |
| Frequency: D: \Box , M: \Box , Q: \Box , | A: Date: 20 | **-**- Oper | rator: | | | | |
| Limit of Acceptability: Max. 200VA | | | | | | | |
| | | | | | | | |
| Remarks: | | | | | | | |
| | | | | | | | |
| | | | | | | | |



| | Temperature | | | | | |
|--|-------------|--------------|-------------|--|--|--|
| Test ITEM (2) | Frequency | D: Daily | M: Monthly | | | |
| | | Q: Quarterly | A: Annually | | | |
| Objective: | | | | | | |
| Check the monitoring in order to minimize the characteristic changes of Flat panel caused by external | | | | | | |
| temperature changes. | | | | | | |
| | | | | | | |
| Equipment: | | | | | | |
| Workstation, VXvue S/W | | | | | | |
| Power supply, Power Meter | | | | | | |
| Inspection Report Form | | | | | | |
| | | | | | | |
| Procedure: | | | | | | |
| Turn on the power of the system. | | | | | | |
| Run VXvue. | | | | | | |
| Check the temperature. | | | | | | |
| | | | | | | |
| Performance and Corrective Action: | | | | | | |
| Confirm that the detector and ambient temperature is lower or higher than the operating temperature stated | | | | | | |
| in this Service Manual. If the detector and ambient temperature deviates from the operating range, adjust | | | | | | |
| the detector and ambient temperature properly to prevent poor image quality. If the image quality is reduced | | | | | | |
| after adjusting the temperature, service assistance is necessary. | | | | | | |
| Record result on Inspection Report Form. | | | | | | |
| | | | | | | |
| | | | | | | |
| Result: | | | | | | |
| Frequency: D: \Box , M: \Box , Q: \Box , | A: Date: 20 | **-**- Ope | erator: | | | |
| | | | | | | |
| Limit of Acceptability: +10 ~ +35℃ | | | | | | |
| | | | | | | |
| Remarks: | | | | | | |
| | | | | | | |


| | Hard Disk free spa | Hard Disk free space | | | | |
|--|--------------------------|----------------------|--------|-----------------|-----------|--|
| Test ITEM (3) | Frequency | D: Daily | | M: Monthly | | |
| | | Q: Quarterly | | A: Annually | | |
| Objective: | | | | | | |
| Confirm that new study can be p | performed and stored | to hard disk dri | ive of | workstation. | | |
| | | | | | | |
| Equipment: | | | | | | |
| Workstation, VXvue S/W | | | | | | |
| Power supply, Power Meter | | | | | | |
| Inspection Report Form | | | | | | |
| | | | | | | |
| Procedure: | | | | | | |
| Turn on the power of the system | | | | | | |
| Run VXvue. | | | | | | |
| Check hard disk free space indic | cation is not red light. | | | | | |
| | | | | | | |
| Performance and Corrective A | ction: | | | | | |
| If the hard disk free space indica | ation is not red, new st | udy can be pe | erform | ned. | | |
| If the hard disk free space indica | ation is red, delete old | study to make | free | hard disk space | enough to | |
| perform new study. | | | | | | |
| Record result on Inspection Rep | ort Form. | | | | | |
| | | | | | | |
| Result: | | | | | | |
| Frequency: D: \Box , M: \Box , Q: \Box , | A: □ Date: 20 | **_**_** | Oper | ator: | | |
| | | | | | | |
| Limit of Acceptability: N/A | | | | | | |
| | | | | | | |
| Remarks: | | | | | | |
| | | | | | | |
| | | | | | | |



| Test ITEM (4) Frequency D: Daily M: Monthly Display M: Monthly Display <t< th=""><th></th><th colspan="5">Work list connection</th></t<> | | Work list connection | | | | |
|---|--|------------------------|----------------------|-------------------------------------|--|--|
| Objective: Confirm that VXvue is connected normally with Worklist and can register study by querying from Worklist server. Equipment: Workstation, VXvue SW, Work List Server Power supply, Power Meter Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select Setting Mode. Select Setting Mode. Select Setting Mode. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Prequency: D: a, M: a, Q: a, A: a Date: 20****** Operator: Limit of Acceptability: N/A Remarks: | Test ITEM (4) | Frequency | D: Daily | M: Monthly D | | |
| Objective: Confirm that VXvue is connected normally with Worklist and can register study by querying from Worklist server. Equipment: Workstation, VXvue S/W, Work List Server Power supply, Power Meter Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select Setting Mode. Select DICOM tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Result: Frequency: D: D, M: D, Q: D, A: D Date: 20***** Operator: Limit of Acceptability: N/A Remarks: | | | Q: Quarterly | A: Annually | | |
| Confirm that VXvue is connected normally with Worklist and can register study by querying from Worklist server. Equipment: Workstation, VXvue S/W, Work List Server Power supply, Power Meter Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: D, M: D, Q: D, A: D Date: 20**-**-** Unit of Acceptability: N/A Remarks: | Objective: | | · | | | |
| server. Equipment: Workstation, VXvue S/W, Work List Server Power supply, Power Meter Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select Setting Mode. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**_**** Operator: Limit of Acceptability: N/A Remarks: | Confirm that VXvue is connected | d normally with Work | list and can registe | r study by querying from Worklist | | |
| Equipment: Workstation, VXvue SW, Work List Server Power supply, Power Meter Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Frequency: D: D, M: D, Q: D, A: D Date: 20**-*** Operator: Limit of Acceptability: N/A Remarks: | server. | | | | | |
| Equipment: Workstation, VXvue SW, Work List Server Power supply, Power Meter Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select DICOM tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Persult: Frequency: D: D, M: D, Q: D, A: D Date: 20**_*** Operator: Limit of Acceptability: N/A Remarks: | | | | | | |
| Workstation, VXvue S/W, Work List Server Power supply, Power Meter Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select Setting Mode. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**-**.** Operator: Limit of Acceptability: N/A Remarks: | Equipment: | | | | | |
| Power supply, Power Meter Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**.*** Operator: Limit of Acceptability: N/A Remarks: | Workstation, VXvue S/W, Work | List Server | | | | |
| Inspection Report Form Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**-**.** Operator: Limit of Acceptability: N/A Remarks: | Power supply, Power Meter | | | | | |
| Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**-**.** Operator: Limit of Acceptability: N/A Remarks: | Inspection Report Form | | | | | |
| Procedure: Turn on the power of the system. Run VXvue. Select Setting Mode. Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**_**_*** Operator: Limit of Acceptability: N/A Remarks: | | | | | | |
| Turn on the power of the system. Run VXvue. Select Setting Mode. Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Frequency: D: □, M: □, Q: □, A: □ Date: 20**-**-** Operator: Limit of Acceptability: N/A Remarks: | Procedure: | | | | | |
| Run VXvue. Select Setting Mode. Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**-*** Operator: Limit of Acceptability: N/A Remarks: | Turn on the power of the system | 1. | | | | |
| Select Setting Mode. Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: D, M: D, Q: D, A: D Date: 20**_**_** Operator: Limit of Acceptability: N/A Remarks: | Run VXvue. | | | | | |
| Select DICOM tab. Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**_*** Operator: Limit of Acceptability: N/A Remarks: | Select Setting Mode. | | | | | |
| Select MWL tab. Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: D, M: D, Q: D, A: D Date: 20**-**- Operator: Limit of Acceptability: N/A Remarks: | Select DICOM tab. | | | | | |
| Select Worklist server. Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: D, M: D, Q: D, A: D Date: 20**_*** Operator: Limit of Acceptability: N/A Remarks: | Select MWL tab. | | | | | |
| Click the Echo button. Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**_**_ Operator: Limit of Acceptability: N/A Remarks: | Select Worklist server. | | | | | |
| Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**_**_* Operator: Limit of Acceptability: N/A Remarks: | Click the Echo button. | | | | | |
| Performance and Corrective Action: Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**_**_ Operator: Limit of Acceptability: N/A Remarks: | | | | | | |
| Check the connection status that is displayed in test result window. If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: D, M: D, Q: D, A: D Date: 20**_** Operator: Limit of Acceptability: N/A Remarks: | Performance and Corrective A | Action: | | | | |
| If connection test failed, check Worklist server is operating and configuration of Worklist server connection is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**-**- Operator: Limit of Acceptability: N/A Remarks: | Check the connection status that | t is displayed in test | result window. | | | |
| is correct. If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. | If connection test failed, check V | Vorklist server is ope | rating and configura | ation of Worklist server connection | | |
| If still Worklist connection fails, service assistance is necessary. Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**-**- Operator: Limit of Acceptability: N/A Remarks: | is correct. | | | | | |
| Record result on Inspection Report Form. Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**-**- Operator: Limit of Acceptability: N/A Remarks: | If still Worklist connection fails, s | service assistance is | necessary. | | | |
| Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**-**- Operator: Limit of Acceptability: N/A Remarks: | Record result on Inspection Rep | oort Form. | | | | |
| Result: Frequency: D: □, M: □, Q: □, A: □ Date: 20**_** Operator: Limit of Acceptability: N/A Remarks: | | | | | | |
| Frequency: D: D, M: D, Q: D, A: Date: 20**-** Operator: Limit of Acceptability: N/A Remarks: | Result: | | | | | |
| Limit of Acceptability: N/A Remarks: | Frequency: D: \Box , M: \Box , Q: \Box , | A: Date: 2 | 0**-**- Ope | erator: | | |
| Limit of Acceptability: N/A Remarks: | | | | | | |
| Remarks: | Limit of Acceptability: N/A | | | | | |
| Remarks. | Demorkey | | | | | |
| | | | | | | |



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| | PACS Server connection | | | | |
|------------------------------------|---------------------------|----------------------|-------------------|------------------|--|
| Test ITEM (5) | Frequency | D: Daily | M: Monthly | | |
| | | Q: Quarterly | A: Annually | | |
| Objective: | | | | | |
| Confirm that VXvue is connected | d normally with PACS | Server and can se | end performed stu | udy data to PACS | |
| server. | | | | | |
| | | | | | |
| Equipment: | | | | | |
| Workstation, VXvue S/W, PACS | Server | | | | |
| Power supply, Power Meter | | | | | |
| Inspection Report Form | | | | | |
| | | | | | |
| Procedure: | | | | | |
| Turn on the power of the system | 1. | | | | |
| Run VXvue. | | | | | |
| Select Setting Mode. | | | | | |
| Select DICOM tab. | | | | | |
| Select Storage tab. | | | | | |
| Select Storage Server. | | | | | |
| Click the Echo button. | | | | | |
| | | | | | |
| Performance and Corrective | Action: | | | | |
| Check the connection status that | t is displayed in test re | esult window. | | | |
| If connection test failed, check F | PACS server is operati | ng and configuration | on of PACS serve | er connection is | |
| correct. | | | | | |
| If still PACS server connection fa | ails, service assistance | e is necessary. | | | |
| Record result on Inspection Rep | oort Form. | | | | |
| | | | | | |
| Result: | | | | | |
| Frequency: D: | A: Date: 20 | **-**- Ope | erator: | | |
| | | | | | |
| Limit of Acceptability: N/A | | | | | |
| | | | | | |
| Remarks: | | | | | |
| | | | | | |



| | Printing Test | |
|--|------------------------|----------------------------|
| Test ITEM (6) | Frequency | D: Daily ■ M: Monthly □ |
| | | Q: Quarterly A: Annually |
| Objective: | | |
| Confirm that VXvue is connected | d normally with Printe | er and can print images. |
| | | |
| Equipment: | | |
| Workstation, VXvue S/W, | | |
| DICOM Printer or Paper Printer | that is installed. | |
| Power supply, Power Meter | | |
| Inspection Report Form | | |
| | | |
| Procedure: | | |
| Turn on the power of the system | 1. | |
| Run VXvue. | | |
| Select Database Mode. | | |
| Search database and open stud | у. | |
| Click the Print button. | | |
| Select Print Mode. | | |
| Click the Print button to print ima | age. | |
| | | |
| Performance and Corrective | Action: | |
| Confirm that the image is printed | d normally. | |
| If printing failed, check the printe | er is operating and is | configured correctly. |
| If still printing fail, service assista | ance is necessary. | |
| Record result on Daily Report F | orm. | |
| | | |
| Result: | | |
| Frequency: D: \Box , M: \Box , Q: \Box , | A: Date: 2 | 0**-**-** Operator: |
| | | |
| Limit of Acceptability: N/A | | |
| | | |
| Remarks: | | |
| | | |



| | Auto offset | | |
|--|-------------------------|-----------------------|---------------------------------|
| Test ITEM (7) | Frequency | D: Daily | M: Monthly |
| | | Q: Quarterly | A: Annually |
| Objective: | | | |
| Check that Flat panel's offset ch | anges caused by the | increased heat are a | utomatically corrected. |
| | | | |
| Equipment: | | | |
| Workstation, VXvue S/W | | | |
| Power supply, Power Meter | | | |
| Stop watch | | | |
| Inspection Report Form | | | |
| | | | |
| Procedure: | | | |
| Turn on the power of the system |). | | |
| Run VXSetup. | | | |
| Set the period of offset or tempe | erature change. | | |
| Run VXvue. | | | |
| | | | |
| Performance and Corrective A | action: | | |
| Check if Auto offset is set and pe | erformed when operation | ting VXvue. | |
| Check if Auto offset operates aft | er the chosen time se | tting is over. | |
| If offset is not set automatically a | and does not perform, | ask for service assis | stance. |
| If the chosen time setting is exce | eeded, recheck the tir | ne setting. | |
| If the image is not normal due to | the dislocation of off | set, send the image a | and ask for service assistance. |
| Record result on Inspection Rep | oort Form. | | |
| | | | |
| Result: | | | |
| Frequency: D: \Box , M: \Box , Q: \Box , | A: Date: 20 |)**-**- Opera | itor: |
| | | | |
| Limit of Acceptability: N/A | | | |
| | | | |
| Remarks: | | | |
| | | | |



| | Resolution | | | | |
|--|---------------------|--|--|--|--|
| Test ITEM (8) | Frequency | D: Daily □ M: Monthly ■ | | | |
| | | Q: Quarterly A: Annually | | | |
| Objective: | | | | | |
| Confirm the resolution of the det | ector. | | | | |
| | | | | | |
| Equipment: | | | | | |
| Workstation, VXSetup S/W | | | | | |
| Power supply, Power Meter | | | | | |
| Resolution Chart (Nuclear Assoc | ciate, model 07-52 | 23-2 or Line pair CHART 0.05mmPb CN37076) | | | |
| X-ray GEN., X-ray Tube | | | | | |
| Inspection Report Form | | | | | |
| | | | | | |
| Procedure: | | | | | |
| Turn on the power of the system | | | | | |
| Run VXSetup. | | | | | |
| Open the Diagnose window. | | | | | |
| Attach resolution chart (Line pair | CHART 0.05 mm | Pb CN37076, model 07-523-2) on the center of the | | | |
| detector with diagonal direction. | | | | | |
| Set X-ray generator to 50kVp, 2 | mAs and SID to 1 | m. | | | |
| Expose X-rays. | | | | | |
| Confirm that the resolution is over | er 3.51p/mm. | | | | |
| | | | | | |
| Performance and Corrective A | ction: | | | | |
| Confirm that the resolution is over | er 3.51p/mm. | | | | |
| If the resolution is under 3.5lp/mn | n, then test again | by adjusting mAs from 1mAs to 5mAs. | | | |
| If still resolution is under 3.5lp/mm | n, service assistar | ice is necessary. | | | |
| Record result on Inspection Rep | ort Form. | | | | |
| | | | | | |
| Result: | | | | | |
| Frequency: D: \Box , M: \Box , Q: \Box , | A: □ Date | 20**-**- Operator: | | | |
| | | | | | |
| Limit of Acceptability: 3. 5lp/mm | | | | | |
| | | | | | |
| Remarks: | | | | | |
| | | | | | |



| | Image Acquisition | Time | | |
|---------------------------------------|-------------------------|---------------------|----------------------|-----------------|
| Test ITEM (9) | Frequency | D: Daily | M: Monthly | |
| | | Q: Quarterly | A: Annually | |
| Objective: | | | | |
| Confirm the acquisition of time r | equired to get image o | designed with optin | nal specifications. | |
| | | | | |
| Equipment: | | | | |
| Workstation, VXvue S/W | | | | |
| Power supply, Power Meter | | | | |
| X-ray GEN., X-ray Tube | | | | |
| Stop watch | | | | |
| Inspection Report Form | | | | |
| | | | | |
| Procedure: | | | | |
| Turn on the power of the system | 1. | | | |
| Run VXvue. | | | | |
| Select Exposure Mode. | | | | |
| Register patient. | | | | |
| Expose X-rays with the condition | n of 50kVp and 5 mAs | | | |
| Check flat Image is acquired and | d displayed on monito | r. | | |
| | | | | |
| Performance and Corrective A | Action: | | | |
| Check if the image is acquired in | n 5 to 7 seconds (inclu | iding the processir | ng time). | |
| If image acquisition failed, check | the X-ray is exposed | normally and the | triggering with X-ra | ay generator is |
| properly configured. | | | | |
| If still image acquisition fail, serv | vice assistance is nece | essary. | | |
| Record result on Inspection Rep | oort Form. | | | |
| | | | | |
| Result: | | | | |
| Frequency: D: | A: Date: 20 | **-**- Ope | erator: | |
| | | | | |
| Limit of Acceptability:5~7 sec | | | | |
| | | | | |
| Remarks: | | | | |
| | | | | |



| | Linearity | | | |
|---------------------------------------|-------------------------|---------------------|-------------------|-----------------|
| Test ITEM (10) | Frequency | D: Daily | M: Monthly | |
| | | Q: Quarterly | A: Annually | |
| Objective: | | | | |
| Evaluate the image quality acco | rding to the amount of | radiation coming | into Flat Panel D | etector. |
| | | | | |
| Equipment: | | | | |
| Workstation, VXvue S/W | | | | |
| Power supply, Power Meter | | | | |
| X-ray GEN., X-ray Tube | | | | |
| Inspection Report Form | | | | |
| | | | | |
| Procedure: | | | | |
| No Target | | | | |
| Gain: 1 | | | | |
| | | | | |
| Performance and Corrective A | ction: | | | |
| When SID is 150 cm, 1900-2200 | Graylevel properties/ | qualities should be | e obtained under | 70kVp and 2mAs. |
| When SID is 100 cm, 1900-2200 | Graylevel properties/ | qualities should be | e obtained under | 55kVp and 2mAs. |
| If properties/qualities are not obt | tained, reset the condi | tions and test aga | ain. | |
| If properties/qualities are still not | t obtained after the se | cond test, service | assistance is neo | cessary. |
| Record result on Inspection Rep | oort Form. | | | |
| | | | | |
| Result: | | | | |
| Frequency: D: | A: Date: 20 | **-**- Op | erator: | |
| | | | | |
| Limit of Acceptability: SID: 150 c | m, 70kVp, 2mAs → 1 | 900 ~ 2200 Grayl | evel | |
| SID: 100 c | cm, 55kVp, 2mAs → 1 | 900 ~ 2200 Grayl | evel | |
| | | | | |
| Remark: | | | | |
| | | | | |



| | DQE | |
|--|-------------------------|--|
| Test ITEM (11) | Frequency | D: Daily D: M: Monthly D |
| | | Q: Quarterly A: Annually |
| Objective: | | |
| Evaluate the distinct characteris | tics of detector throug | h the amount of radiation coming into Flat Panel |
| Detector, resolution and contrast | t of images/projections | s, and the unification of noises of projection. |
| Equipment: | | |
| Workstation, VXvue S/W | | |
| Power supply, Power Meter | | |
| X-ray GEN., X-ray Tube | | |
| Inspection Report Form | | |
| | | |
| Procedure: | | |
| IEC62220-1(RQA 5) in accordar | nce with the conditions | |
| | | |
| | | |
| Performance and Corrective A | ction: | |
| In case of CSI type, properties/q | ualities should be obta | ained more than 45% at 11/p mm. |
| In case of Gadox type, propertie | s/qualities should be o | obtained more than 30% at 1l/p mm. |
| If properties/qualities are not obt | ained, reset the condi | tions and test again. |
| If properties/qualities are still not | t obtained after the se | cond test, service assistance is necessary. |
| Record result on Inspection Rep | ort Form. | |
| | | |
| Result: | | |
| Frequency: D: \Box , M: \Box , Q: \Box , | A: Date: 20 | **-**-** Operator: |
| | 41/ | or / |
| Limit of Acceptability: CSI: | 11/p mm, more than 45 | % |
| Gadox: | Trip mm, more than 30 | 70 |
| Pomarka | | |
| | | |
| | | |
| | | |



| | MTF | | | | |
|--------------------------------------|-------------------------|------------------|--------|--|---------------|
| Test ITEM (12) | Frequency | D: Daily | | M: Monthly | |
| | | Q: Quarterly | | A: Annually | |
| Objective: | • | | | | |
| Evaluate the distinct characteris | tics of detector throug | h the amount o | of rac | liation coming in | to Flat Panel |
| Detector, resolution and contras | t of images/projection | s, and the unifi | catio | n of noises of pr | ojection. |
| | | | | | |
| Equipment: | | | | | |
| Workstation, VXvue S/W | | | | | |
| D.Q.E Program (Matlab) | | | | | |
| Power supply, Power Meter | | | | | |
| X-ray GEN., X-ray Tube | | | | | |
| Inspection Report Form | | | | | |
| | | | | | |
| Procedure: | | | | | |
| IEC62220-1(RQA 5) in accordar | nce with the conditions | 3 | | | |
| | | | | | |
| | | | | | |
| Performance and Corrective A | Action: | | | | |
| Properties/qualities should be of | btained more than 50% | % at 11/p mm. | | | |
| If properties/qualities are not ob | tained, reset the cond | tions and test | agair | ן. יייייייייייייייייייייייייייייייייייי | |
| If properties/qualities are still no | t obtained after the se | cond test, serv | vice a | issistance is nec | essary. |
| Record result on Inspection Rep | oort Form. | | | | |
| Decultu | | | | | |
| | | ** ** ** | 0 | ete v | |
| | | | Oper | alur. | |
| Limit of Accontability: 11/n mm m | ore than 50% | | | | |
| | | | | | |
| Remarks [.] | | | | | |
| | | | | | |



| | Calibration | | | | |
|--|---------------------------|------------------------------------|-------------------|--|--|
| Test ITEM (13) | Frequency | D: Daily D: M: Monthly | | | |
| | | Q: Quarterly A: Annually | • | | |
| Objective: | | | | | |
| Compensates defect pixels and | calibrates pixel gain u | sing the installed x-ray generator | r and x-ray tube. | | |
| | | | | | |
| Equipment: | | | | | |
| Workstation, VXSetup S/W | | | | | |
| Power supply, Power Meter | | | | | |
| X-ray GEN., X-ray Tube | | | | | |
| Inspection Report Form | | | | | |
| | | | | | |
| Procedure: | | | | | |
| Turn on the power of the system | l. | | | | |
| Run VXSetup. | | | | | |
| Operation of calibration: Enter 1 | 0 in the Stage of Preo | fset and perform the calibration. | | | |
| Operation of calibration: Enter 1 | 0 in the Stage of Post | offset and perform the calibration | | | |
| Operation of calibration: Perform | n Defect defection. | | | | |
| Operation of calibration: Perform | n Gain correction. | | | | |
| | | | | | |
| Performance and Corrective A | Action: | | | | |
| Featured artifacts are not found | if calibration is perform | ned normally. | | | |
| If many artifacts are found, perfo | orm calibration again. | | | | |
| If many artifacts are still found, s | ervice assistance is n | ecessary. | | | |
| Record result on Inspection Rep | ort Form. | | | | |
| | | | | | |
| | | | | | |
| Result: | | | | | |
| Frequency: D: \Box , M: \Box , Q: \Box , | A: Date: 20 | Operator: | | | |
| Limit of Accortability NI/A | | | | | |
| Limit of Acceptability: N/A | | | | | |
| Pomarke: | | | | | |
| | | | | | |
| | | | | | |



System Discrepancy Form

| Installation Site Information: |
|-------------------------------------|
| Date: Published by: |
| System Information |
| X-ray Generator: |
| X-ray Tube: |
| X-ray grid Information: |
| Detector Model: FXRD-1417WA(B) |
| Serial Number of Detector: |
| Serial Number of Power Supply Unit: |
| Version of VXvue: |
| Version of VXSetup: |
| Comment: |
| |
| System Discrepancy |
| Date of finding: |
| Operator: |
| How is it found: |
| |
| |
| |
| Comment: |
| |
| |

Contact Information

| Vieworks Co., Ltd | |
|--|--|
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| vieworks@vieworks.com | |
| | |



VIVIX-S Wireless Service Manual

Modification Request Form

| Date: | Published by: | |
|-------------------------------------|---------------|--|
| | | |
| System Information | | |
| X-ray Generator: | | |
| X-ray Tube: | | |
| X-ray grid Information: | | |
| Detector Model: FXRD-1417WA(B) | | |
| Serial Number of Detector: | | |
| Serial Number of Power Supply Unit: | | |
| Version of VXvue: | | |
| Version of VXSetup: | | |
| Comment: | | |
| | | |
| Modification Request | | |
| Software Name: | | |
| Request: | | |
| | | |
| | | |
| | | |
| Comment: | | |
| | | |
| | | |

Contact Information

| Address: | Vieworks Co., Ltd | |
|----------|--|--|
| | #107-108, 601-610 Suntechcity II, | |
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| | 462-806 South Korea | |
| Phone: | +82-70-7011-6161 | |
| Fax: | +82-31-737-4954 | |
| email: | vieworks@vieworks.com | |



8. Troubleshooting



Trouble shooting must be performed by technician who is trained by the Vieworks Co., Ltd or an organization certified by Vieworks Co., Ltd. If an unqualified person performs troubleshooting on the system resulting in damaging the detector, software or hardware, then the Vieworks Co., Ltd or its representative is not responsible for the detector repair regardless of remain warranty. For more detailed information, refer to the 9. Warranty section.

8.1 Failure Case

| Failure Case | Solution |
|-------------------------------------|----------------|
| Failed to turn on the power of SCU. | Refer to 8.1.1 |
| Power LED isn't lit up. | Refer to 8.1.2 |
| Status LED isn't lit up with green. | Refer to 8.1.3 |
| Communication Test Failure | Refer to 8.1.4 |

8.1.1 Repairing SCU

Check if AC power cable of System Control Unit is securely plugged. If it still does not work, replace the SCU.

8.1.2 Repairing Power Failure

Check if DC power cable is securely plugged and power switch is turned on. If it still does not work, replace the detector.

8.1.3 Configuration Failure

Turn off the SCU and turn it on again. If it still does not work, replace the detector.

8.1.4 Repairing Communication Failure

Check if LAN cable is securely plugged. If it does not work, do the first step of the following and check again. If it still does not work, do the next step.

- Restart VXvue.
- Turn off the SCU and turn it on again.
- Replace the LAN cable.



9. Warranty

Vieworks Co., Ltd warrants that this product will be free from defects in materials and workmanship for a period of twelve (12) months from the date of delivery. If any such product proves defective during this warranty period, Vieworks Co., Ltd at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defect product. In order to obtain service under this warranty, Customer must notify Vieworks Co., Ltd of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Vieworks Co., Ltd with shipping charges prepaid. Vieworks Co., Ltd shall pay for the return of the product to customer if the shipment is to a location within the country in which the Vieworks Co., Ltd designated service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure, or damage caused by improper or inadequate maintenance and care. Vieworks shall not be obligated to furnish service under this warranty to repair damage resulting from attempts by personnel other than Vieworks Co., Ltd or its representatives to install, repair, or service this product, to repair damage resulting from improper use or connection to incompatible equipment or power source; or to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

THIS WARRANTY IS GIVEN BY VIEWORKS CO., LTD WITH RESPECT TO THIS PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. VIEWORKS CO., LTD AND ITS VENDOR DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABLILITY OR FITNESS FOR A PARTICULAR PURPOSE. VIEWORKS CO., LTD RESPONSIBILITY TO REPAIR OR REPLACE DEFECTIVE PRODUCTS IS THE SOLE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. VIEWORKS AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IRRESPECTIVE OF WHETHER VIEWORKS CO., LTD OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

There are no warranties which extend beyond the description mentioned in this document.



Vieworks



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FCC Notice

*5.15- 5.25 GHz band is restricted to indoor operations only.

*Host device of the approved module shall be marked with the following item: Contains Transmitter Module FCC ID: PPD-ARBH6B116

Compliance with FCC requirement 15.407(c)

Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinues transmission in case of either absence of information to transmit or operational failure.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

When installing it in a mobile equipment

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment has very low levels of RF energy that it deemed to comply without maximum permissive exposure evaluation (MPE). This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body (excluding extremities: hands, wrists, feet and ankles).