

Digital X-ray Imager

AX-C4343W

2.4 GHz/5 GHz

Technical Document

To customers

Important information on usage and management of the product

1. This product complies with local radio frequency regulations in the country or region where you purchased the product. Note that it cannot be used in any other areas. When using the product, follow the notes on radio frequency in this document.
2. The product shall be maintained in a safe and operable condition by maintenance personnel.
3. In the case of a network connection, the appropriate network address must be acquired from the network administrator in the installation location, and it must be set correctly.
4. Use only the dedicated cables. Do not use the cables with other equipment. Do not use any cables other than those supplied with the product.

Disclaimer

1. In no event shall Canon be liable for any damage or loss arising from fire, earthquake, any action by a third party or other accidents, any intentional or negligent action by users, any trial usage, or other usage under abnormal conditions.
2. Roentgenography, image processing, image reading, and image data storage must be performed in accordance with the laws of the country or region in which the product is being used. The user is responsible for maintaining the privacy of image data.
3. In no event shall Canon be liable for personal physical harm or property damage that is sustained when the instructions are not followed or the product is misused.

Notes on disposal of the product

- Disposal of this product in an unlawful manner may have a negative impact on human health and on the environment. Therefore, when disposing of this product, be absolutely certain to follow the procedure which conforms with the laws and regulations applicable to your area.



USA and Canada only:

The Lithium ion/polymer battery is recyclable. Please call 1-800-8-BATTERY for information on how to recycle this battery.

Le Canada et les Etats-Unis seulement :

La batterie aux ions de lithium est recyclable. Pour obtenir des renseignements sur les façons de recycler cette batterie, veuillez appeler au 1-800-8-BATTERY.

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Conventions

Safety symbols

The following safety messages are used to emphasize certain safety instructions. This document uses the safety alert symbol along with a safety message.



This is used to identify conditions under which improper use of the product may cause death or serious personal injury. Pay attention to the warning message.



This is used to identify conditions under which improper use of the product may cause minor personal injury. Pay attention to the caution message.



This notice is used to identify conditions under which improper use of the product may cause property damage. Pay attention to the caution message.



Prohibited

This is used to indicate a prohibited operation.



This is used to indicate an action that must be performed.



This is used to indicate important instructions that must be followed and restrictions. Be sure to read the notices to avoid property damage or malfunction of the product and other equipment, and to avoid incorrect operations.



This is used to indicate operations for reference and complementary information. Users are recommended to read this notice.

1 Safety information

The precautions described in this chapter prevent users and others from suffering damage or loss.

1.1 Safety precautions

Follow these safeguards and properly use the product to prevent injury and damage to any equipment/data.



WARNING

Operating/storage environment



Prohibited

- Do not use or store the product near flammable chemicals such as alcohol, thinner, benzine, etc.

If chemicals are spilled or evaporate, it could result in fire or electric shock through contact with electric parts inside the product. Also, some disinfectants are flammable. Be sure to take care when using them.

- Do not connect the equipment with anything other than specified.
Doing so could result in fire or electric shock.

Power supply and cables



Prohibited

- Do not operate the product using any type of power supply other than the one indicated on the rating label.

Otherwise, it could result in fire or electric shock.

- Do not handle the product with wet hands.

You may experience an electric shock that could result in death or serious injury.

- Do not place heavy object on cables and cords, or do not pull, bend, bundle, or step on them to prevent their sheath from being damaged, and do not alter them neither.

Doing so may damage the cords which could result in fire or electric shock.

- Do not supply power to more than one piece of equipment using the same AC outlet.

Doing so could result in fire or electric shock.

- Do not turn ON the power when condensation has formed on the product.

Doing so could result in fire or electric shock.

- Do not connect a multiple portable socket-outlet or extension cord to the system.

**WARNING**

- Always connect the three-core power cord plug to a grounded AC power outlet.

- Securely plug the power cord into the AC outlet.

If contact failure occurs or the exposed metal prongs of the plug get dusty or have contact with metal objects, fire or electric shock could result.

- Be sure to turn OFF the power to the product before connecting or disconnecting the cords.

Otherwise, you may get an electric shock that could result in death or serious injury.

- Be sure to hold the plug or connector to disconnect the cord.

If you pull the cord, the core wire may be damaged, resulting in fire or electric shock.

Handling

Prohibited

- Never disassemble or modify the product.

Doing so could result in fire or electric shock. Also, since the product incorporates parts that may cause electric shock as well as other hazardous parts, touching them may cause death or serious injury.

- Do not place anything on top of the product.

The object may fall and cause an injury. Also, if metal objects such as needles or clips fall into the product, or if liquid is spilled, it could result in fire or electric shock.

- Do not hit or drop the product.

The product may be damaged if it receives a strong jolt, which could result in fire or electric shock if the product is used without being repaired.



- Always confirm that there is no problem with the system during use. If a problem occurs, take appropriate measures, such as shutting down the system.



WARNING

When a problem occurs



- Should any of the following occur, immediately turn OFF the power to the product, unplug the power cord from the AC outlet, and contact your sales representative:
 - When there is smoke, an odd smell or abnormal sound
 - When liquid has been spilled into the product or a metal object has entered through an opening
 - When the product has been dropped and is damaged

Inspection, disinfection, and cleaning



Prohibited

- Do not use flammable solvents to clean the surface of the product.

When the product is going to be cleaned, be sure to turn OFF the power to the product, remove the battery pack, and unplug the power cord from the AC outlet. Never use alcohol, benzene, thinner or any other flammable solvents. Otherwise, it could result in fire.



- Clean the plug of the power cord periodically by unplugging it from the AC outlet and removing dust or dirt from the plug, its periphery and AC outlet with a dry cloth.

If the cord is kept plugged in for a long time in a dusty, humid or sooty place, dust around the plug will attract moisture, and this could cause insulation failure that could result in a fire.

- For safety reasons, be sure to turn OFF the power to the product when the inspections of the product and cables are going to be performed.

Otherwise, electric shocks may occur.

- The product must be repaired by a qualified engineer only.

If it is not repaired properly, it could result in fire, electric shock, or accident.

**CAUTION****Operating/storage environment**

Prohibited

- **Do not install or store the product in any of the locations listed below.**

Doing so may result in failure or malfunction, product falling, or fire or injury.

- Close to facilities where water is used
- Where it will be exposed to direct sunlight
- Close to the air outlet of an air-conditioner or ventilation equipment
- Close to a heat source such as a heater
- Where the power supply is unstable
- On the floor
- In a dusty environment
- In a saline or sulfurous environment
- Where temperature or humidity is high
- Where there is freezing or condensation
- In areas prone to vibration
- On an incline or in an unstable area



- **Use this product in an environment within a temperature range of 5°C to 35°C.**
- **When using the detector, if you observe an abnormal rise in temperature above the temperatures listed below, stop using it immediately and contact your sales representative.**

The maximum temperature of the detector: 45°C*.

* This is measured during Canon's maximum load test when the ambient temperature is set to 35°C.



CAUTION

Power supply and cables



- To make it easy to disconnect the plug at any time, avoid putting any obstacles near the outlet.

Otherwise, it may not be possible to disconnect the plug in an emergency.

- Be sure to ground the product to an indoor grounded connector. Also, be sure to connect all the grounds for the system to a common ground.

- Use only the power cord provided with this product.

Otherwise, fire or electric shock may be caused due to leakage.

- Because the product cable is long, take care that cables do not become tangled during use. Also, be careful not to get your feet caught in the cable.

Otherwise, it may cause a failure of the product or the injury of the user due to tripping over the cable.

**CAUTION****Handling**

Prohibited

- **Do not spill liquid or chemicals onto the product.**

Doing so may result in fire or electric shock. The detector is protected against dust (at the level of IP5X*) and liquids (at the level of IPX4**).

However, take the following precautions.

- Do not submerge the detector in water.
- Do not use the detector in a place where it gets wet by a lot of rainwater.
- If the detector is submerged in water or otherwise gets very wet, wipe it with a dry cloth, stop using it, and consult your sales representative.
- If necessary, wrap the detector in a disposable cover.
- Dust protection and water protection might be impaired if something hits against the detector, or if the detector is dropped or receives a strong jolt.
- Securely lock the battery cover. Otherwise, the detector is not protected against dust or liquids.
- Do not open the battery cover when the dust adheres to the detector or the detector gets wet.
- Do not use the detector if water or dust gets into and stays inside the battery compartment.
- The battery cover is a consumable item. If the battery cover is deformed or the packing is damaged or cracked, replace the battery cover with a new one. If a deteriorated battery cover continues to be used, ingress of dust or water into the detector may occur.
- Junctions between the wiring cable and Multi Box and between the PC Connection Cable and laptop computer are not resistant to dust or water.

* Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety (Dust-protected). The equipment is protected so that specified operations and safety are not impaired even if the equipment is exposed to dust (75 µm in diameter) and dust gets inside the equipment and is left for eight hours.

** Water splashing against the enclosure from any direction shall have no harmful effect (Protected against splashing water). There are no damaging effects when the equipment is sprayed with water from spray nozzles located in any direction at a pressure of 50 to 150 kPa by the 10 liter per minute over 5 minutes on the equipment.



- **Turn OFF the power to the product for safety when not being used.**

CAUTION

Handling



Prohibited

- Do not place excessive weight on the product.
Do not use the detector in a manner that will subject it to local loads of 100 kg or more.

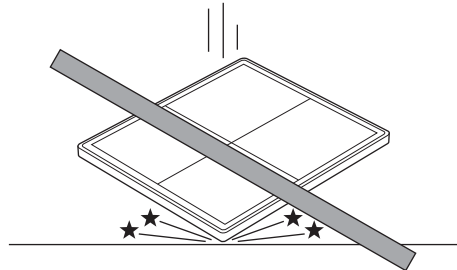
If the load exceeds the limit, the inner device may be damaged.

- Do not touch the electrode terminals of the detector and the battery pack.



- Handle the product carefully as it is precision device.

The inner device may be damaged if something hits against it, or if it is dropped, or receives a strong jolt.



- Be sure to use the detector on a flat surface while using it in horizontal position.

If the detector is set on a diagonal and pressure is applied to it, the inner device may be damaged.

- Be sure to securely hold the detector while using it in upright positions.

Otherwise, the detector may fall over, resulting in injury to the user or the object, or may flip over, resulting in damage to the inner device.

CAUTION**Inspection, disinfection, and cleaning**

Prohibited

- Do not spray the detector directly with disinfectants or detergents.



- Perform regular inspections.

For safe use of this product and each piece of equipment, perform daily inspections. In addition, carry out regular inspections and clean the product at least once a year.

- Always keep this product and other equipment clean and remove all dust and dirt.

Dust and dirt may cause malfunctions of the equipment included in the radiography system, such as this product and computers.

- When cleaning the battery pack, turn off the detector and remove the battery pack from the detector.
- When cleaning the battery pack, wipe it with a cloth slightly dampened with water or diluted neutral detergent.

The battery pack is not protected against liquids. When cleaning the battery pack, wipe it carefully so as not to spill the detergents onto the electrodes.

- Dry the battery pack completely after cleaning, and attach it to the detector.
- When cleaning any other parts than the sensor side of the detector, wipe them carefully so as not to spill the detergents onto the battery pack attachment portion (electrodes).
- Use water or diluted neutral detergent to clean the surface of the detector and other equipment. Do not use absolute alcohol, paint thinner, benzene, or chlorinated solvents. Doing so may damage the surface of the detector or other equipment.
- Dry the detector completely after disinfecting or cleaning it.

CAUTION

Operating/storage environment



Prohibited

- Do not expose this product to high temperatures or high humidity.
Malfunctions may occur.



- Be sure to use and store this product under the conditions described below:

	Temperature	Humidity	Atmospheric pressure
Operating environment	5°C to 35°C	30% to 80% RH	613 to 1060 hPa
Storage environment	5°C to 40°C	30% to 85% RH	

- When not in use, keep the detector in a designated location or in a location where they are safe and cannot fall down.

1.2 Notes on radio frequency

This product complies with local radio frequency regulations in the country or region where you purchased the product. Note that it cannot be used in any areas other than the country or region of its purchase.

The radio frequency channel (5 GHz) configured for indoor use may not be usable in outdoor areas, depending on local radio frequency regulations.

RF compliance information

FCC compliance (For U.S.A.)

FCC CAUTION:

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

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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

RF exposure compliance

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. WM5A15 has been tested and found to comply with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines.

This device complies with below part 15 of the FCC Rules.

Part 15 Subpart C

Part 15 Subpart E

Supplier's Declaration of Conformity

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.

The supplier's Declaration of Conformity is available on your request. Please contact at: Distributor

IC compliance (For Canada)

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. L'appareil ne doit pas produire de brouillage;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

5.15-5.35 GHz band is restricted to indoor operations only.

La bande 5150-5350 MHz est restreints à une utilisation à l'intérieur.

High-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Les radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz, et ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

RF exposure compliance

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. WM5A15 has been tested and found to comply with IC radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the IC radio frequency (RF) Exposure rules.

Les connaissances scientifiques dont nous disposons n'ont mis en évidence aucun problème de santé associé à l'usage des appareils sans fil à faible puissance. Nous ne sommes cependant pas en mesure de prouver que ces appareils sans fil à faible puissance sont entièrement sans danger. Les appareils sans fil à faible puissance émettent une énergie radioélectrique (RF) très faible dans le spectre des micro-ondes lorsqu'ils sont utilisés. Alors qu'une dose élevée de RF peut avoir des effets sur la santé (en chauffant les tissus), l'exposition à de faibles RF qui ne produisent pas de chaleur n'a pas de mauvais effets connus sur la santé. De nombreuses études ont été menées sur les expositions aux RF faibles et n'ont découvert aucun effet biologique. Certaines études ont suggéré qu'il pouvait y avoir certains effets biologiques, mais ces résultats n'ont pas été confirmés par des recherches supplémentaires. WM5A15 a été testé et jugé conforme aux limites d'exposition aux rayonnements IC énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'IC.

RE compliance (For European Union and EFTA)

English	Hereby, Canon Inc. declares that this equipment is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: https://global.canon/en/deoco/medcom/index.html
Czech	Tímto společnost Canon Inc. prohlašuje, že toto zařízení je v souladu se směrnicí 2014/53/EU. Úplné znění EU prohlášení o shodě je k dispozici na této internetové adrese: https://global.canon/en/deoco/medcom/index.html
Danish	Hermed erklærer Canon Inc., at dette udstyr er i overensstemmelse med direktiv 2014/53/EU. EU-overensstemmelseserklæringens fulde tekst kan findes på følgende internetadresse: https://global.canon/en/deoco/medcom/index.html
German	Hiermit erklärt Canon Inc, dass diese Anlage der Richtlinie 2014/53/EU entspricht. Der vollständige Text der EU-Konformitätserklärung ist unter der folgenden Internetadresse verfügbar: https://global.canon/en/deoco/medcom/index.html
Estonian	Käesolevaga deklareerib Canon Inc., et käesolev seade vastab direktiivi 2014/53/EL nõuetele. ELi vastavusdeklaratsiooni täielik tekst on kättesaadav järgmisel internetiaadressil: https://global.canon/en/deoco/medcom/index.html
Spanish	Por la presente, Canon Inc. declara que este equipo es conforme con la Directiva 2014/53/UE. El texto completo de la declaración UE de conformidad está disponible en la dirección de Internet siguiente: https://global.canon/en/deoco/medcom/index.html
Greek	Με την παρούσα, η Canon Inc. δηλώνει ότι ο παρών εξοπλισμός συμμορφώνεται με την Οδηγία 2014/53/ΕΕ. Το πλήρες κείμενο της δήλωσης συμμόρφωσης της ΕΕ διατίθεται στην ακόλουθη διεύθυνση στο διαδίκτυο: https://global.canon/en/deoco/medcom/index.html
French	Le soussigné, Canon Inc., déclare que le présent équipement est conforme à la Directive 2014/53/UE. Le texte complet de la déclaration UE de conformité est disponible à l'adresse internet suivante : https://global.canon/en/deoco/medcom/index.html
Italian	Con la presente, Canon Inc. dichiara che questa apparecchiatura è conforme alla direttiva 2014/53/UE. Il testo completo della dichiarazione di conformità UE è disponibile al seguente indirizzo Internet: https://global.canon/en/deoco/medcom/index.html
Latvian	Canon Inc. ar šo deklarē, ka šī iekārta atbilst Direktīvai 2014/53/ES. Pilns ES atbilstības deklarācijas teksts ir pieejams šādā interneta vietnē: https://global.canon/en/deoco/medcom/index.html
Lithuanian	Šiuo dokumentu „Canon Inc.“ patvirtina, kad ši įranga atitinka direktyvą 2014/53/ES. Visas ES atitikties deklaracijos teksto prielaidas šiuo interneto adresu: https://global.canon/en/deoco/medcom/index.html
Dutch	Hierbij verklaar ik, Canon Inc., dat deze apparatuur conform is met Richtlijn 2014/53/EU. De volledige tekst van de EU-conformiteitsverklaring kan worden geraadpleegd op het volgende internetadres: https://global.canon/en/deoco/medcom/index.html
Maltese	B'dan, Canon, qed tiddikjara li dan it-tip ta' tagħmir huwa konformi mad-Direttiva 2014/53/UE. It-test kollu tad-dikjarazzjoni ta' konformità tal-UE huwa disponibbli f'dan is-sit fuq l-internet: https://global.canon/en/deoco/medcom/index.html

1 Safety information

Hungarian	A Canon Inc. igazolja, hogy ez a berendezés megfelel a 2014/53/EU irányelvnek. Az EU-megfelelőségi nyilatkozat teljes szövege elérhető a következő internetes címen: https://global.canon/en/deoco/medcom/index.html
Polish	Canon Inc. niniejszym oświadcza, że niniejsze urządzenie jest zgodne z dyrektywą 2014/53/UE. Pełny tekst deklaracji zgodności UE jest dostępny pod następującym adresem internetowym: https://global.canon/en/deoco/medcom/index.html
Portuguese	Por este meio, a Canon Inc. declara que o presente equipamento está em conformidade com a Diretiva 2014/53/UE. O texto integral da declaração de conformidade da UE está disponível no seguinte endereço de Internet: https://global.canon/en/deoco/medcom/index.html
Slovene	Canon Inc. potrjuje, da jeta oprema v skladu z Direktivo 2014/53/EU. Celotno besedilo izjave EU o skladnosti je na voljo na naslednjem spletnem naslovu: https://global.canon/en/deoco/medcom/index.html
Slovak	Spoločnosť Canon Inc. týmto vyhlasuje, že toto zariadenie je v súlade so smernicou 2014/53/EÚ. Úplné znenie EÚ vyhlásenia o zhode je k dispozícii na tejto internetovej adrese: https://global.canon/en/deoco/medcom/index.html
Finnish	Canon Inc. vakuuttaa, että tämä laite on direktiivin 2014/53/EU mukainen. EU-vaatimusten mukaisuusvakuutuksen täysimittainen teksti on saatavilla seuraavassa internetosoitteessa: https://global.canon/en/deoco/medcom/index.html
Swedish	Härmed försäkrar Canon Inc. att denna utrustning överensstämmer med direktiv 2014/53/EU. Den fullständiga texten till EU-försäkran om överensstämmelse finns tillgänglig på följande webbadress: https://global.canon/en/deoco/medcom/index.html
Romanian	Prin prezenta, Canon Inc. declară că acest echipament este în conformitate cu Directiva 2014/53/UE. Textul integral al declarației UE de conformitate este disponibil la următoarea adresă internet: https://global.canon/en/deoco/medcom/index.html
Bulgarian	С настоящото Canon Inc. декларира, че това съоръжение е в съответствие с Директива 2014/53/ЕС. Цялостният текст на ЕС декларацията за съответствие може да се намери на следния интернет адрес: https://global.canon/en/deoco/medcom/index.html
Croatian	Canon Inc. ovime izjavljuje da je oprema u skladu s Direktivom 2014/53/EU. Cjeloviti tekst EU izjave o sukladnosti dostupan je na sljedećoj internetskoj adresi: https://global.canon/en/deoco/medcom/index.html
Irish	Dearbhaíonn Canon Inc., leis seo, go bhfuil an trealamh seo i gcomhlíonadh leis an Treoir 2014/53/AE. Tá an téacs iomlán de Dhearbhú Comhréireachta AE ar fáil ag seoladh an láithreáin ghréasáin mar seo a leanas: https://global.canon/en/deoco/medcom/index.html
Norwegian	Herved erklærer Canon Inc. at dette utstyret er i overensstemmelse med direktiv 2014/53/EU. Den fulle teksten til EUs samsvarserklæring er tilgjengelig på følgende Internett-adresse: https://global.canon/en/deoco/medcom/index.html
Icelandic	Hér með lýsir Canon Inc því yfir að þessi búnaður er í samræmi við tilskipun 2014/53/ESB. Allur texti ESB-samræmisýfirlýsingar er í boði á eftirfarandi veffangi: https://global.canon/en/deoco/medcom/index.html

- For information on obtaining the original of the declaration, consult your sales representatives.

For European Union and EFTA

The AX-C4343W includes an RF transmitter whose specifications are as follows.

Frequency band	Wireless LAN standard IEEE 802.		Frequency band (MHz)	Modulation	Data rate (Mbps)	
2.4 GHz	11b		2412-2472	DSSS	11	
	11g			OFDM	54	
	11n	HT20	75			
		HT40	2422-2462		150	
5 GHz	11a		5180-5320	OFDM	54	
	11n	HT20	5500-5700		75	
		HT40	5190-5310 5510-5670		150	

Frequency band	Wireless LAN standard IEEE 802.		Setting value (dBm)	Deviation (dB)	Antenna factor (dBi)	Maximum effective radiation power (dBm)				
2.4 GHz	11b		12	±2	3	17				
	11g									
	11n	HT20	11	±2	3	16				
		HT40								
5 GHz	11a		11	±2	4.5	17.5				
	11n	HT20								

For Brazil

Modelo: BM72065

Este produto contém a placa (BM72065) código de homologação Anatel 08505-20-07857

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

Para consultas, visite: www.anatel.gov.br

1.3 Notes for using the product

When using the product, take the following precautions. Otherwise, problems may occur and the product may not function correctly.

Before use

- Be sure to check the product daily and confirm that it works properly.
- Sudden heating of the room in cold areas will cause condensation to form on the product. In this case, wait until the condensation evaporates before performing an exposure. If the product is used while condensation is formed on it, problems may occur. When an air-conditioner is used, be sure to raise/lower the temperature gradually so that a difference in temperature in the room and in the product does not occur, to prevent condensation.

During use

- Do not cover the wireless module on the detector with your hands or wireless shielding components. Wireless communication properties such as the image data transmission rate and operable distance may decline. Metallic components may cause a particularly significant decline in the communication properties.
- Do not use the selected frequency channel (2.4 GHz/5 GHz band) for other wireless devices. Mutual interference may affect the image data transmission rate.
- Do not use the detector near devices generating a strong magnetic field. Doing so may produce image noise or artifacts.

Disinfection and cleaning

- Do not use highly invasive or corrosive disinfectants or solvents.
- When cleaning the detector, wipe it with a cloth slightly dampened with water or diluted neutral detergent.

Others

- Do not use this product in combination with other equipment such as defibrillators or large electric motors as these may cause power-supply noise or power supply voltage variations. Doing so may prevent normal operation of this product and other equipment.
- This product may malfunction due to electromagnetic waves caused by portable personal telephones, transceivers, radio-controlled toys, etc. Be sure to avoid having objects such as these, which affect this product, brought near the product.
- After cleaning the cords and accessories, organize and store them together.
- Keep portable units in a predetermined storage location.
- If the product has been idled for an extended period, make sure it is working normally and safely before use.

2 Introduction

Digital X-ray Imager AX-C4343W is a digital X-ray imaging device for radiographic use but not for human diagnostic use.

It may be integrated into the X-ray imaging systems equipped with an image processing unit to generate the radiographic images.

It provides the digital images by detecting X-rays passing through an object and incident on its surface.

Features

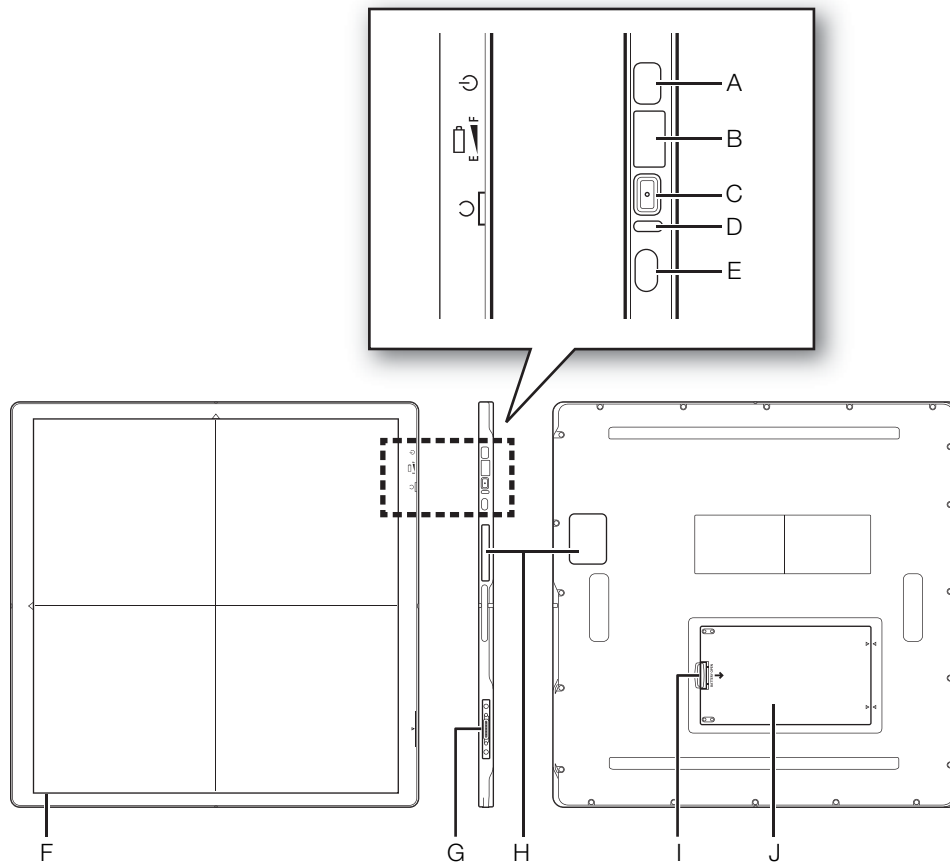
- The detector has a wireless LAN communication function compliant with IEEE 802.11a/b/g/n*.
- The shape of the detector, which is identical to that of a conventional film cassette complying with ISO 4090, enables digital radiography in the existing analog radiography configuration.
- The sensor with 125 μm of pixel pitch and CsI (Cesium Iodide) used for the scintillator produces high-resolution (approx. 11.3 Mega pixels) digital images within the effective imaging area (415 x 426 mm).
- As durable as previous models, but now with dust and water protection at the level of IP54.
- Depending on the operating conditions at each site, the Multi Box (sold separately, optional) or the PC Connection Cable (sold separately, optional) enables the product to be used through expansion to a wired connection.

* At the time of installation, set a specific channel in the frequency band of 2.4 GHz/5 GHz before using the LAN. Note that the available frequency band for this wireless LAN standard varies, depending on the local radio frequency regulations and system requirements.

3 Parts names and functions

3.1 Detector

The detector is designed to capture radiographic images.



A	POWER switch	When the detector is off, press the POWER switch (for at least 0.5 seconds) to turn on the detector. When the detector is on, press and hold the POWER switch (for at least 3 seconds) to turn off the detector, or press and hold the POWER switch (for 1 second or less) to establish the communication link.
B	Power LED	Lights up when the detector turns on. Shows the remaining battery pack charge.
C	READY switch	Press and hold the READY switch (for at least 1 second) to switch between detector selection status (Sleep) and exposure ready status.
D	READY LED	This LED lamp flashes while the detector is transitioning to exposure ready status, and lights up when the detector enters exposure ready status. Also flashes (approx. 3 seconds) when detector linkage is initiated. Flashes in the case of errors.

E	IR data port	Communication port for the detector link (registration/connection)
F	Effective imaging area border	Indicates the effective imaging area and center position.
G	Cable connector	Accepts the wiring cable.
H	Wireless module	Transmits image data with wireless communication (IEEE 802.11a/b/g/n).
I	Battery cover lock	Locks or unlocks the battery cover.
J	Battery cover	Holds the battery pack. Removing the battery cover enables to attach or remove the battery pack (detector's battery for wireless configuration).

Wireless communication

Wireless connection is established between the wireless module of this product and a laptop computer or a wireless access point.

This product supports IEEE 802.11a/b/g/n (Frequency band: 2.4 GHz/5 GHz). The available frequency band and channel vary depending on the system requirements and the radio frequency regulations in the country or region where you purchased the product.

Important

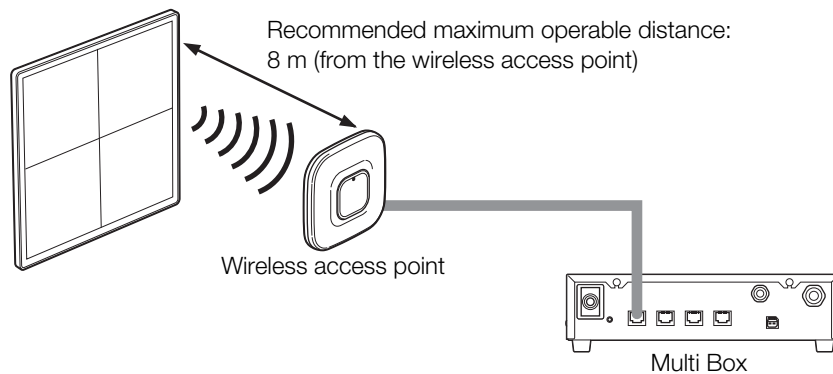
Note that the radio frequency channel configured for indoor use may not be usable in outdoor areas, depending on local radio frequency regulations.

Important

When configuring other wireless LAN equipment, do not use the same radio frequency channel that is selected for this product. Otherwise, an interference between the two pieces of equipment may occur and may result in a decline in transmission speed and other troubles.

Important

Do not cover the wireless module on the detector with your hands or wireless shielding components, or place obstacles between the wireless module and the access point. Wireless communication properties such as the image data transmission rate and operable distance may decline.

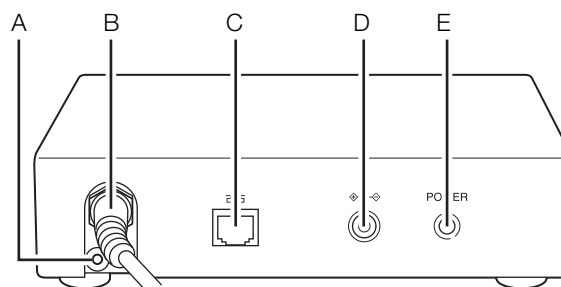


3.2 Multi Box

This box connects and relays control signals between the X-ray generator, the image-capture computer, the Docking Station and other equipment. The battery pack attached to the detector is also charged while the wiring cable (sold separately, optional) is connected to the detector (charging time: approx. 120 minutes).

3.3 X-ray interface unit

This unit synchronizes the timing of X-ray irradiation with the detector's capture. No operation is required for this unit while using the system.



A	Ground terminal	Accepts the ground.
B	X-ray interface cable	Connects* to the X-ray generator.
C	LAN cable connector	Accepts the LAN cable.
D	DC IN jack	Accepts the power cord of the dedicated AC adapter.
E	POWER lamp	Indicates the power status of the X-ray interface box.

* Required specifications for a cable connected at installation by a service engineer are as follows:

- The X-ray interface cable must be connected to the secondary circuit of an X-ray generator that is compliant with IEC 60601-1, and that circuit must be isolated from commercial power. The input/output values for the X-ray generator's communication circuit must not fall outside the specification range as indicated below:

Signal input part (SIP):	Max. voltage:	5 V DC
Signal output part (SOP):	Max. voltage:	250 V AC/30 V DC
	Current range:	10 mA to 2 A

- The X-ray interface box and X-ray generator must be grounded to a common protective earth.

3.4 Battery pack / Docking Station / Battery charger

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

Inserting the detector into the Docking Station lets you charge the battery pack in the detector as well as configure the connection settings of the control system.

The battery charger is designed for the dedicated battery pack.

For details, refer to the user's manuals for the battery pack, the Docking Station and the battery charger.

3.5 Status indicator

When the detector is set in a bucky stand or table, the LED lamps on the detector are no longer visible. However, the status indicator can be used to display the power and exposure ready status indicated on the detector's LED lamps. In addition, you can turn the detector on and off by pressing the POWER switch on the status indicator, or switch the detector to exposure ready status by pressing and holding the READY switch on the status indicator. You can attach the status indicator in a place where it can be easily checked during examination. For details, refer to the user's manual for the Multi Box.

3.6 Ready indicator

The ready indicator is connected to the image-capture computer via USB and is attached using the hook-and-loop fastener in a place where it can be easily seen.

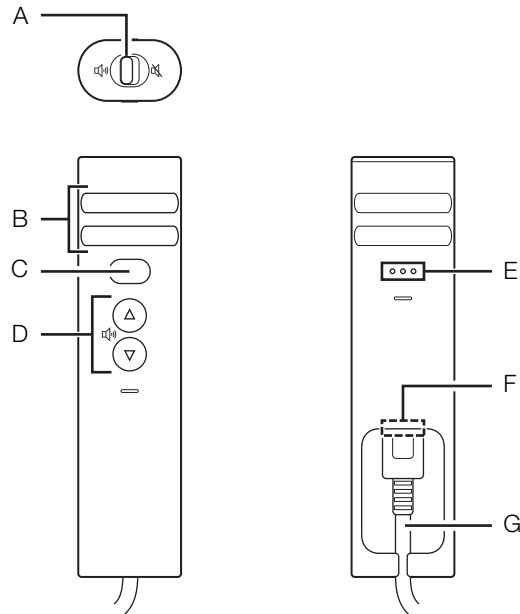
The LED lamps on the detector light up when the detector is in exposure ready status.

As the available image-capturing time (maximum 10 minutes) after the detector is changed to exposure ready status, is reduced to 5 minutes remaining, 1 minute remaining and 10 seconds remaining, or when the X-rays are received by the detector, the detector beeps, or the LED lamps on the detector light up or flash. The volume can be controlled or set to mute.

This unit is used as an interface of the image-capture computer for infrared communication with the detector, which registers the detector to the control system or the laptop computer.

Important

Do not install the ready indicator such a position that its IR data port faces the monitor, reflector, or other IR data communication equipment, except for the detector.



A	Mute switch	Slide to  to enable the mute function, and to  to disable the mute function.
B	LED status indicator	Lights up or flashes to indicate detector status, detector registration, and connection status.
C	IR data port	Communication port for the detector link (registration/connection)
D	Volume button	Click  to turn up the volume, and  to turn down the volume.
E	Speaker	A beeping sound is emitted from the speaker openings.
F	Micro USB connector	Connector for the micro USB cable (Micro B type)
G	Micro USB cable	Connect to the image-capture computer.

4 Operating procedures

4.1 Preparing to use the detector

CAUTION Be sure to use only the dedicated battery pack for this product.

1 Charge the battery pack.

Charge the battery on the day of examination or on the previous day. Insert a detector containing a battery pack into the Docking Station to charge it. Otherwise, charge the battery pack by inserting in the battery charger. For details about the operations, refer to the user's manuals for the battery pack, the Docking Station and the battery charger.

i Information

The battery pack attached to the detector can be charged in a wired configuration. For details, refer to the user's manuals for the Multi Box.

i Information

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.

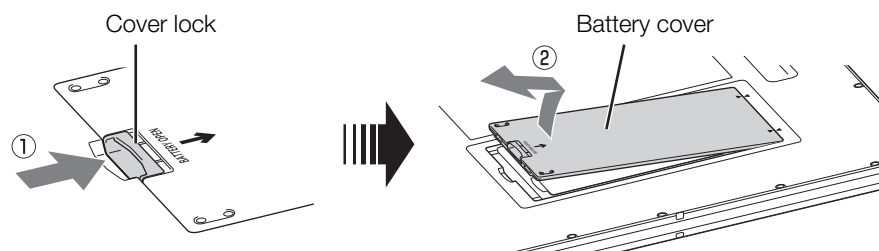
2 Attach the battery pack.

i Information

Place the detector on a flat surface before commencing the steps below. Otherwise the battery pack may fall out while it is being attached.

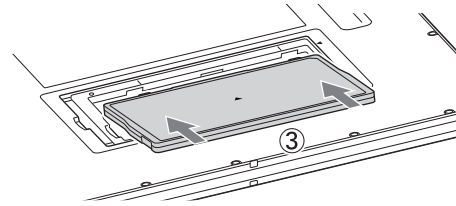
i) Remove the battery cover.

- Press and hold the battery cover lock (①) to release the lock, then lift up and pull out the battery cover (②).



ii) Attach the battery pack.

- Insert the battery pack fully (③).



Important

Check the orientation of the battery pack before inserting it.

Important

Attach the battery pack carefully.

Important

Make sure that the battery pack is correctly attached.

Information

Make sure that the battery pack is inserted fully.

iii) Attach the battery cover.

- Check that there are no foreign objects on the rubber inside the battery cover.
- Check that the rubber is free of kinks, cracks, and other damage.

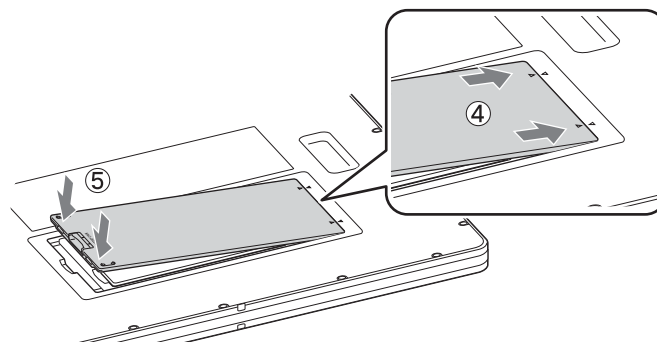
Information

If foreign objects are found on the rubber, wipe them off.

Information

If there are kinks in the rubber, fix them by hand.

- Insert the battery cover fully (④) and press down on the front of the battery cover to lock it (⑤).



Important

When inserting the battery cover, make sure it does not have a bulge in the middle. If there is a bulge, the dust- and water-protective performance will deteriorate. Check the shape of the battery cover, and if the inside of the cover has warped into a curved shape, replace it with a new battery cover.

Information

Make sure that the battery cover is inserted fully.

Information

Make sure that the battery cover is locked securely.

Information

The remaining battery pack charge is indicated by the Power LED lamps of the detector when the detector is turned on.

Power LED					
					
Remaining battery charge	100% to 76%	75% to 51%	50% to 26%	25% to 5%	4% to 0%*

( : Lighted up,  : Flashing (1 sec. cycles),  : Off)

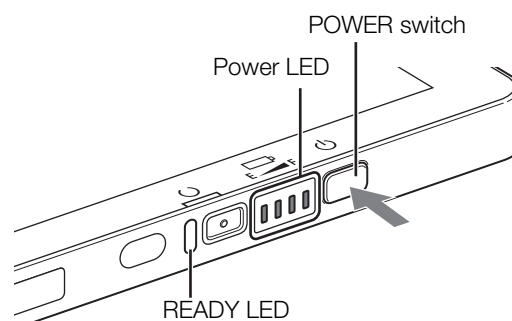
* Exposure is not possible when the remaining battery level is 4% to 0%, as indicated by flashing.

4.2 Operating the detector

1 Turn on the detector.

Press and hold the POWER switch (for at least 0.5 seconds).

Power LED lamps light up.



2 Register the detector and make connection to the control system.

Registration

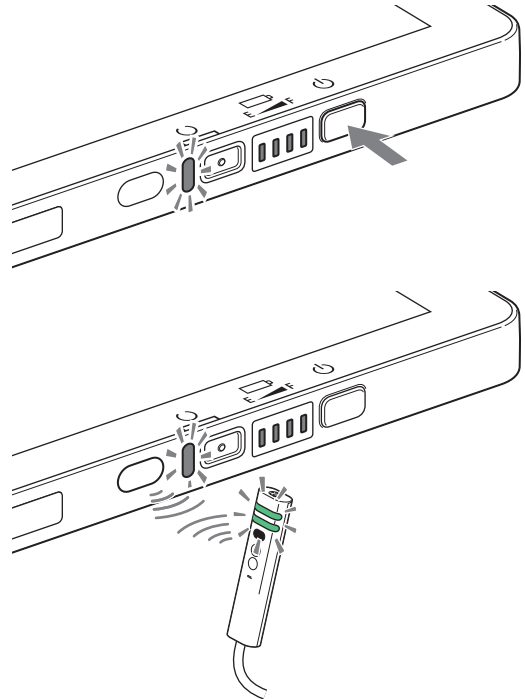
Press and release the POWER switch again.

READY LED lamp flashes
(approx. 3 seconds).

While READY LED lamp flashes
(approx. 3 seconds), locate the IR
data port of the detector near the
ready indicator or the IR data
communication unit (within 30 cm).

When the registration is completed, the
two LED lamps on the ready indicator
flash three times for 0.5 seconds at 0.5
second intervals, and a three-tone beep
is emitted.

Proceed to the next **Connection**.



i Information

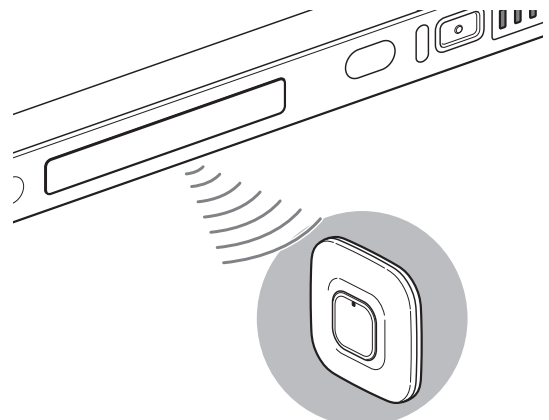
Once the registration is completed, it is not required for every use unless the user changes the use environment. Conversely, the registration is required if the detector having been used in another environment is moved back to the previous environment.

Important

After moving the detector to another use environment while the power is on, turn off the detector and turn it on again before establishing the communication link.

Connection

Communication link is automatically
established between the internal
wireless module of the detector and
the wireless access point/control
system.



Transition from exposure ready status to detector selection status (Sleep)

Time to transition and transition conditions vary depending on the selected mode.

In Standard Synchronization Mode:

When the detector enters exposure ready status, the LED lamps on the ready indicator light up or flash, and the ready indicator beeps. Capture an image within 10 minutes. If no operation is performed in exposure ready status for a maximum of 10 minutes (a maximum of 60 minutes* when connected to a Multi Box via a wiring cable), exposure ready status is automatically changed to detector selection status (Sleep). (If an operation is performed in exposure ready status, exposure ready status is available for 10 minutes from that time.)

*The continuous operation time in exposure ready status is determined by the settings made at installation time. For further details, consult your sales representatives.

In Non Generator Connection Mode:

The LED lamps on the ready indicator light up or flash and the indicator beeps to indicate the beginning and end of exposure ready status of the detector, countdown alarms, as well as X-ray detection (→ page 42). Capture an image within 10 minutes. The detector's status remains exposure ready for a maximum of 10 minutes regardless of whether or not the user performs any operations during this time. In 10 minutes, the detector enters detector selection status (Sleep) automatically.

Information

After exposure ready status ends, the detector enters detector selection status (Sleep), and the READY LED lamp is no longer illuminated.



CAUTION

Examination in Non Generator Connection Mode

- **Avoid doing the following actions to the detector during exposure ready status. Otherwise, the detector may acquire an image without exposure.**
 - Giving a strong shock and vibration.
 - Using the detector in a location where static electricity is easily generated.
 - Using the detector in a location where electromagnetic wave noise might be generated.
- **Images may not be acquired because the exposure conditions, such as X-ray exposure conditions or target body positioning, are not effective. For details, see “Troubleshooting” (→ page 49).**

Important

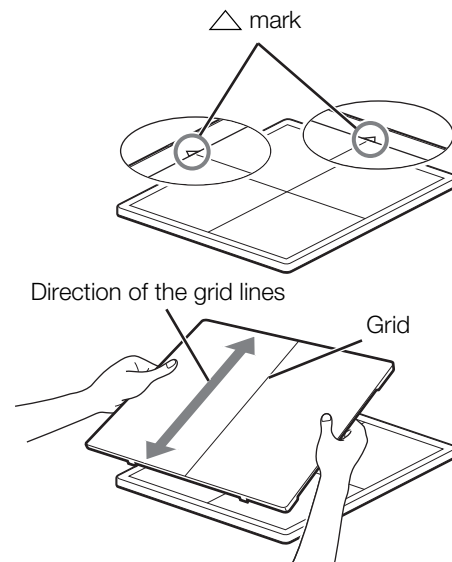
If the exposure dose is insufficient, artifacts may appear in the image. If a retake is necessary, increase the tube current of the X-ray generator and capture the image. If the tube current cannot be increased, increase the tube voltage and capture the image.

Important

Set the irradiation field as large as possible compared to the target diagnosis domain. Otherwise, artifacts may appear at the edge of the irradiation field.

Important

When using a grid with 34 lp/cm or 40 lp/cm resolution in Non Generator Connection Mode, position the detector so that the two $\triangle$ marks face up and to the left, and make sure that the direction of the grid lines is vertical, as shown in the figure.



4.3 Ending use of the detector

4.3.1 Return the detector to the Docking Station

1 Insert the detector.

Important

When inserting the detector, avoid jolting or scraping it. Doing so may damage the Docking Station.

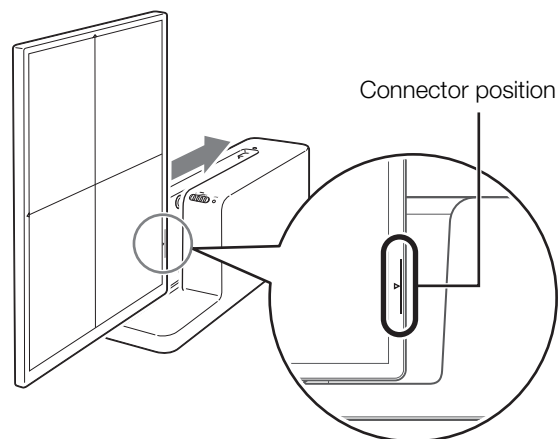
Important

Check the connector terminals of the detector to see that they are free of dirt or dust. Dirt or dust adhering to or filling the connector terminals might prevent the battery from being charged.

Insert the detector all the way into the detector insertion slot of the Docking Station in the direction of the arrow as illustrated to the right.

Check the position of the connector on the detector when inserting it.

The detector is attached to the Docking Station using the magnets at the back of the detector insertion slot, and battery charging begins automatically.



4.3.2 Remove the battery pack and store the detector

Information

When the detector will not be used for some time, remove the battery pack. Otherwise, overdischarge may occur, leading to a shorter battery life.

1 Turn off the detector.

Press and hold the POWER switch (approx. 3 seconds).

The Power LED lamps are off.

2 Remove the battery pack.

i) Remove the battery cover.

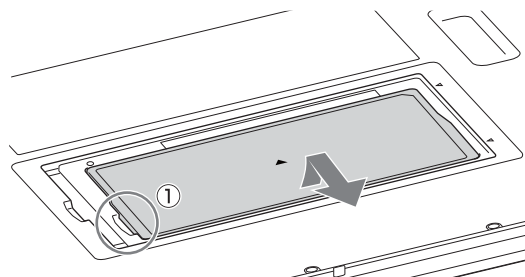
- See **i)** in step 2 of “4.1 Preparing to use the detector” for operating procedures.

ii) Remove the battery pack.

- Insert your fingers into the slot of the battery pack bay to grip the battery pack edge, and then pull the edge to remove the battery pack (①).

iii) Attach the battery cover.

- See **iii)** in step 2 of “4.1 Preparing to use the detector” for operating procedures.



3 Place the detector in its storage location.

4.4 List of detector status indication

Detector status	Status indicators	
	Power LED*	READY LED
Power OFF	Not illuminated	Not illuminated
Power ON	Illuminated	Not illuminated
Linkage started	Illuminated	Flashing (3 sec. only)**
Switching to exposure ready status	Illuminated	Flashing
Exposure ready status	Illuminated	Illuminated
Detector selection status (Sleep)	Illuminated	Not illuminated
Error	Flashing	Flashing

* The indication of the Power LED lamps changes according to the remaining battery charge (→ page 36).

** Only after linkage from the detector

4.5 List of lights / flashes / notification beeps of the ready indicator

The LED lamps on the ready indicator light up or flash, and the ready indicator beeps to indicate the remaining time for exposure ready status, X-ray exposure, and X-ray detection. The LED lamp flash/light pattern and beep sound pattern vary depending on the selected mode.

Standard Synchronization Mode

	Link (registration) completed	During exposure ready status	During exposure
		Start time	When the X-ray is exposed
LED lamp	The 2 LED lamps flash ^{*1} .	The 2 LED lamps light up weakly.	The 2 LED lamps light up ^{*2} .
Notification sound	Three-tone beep	Single beep	Two-tone beep

*1 On/Off status changes three times every 0.5 seconds

*2 Only 1 second

Non Generator Connection Mode

	Link (registration) completed	During exposure ready status (Remaining time)				During exposure
		From start time	5 min to 61 sec	60 sec to 11 sec	10 sec to end	When the X-ray is exposed
LED lamp	The 2 LED lamps flash ^{*1} .	The 2 LED lamps light up weakly.		The 1 LED lamp lights up weakly.	The 1 LED lamp flashes ^{*3} weakly.	The 2 LED lamps light up ^{*5} .
Notification sound	Three-tone beep	Single beep ^{*2}	Double beep ^{*2}	Triple beep ^{*2}	Triple beep ^{*4}	Two-tone beep

*1 On/Off status changes three times every 0.5 seconds.

*2 Only at the beginning of each time frame

*3 On/Off status changes every 0.5 seconds.

*4 On/Off status changes every 1 second.

*5 Only 1 second

Information

When exposure is disabled, LED lamps on the ready indicator do not light up and the ready indicator does not beep in all modes.

4.6 Attaching the ready indicator / exchanging a hook-and-loop fastener

The ready indicator can be attached using a hook-and-loop fastener (fastener hooks and fastener loops) in a place where it can be easily checked during examination. Attachment of fastener loops on the ready indicator and fastener hooks where you want to attach the ready indicator allows users to easily remove and replace the ready indicator.

i Information

The fastener hooks and fastener loops can be applied to either the ready indicator or to the location where you want to attach the ready indicator. Note that the fastener hooks and fastener loops must be used in pairs.

4.6.1 Removing the hook-and-loop fastener from the ready indicator and attachment position

At installation, a pair of hook-and-loop fasteners are attached. If the fastener loops or fastener hooks are torn off or they become less adhesive, or when the attachment position needs to be changed, exchange the fastener loops or fastener hooks for new ones.

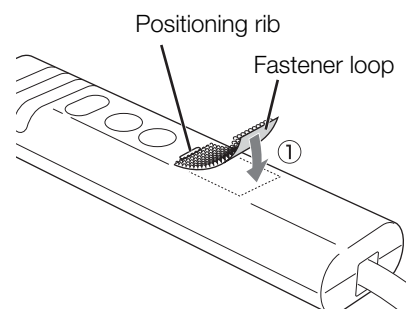
4.6.2 Attaching the ready indicator behind the monitor of a laptop computer

This is suitable for cases in which the ready indicator and the image-capture computer can be moved, including such environments as mobile X-ray environment.

1 Attach hook-and-loop fasteners.

- i) Apply fastener loops to the ready indicator (on the side of the volume buttons) on the positioning rib (①).

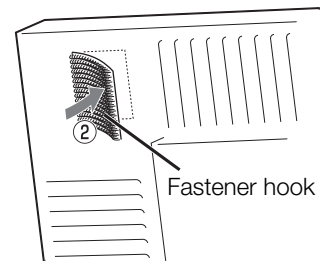
The fastener loops are attached using the adhesive on the back.



i Information

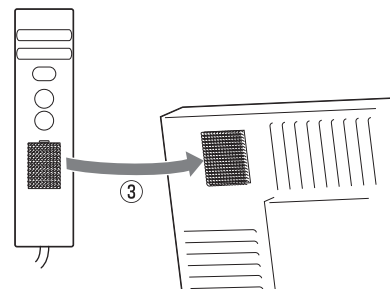
Remove any oil, water, or dust on the attachment side of the hook-and-loop fastener using a cloth slightly dampened with a neutral detergent.

- ii) Apply the fastener hook where you want to attach the ready indicator (behind the monitor) (②).



2 Attach the ready indicator.

Join the hook-and-loop fasteners to attach the ready indicator (③). Check that the volume adjustment buttons and the mute switch can be operated and that the LED lamps and IR data port can be seen.



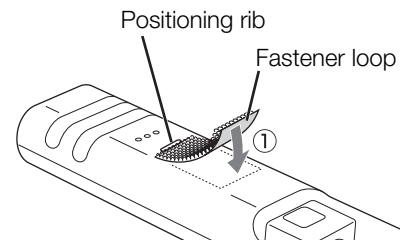
4.6.3 Attaching a ready indicator to a wall or post

This is suitable in cases in which the ready indicator and the image-capture computer are not usually moved, including such environments as an X-ray exposure room.

1 Attach hook-and-loop fasteners.

- i) Apply the fastener loops to the ready indicator (on the side of the speaker holes) on the positioning rib (①).

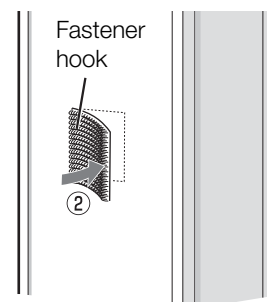
The fastener loops are attached using the adhesive on the back.



i Information

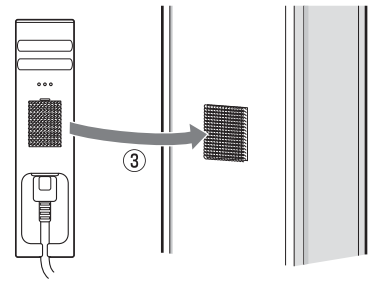
Remove any oil, water, or dust on the attachment side of the hook-and-loop fastener using a cloth slightly dampened with a neutral detergent.

- ii) Apply the fastener hook where you want to attach the ready indicator (on a wall or post) (②).



2 Attach the ready indicator.

Attach the hook-and-loop fastener to the attachment position of the ready indicator (③). Check that the volume adjustment buttons and the mute switch can be operated and that the LED lamps and IR data port can be seen.

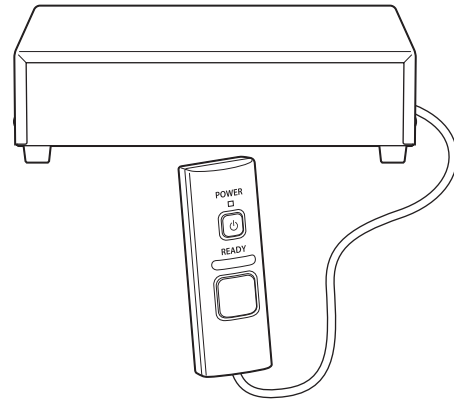


5 Extension facility

5.1 Wired configuration (Standard Synchronization Mode)

This product has a cable connector. With the Multi Box (sold separately, optional), it is possible to expand from a wireless configuration to a wired configuration.

Wired configuration is suitable for use where the detector is set in a bucky stand and table. In this configuration, for the reason that data communication and power supply are made via a cable, users do not have to be concerned about the remaining battery power and wireless communication failure. This reduces the time and labor involved in charging and replacing the battery. The battery pack attached to the detector can be charged in a wired configuration.



Multi Box MB-4A

5.2 Wired configuration (Non Generator Connection Mode)

This product has a cable connector. With the PC Connection Cable (sold separately, optional) (→ page 72), it is possible to expand from a wireless configuration (Non Generator Connection Mode) to a wired configuration. In this configuration, for the reason that data communication is made via a cable, users do not have to be concerned about the wireless communication failure. The battery pack attached to the detector is not charged in a wired configuration using the PC Connection Cable.

6 Troubleshooting

6 Troubleshooting

Symptom	Cause	Remedy
Failed to turn on.	Battery pack is not attached.	Attach a charged battery pack.
	Over-discharge of the battery pack.	
Power LED lamp flashes (1-second cycles) and exposure is not possible.	No battery power.	Replace the battery pack with a fully-charged one and retry an exposure.
A fully charged battery is consumed quickly.	Battery capacity decreases.	The battery pack is a consumable item. Use a new, fully charged battery pack.
	The battery pack was charged or used in low temperatures.	In low temperatures, battery capacity decreases. The battery consumption rate increases compared to normal temperatures. Use a battery pack charged in normal temperatures.
The battery bay is unusually hot.	The battery pack is malfunctioning.	Stop using the battery pack and consult your sales representative.

7 Maintenance

Maintenance and inspection

In order to ensure that the product is used safely and normally, be sure to inspect the product before use. If any problem is found during the following inspections and cannot be resolved, please contact your sales representative.

Daily inspection

**WARNING**

For safety reasons, be sure to turn OFF the power to the product before the following. Otherwise, an electric shock could result.

Cable

- (1) Ensure that the cables are not damaged and the cable jackets are not torn so as to expose the inside of the cables.
- (2) Ensure that the power cord plugs are securely connected to both the product AC inlet and the AC outlet.
- (3) Ensure that there are no breaks or short-circuits in all pins of the detector connector plugs.
- (4) Ensure that there is no dust, dirt, or oil on the terminals of the wiring cable connector.

Detector

- (1) Ensure that there are no loose or missing screws.
- (2) Ensure that there are no break or no deformation on the exterior of the detector.
- (3) Ensure that there is no dust or foreign matter on the battery bay connector.
- (4) Ensure that there are no breaks or short-circuits in the battery bay connector.
- (5) Ensure that there is no dust, dirt, or oil on the terminals of the cable connector.
- (6) Ensure that the battery cover is not damaged or bent.
- (7) Ensure that there is nothing wrong with the rubber in the battery cover (foreign objects, tears, cracks, etc.).

After turning on the power

- (1) Perform test exposure.
Ensure that captured images are displayed normally on the monitor.

8 Specifications

Main specifications

AX-C4343W Detector

Pixel pitch:	125 µm
Scintillator:	CsI (Cesium iodide)
Effective imaging area:	415 x 426 mm
Gray scale:	65536 gradations (A/D: 16 bit)
Attenuation equivalent of the detector front panel:	Max. 0.37 mmAl
Load capacity	
Uniform load (Over the whole area of the detector surface)	310 kg or less
Uniform load (Effective imaging area)	150 kg or less
Local load (On an area 40 mm in diameter)	100 kg or less
Environmental requirements:	
Operation	
Temperature:	5°C to 35°C
Humidity:	30% to 80% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
Storage (unpacked)	
Temperature:	5°C to 40°C
Humidity:	30% to 85% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
Transportation and storage (in packages at point of purchase)*	
Temperature:	-30°C to 50°C
Humidity:	10% to 95% RH (without condensation)
Atmospheric pressure:	613 to 1060 hPa
* Environmental requirements for transportation and storage in packages at point of purchase are the same for the detector and all optional parts (→ page 64).	
Applicable grid:	34, 40**, 52**, 60** lp/cm (** recommended) (34 and 40 lp/cm have restrictions. For details, see page 39.)
Wireless LAN:	Compliant with IEEE 802.11a/b/g/n
Rated power supply:	9 to 12 V DC, 2.00 A
Wireless:	Powered by the battery pack
Wired:	Powered by Multi Box
Dimensions and mass:	Approx. 460 x 460 x 15.7 mm Approx. 3.7 kg (incl. battery pack)

Battery Pack: LB-4A

This dedicated battery pack is necessary for the AX-C4343W.
For details, refer to the User's Manual for the Battery Pack LB-4A.

9 Regulatory information

9.1 Device classification

Degree of protection against
solid foreign objects

IP5X: Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety. (Dust-protected)

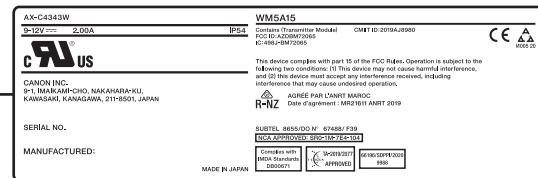
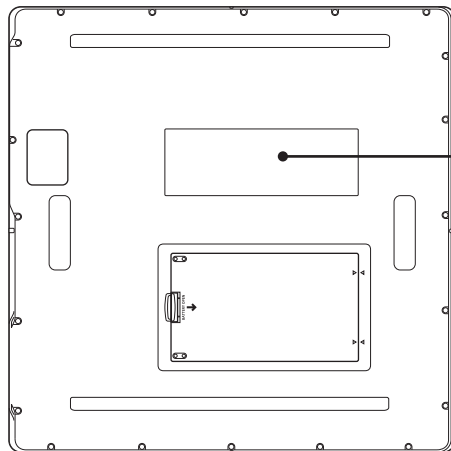
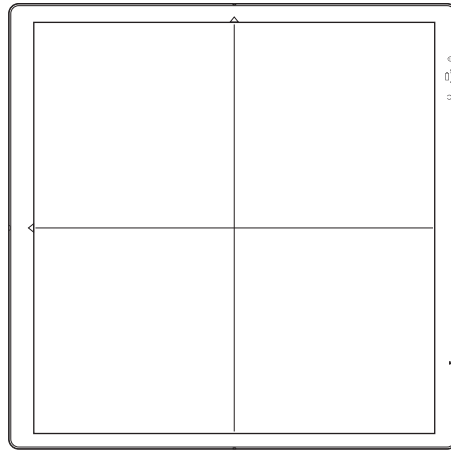
Degree of protection against
ingress of water

IPX4: Water splashing against the enclosure from any direction shall have no harmful effect. (Protected against splashing water)

9.2 Labels and markings on the detector

The detector has the label and the marking on it. Their contents and locations are indicated below.

Detector



Product label

Details of markings



Direct current



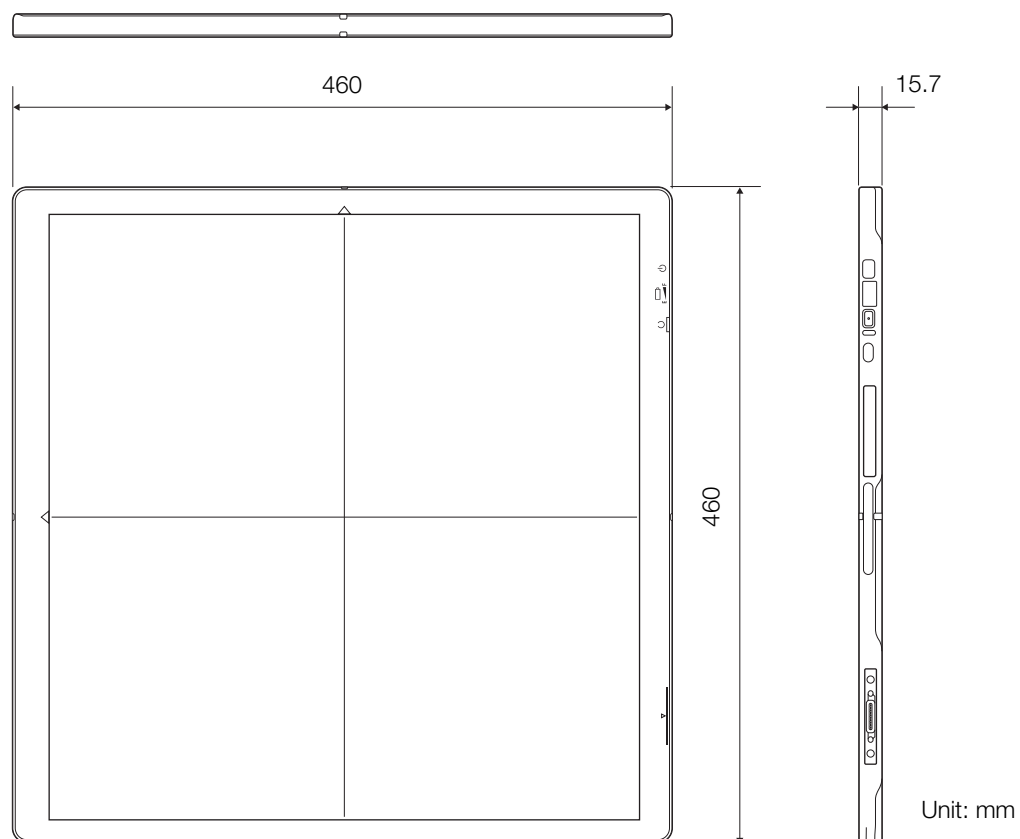
Certification mark that indicates the product complies with the safety standards. (For U.S.A. and Canada)

IP54

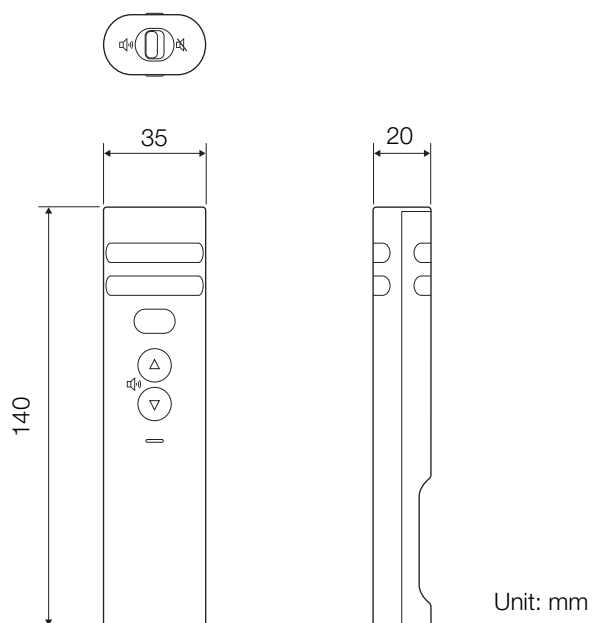
This mark shows that the degree of protection against solid foreign objects and the degree of protection against ingress of water are IP54.

10 Dimensional diagram

Detector



Ready indicator



11 Product components

Basic components

Detector

	(Unit: pieces)
Detector: AX-C4343W	1
Battery pack: LB-4A	2

Optional parts

Multi Box: MB-4A

Multi Box	1
Power cord	1
X-ray interface cable	1

X-ray Interface Unit: XB-1A

X-ray interface box	1
AC adapter	1
Power cord	1
X-ray interface cable	1
Functional earth conductor	1

Docking Station: DS-4A

Docking Station	1
Power cord	1

Battery Charger: BC-1A

Battery charger	1
Power cord	1

Battery Pack: LB-4A

Status indicator: SI-4A

Ready indicator: RI-3A

Hook-and-loop fastener (fastener hooks, fastener loops) (One pair is already applied to the product)	3 pairs
---	---------

Wiring cable: WC-4A, WC-4A-2m

PC Connection Cable: CP-4A

12 Guidance and manufacturer's declaration for EMD

EMD (Electromagnetic Disturbances)

The AX-C4343W is designed and tested to comply with IEC 60601-1-2 (EN 60601-1-2) which is applicable regulations regarding EMD for devices and need to be installed and put into service according to the following information.

1. Electrical equipment needs special precautions regarding EMD and needs to be installed and put into service according to the information provided in the document. (Table 1 to Table 4)
2. **WARNING:**
Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.
3. To maintain the optimum EMD performance, use only the designated cables.
4. **WARNING:**
Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.
5. **WARNING:**
Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the AX-C4343W, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

Electromagnetic emissions

The AX-C4343W is intended for use in the electromagnetic environment specified below. The customer or the user of the AX-C4343W should assure that it is used in such an environment.

Table 1

Emission Test	Compliance	Electromagnetic Environment – Guidance
RF emissions CISPR11	GROUP 1	The AX-C4343W uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electromagnetic equipment.
RF emissions CISPR11	Class A	The AX-C4343W is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	*1	

*1: Applies to regions where the rated voltage is 220 V or higher. Not applicable to regions where the rated voltage is less than 220 V.

Electromagnetic immunity

The AX-C4343W is intended for use in the electromagnetic environment specified below. The customer or the user of the AX-C4343W should assure that it is used in such an environment.

Table 2

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment – Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±(2, 4, 8, 15) kV air	±8 kV contact ±(2, 4, 8, 15) kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% U_T ; 0.5 cycle 0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315° 0% U_T ; 1 cycle and 70% U_T ; 25/30 cycles Single phase: at 0° 0% U_T ; 250/300 cycles	0% U_T ; 0.5 cycle 0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315° 0% U_T ; 1 cycle and 70% U_T ; 25/30 cycles Single phase: at 0° 0% U_T ; 250/300 cycles	Mains power quality should be that of a typical commercial environment. If the user of the AX-C4343W requires continued operation during power mains interruptions, it is recommended that the AX-C4343W be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial environment.

NOTE: U_T is the a.c. mains voltage prior to application of the test level.

Table 3

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment – Guidance
Conducted RF IEC 61000-4-6	3 V 150 kHz to 80 MHz	3 V	Portable and mobile RF communications equipment should be used no closer to any part of the AX-C4343W, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separations distance $d = 1.2 \sqrt{P}$ $d = 1.2 \sqrt{P} \text{ 80 MHz to 800 MHz}$ $d = 2.3 \sqrt{P} \text{ 800 MHz to 2.7 GHz}$ where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in 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: 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.7 GHz	3 V/m	

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 reflections from structures, object and people.

- 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 AX-C4343W is used exceeds the applicable RF compliance level above, the AX-C4343W should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the AX-C4343W.
- b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances

The AX-C4343W is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the AX-C4343W can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the AX-C4343W as recommended below, according to the maximum output power of the communications equipment.

Table 4

Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter (m)		
	150 kHz to 80 MHz $d=1.2 \sqrt{P}$	80 MHz to 800 MHz $d=1.2 \sqrt{P}$	800 MHz to 2.7 GHz $d=2.3 \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Appendix — Optional part —

PC Connection Cable

Connecting the PC Connection Cable to the cable connector on the detector allows you to expand from a wireless configuration to a wired configuration.

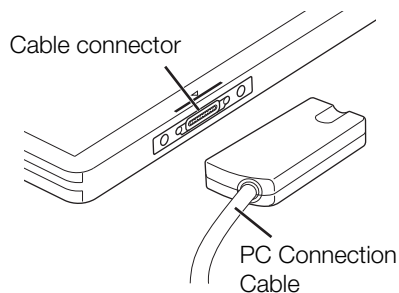
 Important

Attach the battery pack for both wired and wireless configurations.

1 Connect the PC Connection Cable.

Connect the PC Connection Cable to the connector (RJ-45 type) on the laptop computer and to the cable connector on the detector. The PC Connection Cable on the detector side is attached using magnets.

The detector is registered.



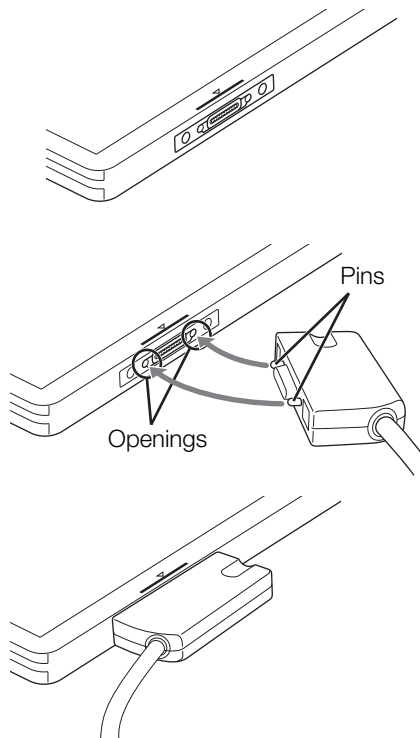
 Important

An imperfect connection may cause the image quality to deteriorate.

 Important

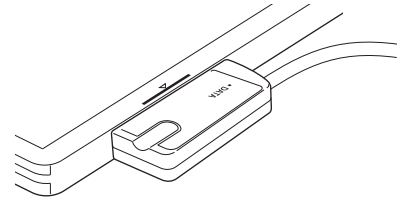
Regularly clean the connector terminals on both the detector and the cable to prevent dust, dirt, or oil attaching to them.

Insert the connector pins of the cable into the openings of the cable connector. The connector of the cable is attached to the detector using magnets. Confirm that there is no space between the two connectors.



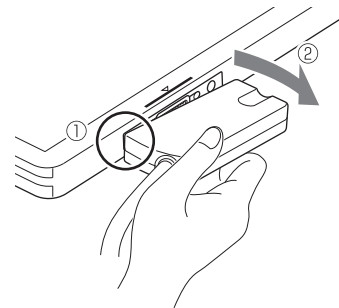
i Information

The connector of the cable can also be attached in the opposite direction.



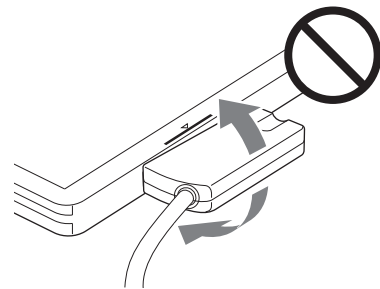
To remove the connector of the cable

Rotate the connector (②), using the cable side of the connector of the cable as a fulcrum (①), and remove it.



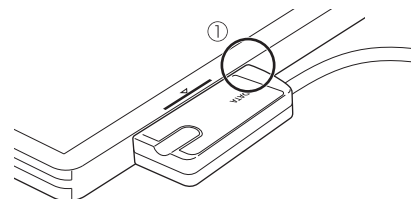
Important

Do not twist the connector of the cable. Doing so may damage the pins.



i Information

If the connector of the cable is attached in the opposite direction, the fulcrum (①) also reverses position.



i Information

The junction between the PC Connection Cable and detector is waterproof. However, the junction between the PC Connection Cable and computer is not waterproof.

Appendix — Technical description —

1 Important information on usage and management of the product

- This product complies with local radio frequency regulations in the country or region where you purchased the product. Note that it cannot be used in any other areas. When using the product, follow the notes on radio frequency in this document.
- The product should be maintained in a safe and operable condition by maintenance personnel.
- Use only the dedicated cables. Do not use cables with other equipment. Do not use any cables other than those supplied with the product.

2 Operating/storage environment

- Do not install or store the product in any of the locations listed below. Doing so may result in failure or malfunction, product falling, or fire or injury.
 - Close to facilities where water is used
 - Where it will be exposed to direct sunlight
 - Close to the air outlet of an air-conditioner or ventilation equipment
 - Close to a heat source such as a heater
 - Where the power supply is unstable
 - On the floor
 - In a dusty environment
 - In a saline or sulfurous environment
 - Where temperature or humidity is high
 - Where there is freezing or condensation
 - In areas prone to vibration
 - On an incline or in an unstable area

3 Power supply and cables

- **Prohibited**

- Do not operate the product using any type of power supply other than the one indicated on the rating label.
Otherwise, it could result in fire or electric shock.
- Do not handle the product with wet hands.
You may experience an electric shock that could result in death or serious injury.
- Do not place heavy object on cables and cords, or do not pull, bend, bundle, or step on them to prevent their sheath from being damaged, and do not alter them neither.
Doing so may damage the cords which could result in fire or electric shock.
- Do not supply power to more than one piece of equipment using the same AC outlet.
Doing so could result in fire or electric shock.
- Do not turn ON the system power when condensation has formed on the product.
Doing so could result in fire or electric shock.
- Do not connect a multiple portable socket-outlet or extension cord to the system.

- **Caution**

- Always connect the three-core power cord plug to a grounded AC power outlet.
- The units that connect to the supply mains in this product do not have switches to isolate them from the supply mains. To isolate them from the supply mains, please disconnect the plug from the electrical outlet.
- To make it easy to disconnect the plug at any time, avoid putting any obstacles near the outlet.
Otherwise, it may not be possible to disconnect the plug in an emergency.
- Use only the power cord provided with this product.
Otherwise, fire or electric shock may be caused due to leakage.
- Because the product cable is long, take care that cables do not become tangled during use. Also, be careful not to get your feet caught in the cable.
Otherwise, it may cause a failure of the product or the injury of the user due to tripping over the cable.

4 Modifications

- **Prohibited**

- Never modify the device in any way.
Doing so could result in fire or electric shock. Also, since the product incorporates parts that may cause electric shock as well as other hazardous parts, touching them may cause death or serious injury.
In no event shall Canon be liable for any damages arising from any modifications.

5 Communication specifications

5.1 Wireless communication specifications

5.1.1 Communication system

IEEE standard:	IEEE 802.11a/b/g/n
Frequency band:	2.4 GHz/5 GHz
Security:	WPA2-PSK (AES)
Channel bonding:	Available
Data flow:	Half duplex
Protocols:	ARP, ICMP, IP, TCP, UDP

5.1.2 Communication environment

Communication range:	Within 8 meters
Ambient conditions:	Do not cover the wireless module with wireless shielding components. No structures which will block the wireless signals may be placed in any positions between the units. The detector must not be used in the vicinity of any devices which use the same frequency band as the detector.

5.1.3 RF transmitter specification

This product includes an RF transmitter whose specification are as follows.

Frequency band	Wireless LAN standard IEEE 802.		Frequency band (MHz)	Modulation	Data rate (Mbps)
2.4 GHz	11b		2412-2472*	DSSS	11
	11g			OFDM	54
	11n	HT20	75		
		HT40	2422-2462		150
5 GHz	11a		5180-5320 5500-5700 5745-5825**	OFDM	54
	11n	HT20			75
		HT40	5190-5310 5510-5670 5755-5795**		150

Frequency band	Wireless LAN standard IEEE 802.		Setting value (dBm)	Deviation (dB)	Antenna factor (dBi)	Maximum effective radiation power (dBm)
2.4 GHz	11b		12	±2	3	17
	11g					
	11n	HT20	11	±2	3	16
		HT40				
5 GHz	11a		11	±2	4.5	17.5
	11n	HT20				
		HT40				

* Do not use the channels 12 (2467 MHz) and 13 (2472 MHz) in U.S.A.

** Do not use this frequency in European Union and EFTA.

5.1.4 Supplementary matter about wireless communication specifications

The product recommends more than 48 Mbps as effective throughput.

The product is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled.

The network where the product is connected is an independent private network including one or more detector unit of AX-W series (including AX-C4343W), Multi Box and control PC. The detector units of AX-W series are controlled so that it is always only one of them capturing image and transferring image information. The other devices cannot operate on the same network. The wireless access point is set SSID, and it is prevented from interference with the other wireless devices. The wireless access point is set an encryption key, and the client (including AX-C4343W) cannot connect with the access point unless sets the same encryption key.

The measures mentioned above prevent the other devices from connecting to the independent private network.

The communication is coded in WPA2-PSK (AES) and performs protection from sniffing (a peek from the outside).

We recommend less than 8 meters to communication distance securing equality of the radio, and the setting condition demands the following:

- Do not cover the wireless module with wireless shielding components.
- Do not put radio shielding structures between the access point and the detector.
- Do not put radio emitting sources of the non-wireless LAN equipment in the neighborhood of the detector.

When other wireless LAN equipment works in a neighborhood, we recommend avoiding interference by channel setting guideline.

5.1.5 Channel setting guidelines

5.1.5.1 Basic guidelines

Check out the channels used in the existing wireless LAN system, and set the channels without interference. If interference cannot be avoided, select the same channels as the ones used by the existing wireless LAN system. Fig. 1 shows the above flow to be followed for establishing the settings.

5.1.5.2 Guidelines for operations with a multiple DR wireless systems

Since, in the case of a multiple number of DR wireless systems, the probability that more than one image transfer will take place at the same time is considered to be low, set all the DR wireless systems to the same channel by following the flow shown in Fig. 1 when operation will not call for images to be transferred at the same time or when delays in image transfer are permissible. However, in cases where multiple DR wireless systems are to be installed in proximity and images tend to be transferred at the same time, consider each DR wireless system as an existing wireless LAN system and, following the sequence shown in Fig. 1, set different channels for each of the DR wireless system as far as this is possible.

		Existing wireless LAN system	
		HT40	HT20
DR wireless system	HT40	(1) Set channels that do not interfere with each other. ^{*1} (2) Use the same setting for the primary and secondary channels. (3) Use the same settings for the primary channel only. ^{*2}	(1) Set channels that do not interfere with each other. (2) Use the same setting for the primary channel as the channel setting of the other wireless LAN system.
	HT20	(1) Set channels that do not interfere with each other. (2) Use the same channel setting as the primary channel setting of the other wireless LAN system.	(1) Set channels that do not interfere with each other. (2) Use the same channel setting.

*1: In the 2.4 GHz band it is not possible to specify two non-interfering channels in HT40.

*2: In the 5 GHz band the channel pairs are predetermined and there is no way to set the same primary channel only. In contrast, in the 2.4 GHz band it is possible to specify either of two channels for each primary channel, such as 6CH below 2CH or 6CH above 10CH.

5.1.5.3 Checkpoints when setting the channels

5.1.5.3.1 Checkpoints when checking out existing wireless LAN systems

When checking out the conditions under which existing wireless LAN systems are being used to install the systems, it is possible that systems are available under which the channels are automatically set rather than having fixed channels for the existing system. For this reason, the administrator of the facility concerned who is conversant with the conditions under which the wireless LAN systems are used should be consulted. Care is required since if only the signal conditions during installation have been measured, the automatic setting of the channels may cause channels which are different from the ones identified during installation to be used. If possible, in setting the DR wireless system channels, it is desirable to ask that fixed channels be used for the existing wireless LAN systems and that the channels be set in such a way that no parts of the frequencies used will overlap.

5.1.5.3.2 Checkpoints concerning the effects on existing wireless LAN systems

When a DR wireless system and an existing wireless LAN system share the same frequency, care is required since the wireless communication of the DR wireless system will adversely affect the existing wireless LAN system. If, for instance, a DR wireless system shares the same channels with a device for which the communication timing is critical or with a device requiring a data rate above a specific level, the image transfer of the DR wireless system may interfere with the normal operation of the other device. Particular care is required when the frequencies used overlap in part because the resulting effects may be significant.

5.1.5.3.3 Concerning the effects from existing wireless LAN systems

When checking out the channels used by the existing wireless LAN system, the effect on the image transfer time is believed to be minimal at a signal strength of around -70 dBm. However, since this value of -70 dBm is a rough value obtained from experiments, it is essential that images be transferred and that it be checked that there are no effects. Particular care is required when the frequencies used overlap in part because the resulting effects may be significant.

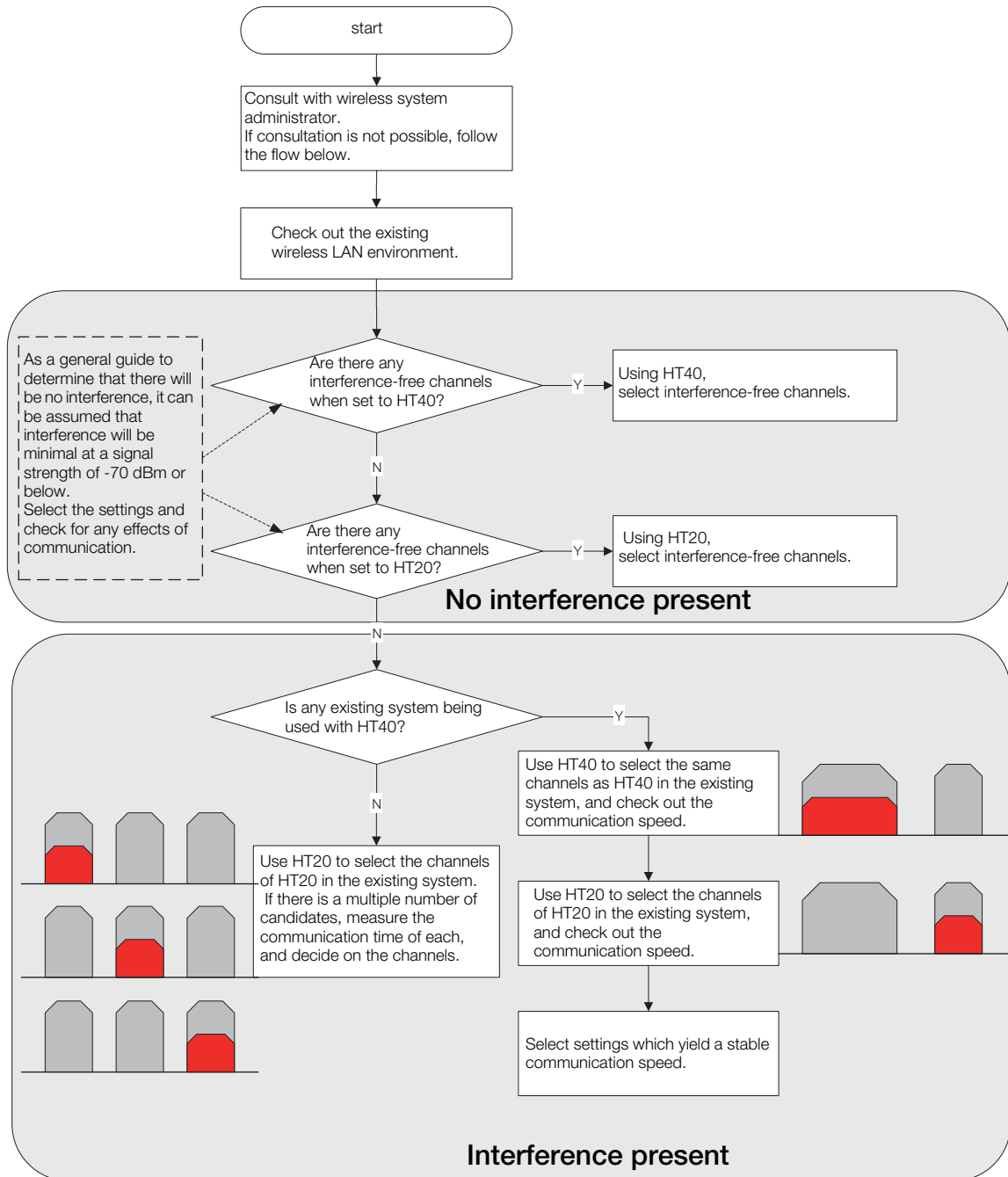


Fig.1: Channel setting flow

5.2 Infrared LINK communication specifications

This link action establishes infrared link communication between the infrared communication section of the detector and the ready indicator connected to the image-capture computer.

5.2.1 Communication timeout

3 sec (The period during which the detector tries infrared communication after the detector's POWER switch is pushed down.)

5.2.2 Communication environment

Communication range: Within 30 cm

Environment conditions: Cannot be used in an environment in which infrared radiation is blocked.

6 Other items to be installed

Use items selected by your sales representative for the following units:

- Wireless LAN access point
- LAN cable
- Micro USB cable (used to connect the ready indicator)
- Image-capture computer

7 Installation, repair and maintenance check

7.1 License for service engineer

Service technicians who have undergone training for servicing this product, including specifications, installation procedures and parts replacement procedures. Limited to those with permission from the department that hosts training.

Please never perform the installation, repair, maintenance check except an above service engineer, for the product works safety and enough performance.

7.2 Installation procedures

Work-related precautions

Bear the following points in mind when installing the system.

- (1) Carry out the work while ensuring that none of the portable units will be dropped or subjected to impact.
- (2) Ensure that the installation location satisfies the following criteria:
 - 1) A location where the product will not be splashed with water
 - 2) A location where the air does not contain moisture, dust, salt, sulfur or other such substances and where the product will not be adversely affected by poor ventilation, the air pressure level, the temperature and other such factors
 - 3) A location which is not tilted or subject to vibration or impact (this includes the locations when the product is conveyed)
 - 4) A location where chemical products are not stored and where no gases are given off

- 5) A location where the power source providing the correct power line frequency, voltage and power used by the product can be supplied
 - 6) A location where a grounding wire and the 3-pin grounding plug of the power cable can be connected
- (3) After installing the product, ensure that the product packaging materials and other waste materials generated at the time of installation are disposed of in an environmentally sound manner.

7.3 Installation restrictions

- (1) Take steps to ensure that the system is not installed near electronic devices or equipment since noise artifacts occur more readily on the images in environments where strong electromagnetic fields are present.
- (2) The system must not be installed near devices or equipment which may interfere with wireless communication.
- (3) When using a wired connection for the product, install the detector and Multi box with a distance of at least 150 mm between them.
- (4) For use, the cables must be routed without bending, pinching or stretching them or subjecting them to unreasonable loads. Remodeling of the cables is prohibited.
- (5) In the case of a network connection, the appropriate network address must be acquired from the network administrator in the installation location, and it must be set correctly.
- (6) There are no usage restrictions on how the detector is to be positioned. Avoid using the detector where it will be subjected to extreme bending loads or where it will easily be dropped.
- (7) Note that the radio frequency channel configured for indoor use may not be usable in outdoor areas in the 5 GHz band. For further details, refer to “5.1 Wireless communication specifications” (→ page 78) in this chapter.

7.4 Installation-related precautions

- (1) Bear in mind that there will be a risk of malfunctioning and other trouble if this product is used together with any equipment which may generate power supply noise, supply voltage fluctuations, electromagnetic waves and other disturbances.
- (2) Before proceeding with the installation work, ensure that the static charged in the bodies of the installation personnel has been released.
- (3) Before connecting or disconnecting the cables, be absolutely sure to turn off the power of the units in order to ensure safety. In addition, do not touch the power outlets or connectors with wet hands.
- (4) Based on the wireless channel setting guidelines in “5.1.5 Channel setting guidelines” (→ page 79) in this chapter, check out the wireless environment.

8 EMD (Electromagnetic Disturbances)

Please perform the following to prevent adverse events to the OPERATOR due to ELECTROMAGNETIC DISTURBANCES:

- Reorient or relocate the receiving device.
- Increase the separation between the equipment.
- Connect this device into an outlet on a circuit different from that to which the other devices are connected.

If the problem cannot be solved with the above measures, stop using this equipment and consult your sales representative.

For details about this product's emission class, group, and immunity test level, see "12 Guidance and manufacturer's declaration for EMD" (→ page 65).



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Revision Date: 2020-12

DIA-2019-019-E03