



Mobile DR System Technical Specifications

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1. INTRODUCTION

TOPAZ System is a system providing state-of-the-art image quality, user interface; making the system easy to use and reliable while providing high quality radiographic images with reduced dose.

TOPAZ System may be moved quietly and smoothly with motor drive mechanism

TOPAZ system has a basic type column option, which is a reasonable price and high-quality product, and a collapsible type column option with a trendy design that allows driving without disturbing the front view.

The core part of x-ray source adopts high quality tube assembly, x-ray collimator, HV cable assembly and high frequency x-ray generator with excellent performance, lifetime and stability.

Direct radiography via flat panel detector improves workflow, exam speed and comfort with efficiency. Digital flat panel detector with CsI screen provides excellent spatial resolution, MTF, DQE and stability based on fine pixel pitch.

The core part of x-ray source adopts high quality tube assembly, motorized x-ray collimator, HV cable assembly and high frequency x-ray generator which have worldwide reputation on excellent performance, lifetime and stability. Touch screen LCD based x-ray control console provides user-friendly interface and easy technique selection. Collimator supports high accuracy for selected x-ray field size over any SID.

Selection of an anatomical study on the imaging software automatically sets up the x-ray generator's pre-programmed exposure technique.

The types of "TOPAZ" system are divided into TOPAZ-32D, and TOPAZ-40D according to maximum power and mA. The higher the maximum output, the wider the mA range to choose from, giving the user more technical options to choose from.

1.1 STANDARD

- High-Frequency X-ray Generator
- Motor Driven (Max. Driving Speed: 5km/h)
- 2 types column stand (Basic type, Collapsible type - Optional)
- X-Ray Tube
- High Voltage Cables and stator cable
- Flat-Panel Detector
- Collimator with 30 seconds LED lamp timer
- Outstanding Image Quality by Optimized Digital image Processing
- Workstation / 21.5 inch High Resolution Touch Screen
- User Programmable APR
- Exposure Hand Switch
- Infrared remote controller (Ready-Exposure / Collimator Lamp)
- Wireless LAN connectivity, CD/DVD image Burning, USB interface

2. SPECIFICATION

2.1 TOPAZ CONFIGURATION PART

Part		Specification	
		TOPAZ-32D (Basic type)	TOPAZ-40D (Basic type)
TOPAZ Main Body	Drive Type	Motor Driven (Rear-wheel drive)	
	Speed of Movement	Max. 5Km/h	
	Movement Brake / Safety	Deadman type Handle, Front Safety Bumper, Spring Caster(Front Wheel) Driving Beep Alarm	
	Maximum Step Height	50mm	
	Maximum ramp gradient	10 degrees	
	Main power supply	100 ~ 240VAC, 9 – 4 A	
	Battery	12V 12AH Lead-acid type, 26ea	
	Cable Length(Mains, retractable)	3m	
	Driving distance after fully charged	30km	
	Small Movement	Max. 120mm/s	
	Dimension / Weight	583(W) x 1,970(H) x 1,390(D) mm / 430 kg(948 lbs) Option : 583(W) x 1,800(H) x 1,390(D) mm / 428 kg(944 lbs)	
	Software/Firmware	Mobile Control Board	
		Motor Driver Board	
X-Ray Tube Support	Rotation Range(Column)	± 325 degrees	
	Rotation Range(Tube Axis)	-30~+90 degrees	
	Rotation Range(Tube Support Axis)	± 180 degrees	
	Rotation Range(Collimator)	± 120 degrees	
	Vertical Range	640 ~ 2,030 mm (stroke : 1,390mm) Option : 640 ~ 1,860 mm (stroke : 1,220mm)	
	X-ray Focal Spot Height	630 ~ 2,030 mm Option : 630 ~ 1,860 mm	
	Max. horizontal extension	530mm	
	Software/Firmware	Angle Board	

X-ray Generator	Type	High Frequency	
	Nominal Output	32kW	40KW
	kV Range	40 ~ 125 KV (option: 150KV)	
	mA Range	32kW : max 400mA	40kW: max. 500mA
	Time Range	0.001~10 sec	
	mAs Range	0.1~500mAs	
	Software/Firmware	HT Control Board	
		LSS board	
X-ray Tube Assembly	Tube	E7239X, E7242X, E7876X, E7884X DXT-8M, DXT-10M, DXT-11M, DXT-12M	
		E7299X	-
	Type of Collimator	R108, R108F, DXC-RML	
SW	Operating software	RADMAX	
Detector	Detector	PaxScan4336W v4, 4343W(Basic), XRpad2 3025 HWC-M, XRpad2 4336 HWC-M, XRpad2 4343 HWC-M, 2530W- G5, 4336W-G5, 4343W(Lumen) Mano4336W, Mano4343W, Mars1417X, Mars1717X, Luna1012X	
Options & Accessories	DAP (Dose Area Product) meter	120-131HS (RS485)	
	Detachable High Resolution Grid	Grid 1000	
	Detachable High Resolution Grid Holder	-	
	Live stream camera	HU205	
	Remote Control	Ready-Exposure	
	DAP(Dose Area Product) Recording	Workstation	
	Ion chamber	Mobil-AID	
	Protective Screen	Fixed or Folding type	

Part		Specification	
		TOPAZ-32D (Collapsible type)	TOPAZ-40D (Collapsible type)
TOPAZ Main Body	Drive Type	Motor Driven (Rear-wheel drive)	
	Speed of Movement	Max. 5Km/h	
	Movement Brake / Safety	Deadman type Handle, Front Safety Bumper, Spring Caster(Front Wheel) Driving Beep Alarm	
	Maximum Step Height	44mm	
	Maximum ramp gradient	10 degrees	
	Main power supply	100 ~ 240VAC, 9 – 4 A	
	Battery	12V 12AH Lead-acid type, 26ea	
	Cable Length(Mains, retractable)	5m	
	Driving distance after fully charged	30km	
	Small Movement	Max. 120mm/s	
	Dimension / Weight	583(W) x 1,270(H) x 1,390(D) mm / 440kg(970 lbs)	
	Software/Firmware	Mobile Control Board	
		Motor Driver Board	
X-Ray Tube Support	Rotation Range(Column)	± 330 degrees	
	Rotation Range(Tube Axis)	-30~+90 degrees	
	Rotation Range(Tube Support Axis)	± 180 degrees	
	Rotation Range(Collimator)	± 120 degrees	
	Vertical Range	680 ~ 2,025 mm (stroke: 1,345mm)	
	X-ray Focal Spot Height	670 ~ 2,025 mm	
	Max. horizontal extension	530mm	
	Software/Firmware	Angle Board	
X-ray Generator	Type	High Frequency	
	Nominal Output	32kW	40KW
	kV Range	40 ~ 125 KV (option: 150KV)	
	mA Range	32kW : max 400mA	40kW: max. 500mA
	Time Range	0.001~10 sec	
	mAs Range	0.1~500mAs	
	Software/Firmware	HT Control Board	
		LSS board	
X-ray Tube	Tube	E7239X, E7242X, E7876X, E7884X	

Assembly		DXT-8M, DXT-10M, DXT-11M, DXT-12M	
		E7299X	E7299X
	Type of Collimator	R108, R108F, DXC-RML	
SW	Operating software	RADMAX	
Detector	Detector	PaxScan4336W v4, 4343W(Basic), XRpad2 3025 HWC-M, XRpad2 4336 HWC-M, XRpad2 4343 HWC-M, 2530W-G5, 4336W-G5, 4343W(Lumen) Mano4336W, Mano4343W, Mars1417X, Mars1717X, Luna1012X	
Options & Accessories	DAP (Dose Area Product) meter	120-131HS (RS485)	
	Detachable High Resolution Grid	Grid 1000	
	Detachable High Resolution Grid Holder	-	
	Live stream camera	HU205	
	Remote Control	Ready-Exposure	
	DAP(Dose Area Product) Recording	Workstation	
	Ion chamber	Mobil-AID	
	Protective Screen	Fixed or Folding type	

2.2 TOPAZ MECHANIC PART

Item		Specification	
		TOPAZ-32D (Basic type)	TOPAZ-40D (Basic type)
X-ray Generator	Nominal Output	32KW	40KW
	mA Range	Max. 400mA	Max. 500mA
	KV Range	40 ~ 125 KV (option: 150KV)	40 ~ 125 KV (option: 150KV)
	mAs Range	0,1 ~ 500mAs	0,1 ~ 500mAs
	Operation Duty Cycle	100kV, 320mA, 100ms / Rest time : 1min	100kV, 400mA, 100ms / Rest time : 1min
	Type	High Frequency	
X-Ray Tube Support	Colum rotation range	$\pm$ 325 degrees	
	Tube axis rotation range	-30 ~ +90 degrees	
	Tube support axis rotation range	$\pm$ 180 degrees	
	Collimator rotation range	$\pm$ 120 degrees	
	Vertical range	640 ~ 2,030 mm (stroke : 1,390mm) Option : 640 ~ 1,860 mm (stroke : 1,220mm)	
	X-ray focal spot height	630 ~ 2,030 mm Option : 630 ~ 1,860 mm	
	Max. horizontal extension	530mm	
System Design & Transport	Drive Type	Motor Driven(Rear-wheel drive)	
	Speed of Movement	Max. 5Km/h	
	Movement Brake/ Safety	Deadman type Handle, Front Safety Bumper, Spring Caster	
	Maximum Step Height	50mm	
	Maximum ramp gradient	10 degrees	
	Main power supply	100 ~ 240VAC, 9 – 4 A	
	Cable Length(Mains, retractable)	3m	
	Driving distance after fully charged	30km	
	Inch mover	Max. 120mm/s	
	Dimension / Weight	583(W) x 1,970(H) x 1,390(D) mm / 430 kg(948 lbs) Option : 583(W) x 1,800(H) x 1,390(D) mm / 428 kg(944 lbs)	

Item		Specification	
		TOPAZ-32D (Collapsible type)	TOPAZ-40D (Collapsible type)
X-ray Generator	Nominal Output	32KW	40KW
	mA Range	Max. 400mA	Max. 500mA
	KV Range	40 ~ 125 KV (option: 150KV)	40 ~ 125 KV (option: 150KV)
	mAs Range	0,1 ~ 500mAs	0,1 ~ 500mAs
	Operation Duty Cycle	100kV, 320mA, 100ms / Rest time : 1min	100kV, 400mA, 100ms / Rest time : 1min
	Type	High Frequency	
X-Ray Tube Support	Colum rotation range	$\pm$ 330 degrees	
	Tube axis rotation range	-30 ~ +90 degrees	
	Tube support axis rotation range	$\pm$ 180 degrees	
	Collimator rotation range	$\pm$ 120 degrees	
	Vertical range	680 ~ 2,025 mm (stroke: 1,345mm)	
	X-ray focal spot height	670 ~ 2,025 mm	
	Max. horizontal extension	530mm	
System Design & Transport	Drive Type	Motor Driven(Rear-wheel drive)	
	Speed of Movement	Max. 5Km/h	
	Movement Brake/ Safety	Deadman type Handle, Front Safety Bumper, Spring Caster	
	Maximum Step Height	44mm	
	Maximum ramp gradient	10 degrees	
	Main power supply	100 ~ 240VAC, 9 – 4 A	
	Cable Length(Mains, retractable)	3m	
	Driving distance after fully charged	30km	
	Inch mover	Max. 120mm/s	
	Dimension / Weight	583(W) x 1,270(H) x 1,390(D) mm / 440 kg(970 lbs)	

● **Workstation**

CPU	Intel(R) Core i3-6100(3.70GHz,3MB Cache) or higher
Memory	DDR4 8GB (1x8GB) SO-DIMM or higher
Display	Intel® HD Graphics 530 (Integrated HD graphics) or higher
Storage	120 GB x 1 SSD (Samsung) or higher + 500GB x 1 SATA HDD or higher
Touch Monitor	21.5 inch Color LCD, Capacitive Touch, Display resolution: 1920 x 1080 pixels

● **AP (Access Point)**

Model	DAP 2660 (AC 1200)
Product Picture	
Manufacturer	D-Link
Standards	IEEE 802.11n, IEEE 802.11ac
Frequency	5GHz / 2.4GHz
Wireless LAN (max.)	867Mbps(5GHz)/300Mbps (2.4GHz)
Weight Antennas Type	4 internal antennas
AC Power Adapter	12V / 1.5A
Regulatory Compliance	CE, FCC, RoHS, KCC

2.3 DETECTOR

● Digital flat panel detector (VAREX)

Model		PaxScan4336W v4		4343W(Basic)		
Active Pixel Area / Matrix		17 x 14 inch (3,052 x 2,456)	17 x 14 inch (3,032 x 2,436)	17 x 17 inch (3,062 x 3,062)	17 x 17 inch (3,052 x 3,052)	
Pixel Pitch		139um				
Limiting Resolution		3.6 lp/mm				
Screen		DRZ+	CsI	DRZ+	Standard CsI	Premium CsI
Energy Range		40 – 150kVp				
A/D Conversion		16-bits				
MTF	@ 1 lp/mm	56%	57%	56%	61%	57%
	@ 2 lp/mm	24%	28%	24%	32%	28%
	@ 3 lp/mm	12%	16%	10%	17%	14%
DQE	@ 0 lp/mm	39%	78%	39%	64%	79%
	@ 1 lp/mm	28%	58%	28%	54%	63%
	@ 2 lp/mm	18%	42%	18%	42%	48%
	@ 3 lp/mm	8%	24%	9%	29%	33%
Interface		WiFi(802.11 a/g/n/ac)		WiFi(802.11 n/ac)		
Weight		2.9 kg (6.4 lbs.)	3.0 kg (6.6 lbs.)	3.1 kg (6.8 lbs.)	3.3 kg (7.3 lbs.)	3.3 kg (7.3 lbs.)

* 4343W(Basic) detectors are NOT used in Brazil installations.

Model		XRpad2 3025 HWC-M#	XRpad2 4336 HWC-M#	XRpad2 4343 HWC-M#
Active Pixel Area / Matrix		12 x 10 inch (3,004 x 2,508)	17 x 14 inch (4,288 x 3,524)	17 x 17 inch (4,288 x 4,288)
Pixel Pitch		100um		
Limiting Resolution		5 cy/mm		
Screen		Csl,		
Energy Range		40 – 150kVp		
A/D Conversion		16-bits		
MTF	@ 1 lp/mm	70%	70%	70%
	@ 2 lp/mm	40%	40%	40%
	@ 3 lp/mm			
DQE	@ 0 lp/mm	75%	75%	75%
	@ 1 lp/mm	60%	60%	60%
	@ 2 lp/mm			
	@ 3 lp/mm	40%	40%	40%
Interface		Ethernet / WIFI(802.11n)		
Weight		1.8kg (4.0 lbs.)	3.2kg (7.0 lbs.)	3.8kg (8.4 lbs.)

#: These component are not applied NRTL(CSA mark) Certificate.

* XRpad2 Series (XRpad2 3025 HWC-M, XRpad2 4336 HWC-M, XRpad2 4343 HWC-M) detectors are NOT used in Brazil installations.

Model		2530W-G5		4336W-G5		4343W(Lumen)	
Active Pixel Area / Matrix		12 x 10 inch (2,264 x 1,860)		17 x 14 inch (3,032 x 2,436)		17 x 17 inch (3,032 x 3,032)	
Pixel Pitch		131 um		139 um			
Limiting Resolution		3.8 cy/mm		3.6 cy/mm			
Screen		DRZ+	Csl(Std/Pre)	DRZ+	Csl(Std/Pre)	DRZ+,	Csl(Std/Pre)
Energy Range		40 – 150kVp					
A/D Conversion		16-bits					
MTF	@ 1 lp/mm	57%	63%/59%	57%	63%/59%	57%	63%/59%
	@ 2 lp/mm	24%	34%/29%	24%	34%/29%	24%	34%/29%
	@ 4 lp/mm	6%	12%/9%	6%	12%/9%	6%	12%/9%
DQE	@ 0 lp/mm	38%	65%/75%	38%	65%/75%	38%	65%/75%
	@ 1 lp/mm	28%	52%/57%	28%	52%/57%	28%	52%/57%
	@ 3 lp/mm	9%	28%/32%	9%	28%/32%	9%	28%/32%
Interface		Ethernet / WIFI(802.11 n/ac)					
Weight		1.56kg (3.4 lbs.)		2.8kg (6.2 lbs.)		3.2kg (7.1 lbs.)	

● **Digital flat panel detector (iRay)**

Model		Mano4336W #	Mano4343W #
Active Pixel Area / Matrix		14 x 17 inch (2,800 x 2,304)	17 x 17 inch (3,072 x 3,072)
Pixel Pitch		150um	139um
Limiting Resolution		3.3 lp/mm	3.6 lp/mm
Scintillator		CsI,	
Energy Range		40 – 150kVp	
A/D Conversion		16-bits	
MTF	@ 1 lp/mm	75%	71%
	@ 2 lp/mm	49%	44%
	@ 3 lp/mm	29%	26%
DQE	@ 0 lp/mm	63%	65%
	@ 1 lp/mm	48%	47%
	@ 2 lp/mm	37%	35%
	@ 3 lp/mm	20%	20%
Interface		Gigabit Ethernet / WIFI(802.11ac)	
Weight (including Battery)		3.6kg (7.9 lbs.)	4.6kg (10.1 lbs.)

#: These component are not applied NRTL(CSA mark) Certificate.

* Mano series (Mano 4343W, Mano 4336W) detectors are NOT used in Brazil installations.

* Mano 4343W, Mano 4336W detector is available as an option for the built in charger .

Model		Mars1417X #	Mars1717X #	Luna1012X #
Active Pixel Area / Matrix		14 x 17 inch (3,500 x 4,300)	17 x 17 inch (4,267 x 4,267)	10 x 12 inch (2,505 x 3,152)
Pixel Pitch		100um		
Limiting Resolution		4.3 lp/mm		
Screen		CsI		
Energy Range		40 – 150kVp		
A/D Conversion		16-bits		
MTF	@ 1 lp/mm	65%		60%
	@ 2 lp/mm	35%		30%
	@ 3 lp/mm	19%		14%
DQE	@ 0 lp/mm	68%		60%
	@ 1 lp/mm	54%		43%
	@ 2 lp/mm	38%		27%
Interface		Gigabit Ethernet / WiFi(802.11ac)		
Weight		3.0kg (6.6 lbs.)	3.4kg (7.5 lbs.)	2.2kg (4.9 lbs.)

#: These component are not applied NRTL(CSA mark) Certificate.

* Luna1012X is not applied CE Certificate.

* Mars1417X, Mars1717X, Luna1012X detector are NOT used in Brazil installations.

2.4 IMAGING SOFTWARE

1) General Features

- Windows OS based graphic user interface
- Multi-image display (1x1 ~ 4x4)
- Multi-image selection
- Auto display layout changing function
- X-ray generator control panel
- Unlimited procedure step
- Quick step add feature and image maintenance feature by popup menu
- ROI feature (support the creation of ROI for each APR by user)
- Maker feature (support the creation of maker for each APR by user)
- Multi-language support
- EXCEL sheet for language support (only possible on Microsoft Office automation environment)
- DAP meter (optional)
- Unlimited PACS code (CPT code)
- Unlimited Anatomically programmed radiography (APR) support
- Support DICOM Worklist SCU, DICOM Storage SCU and transfer function
- Support DICOM Multi-transfer function
- High-performance post-processing feature
- Copy & Move Images
- Dose monitoring function
- Grid line suppression function
- Reject analysis function
- 9 preset function
- Cobb's angle function
- Tube & line enhancement function
- Detector built-in charger function
- APR positioning guide function
- Auto ROI function
- Screen Locker function
- ROI Masking function
- Authority setting function
- Patient information tag deletion function
- Auto Stitching function to manual type
- MANO Detector power off function
- Live Streaming function
- Blue and Dark Skin GUI
- Support Audit Trail

- Support Period Setting
- Support DICOM Send Monitoring
- Support DICOM Tag Matching
- Support Scatter Reduction image processing parameter
- Support C-Store SCP function

2) Post processing parameters

- MODULE 1
 - ◆ Edge Enhancement: 0 ~ 50
 - ◆ Contrast Factor : 1 ~ 200
 - ◆ Image Frequency : 0 ~ 20
 - ◆ Image Latitude : -10 ~ 10
 - ◆ Sharpness : 0 ~ 100
- MODULE 2
 - ◆ Histogram Optimization : -100 ~ 100
 - ◆ Skin line Weight : -100 ~ 100
 - ◆ Latitude Compression : -100 ~ 100
 - ◆ Contrast Enhancement : -100 ~ 100
 - ◆ Edge Enhancement : -100 ~ 100
 - ◆ Noise Suppression : -100 ~ 100
 - ◆ Gamma : -20 ~ 20
- MODULE 3
 - ◆ Global Brightness : -100 ~ 100
 - ◆ Global Contrast : -100 ~ 100
 - ◆ Latitude Compression : -100 ~ 100
 - ◆ S-Structure Enhancement : -100 ~ 100
 - ◆ Noise Suppression : -100 ~ 100
 - ◆ Gamma : -20 ~ 20
- MODULE 4
 - ◆ Global Brightness : -20 ~ 20
 - ◆ Global Contrast : -20 ~ 20
 - ◆ Local Contrast : 0 ~ 20
 - ◆ Small Enhancement : 0 ~ 20
 - ◆ Latitude Reduction : -20 ~ 20
 - ◆ Noise Suppression : 0 ~ 20
 - ◆ Gamma : -20 ~ 20

3) Image Maintenance (All functions are supported by the pop-up menu)

- ROI : Support the creation of up to 30 of ROI by user
- ROI Shape : Support the shape of rectangle, circle and polygon
- MARK : Support the creation of up to 30 of MARKER by user (User preset support)
- Arrow Marker
- Overlay Display On/Off
- Horizontal Flip
- Vertical Flip
- Rotate CW
- Rotate CCW
- Fine Rotation : Rotate the image with fine angle (1,2,3,45 degree)
- Line Rotation: Rotate the image by the line angle.
- Inverse (Black or White)
- Text Annotation
- Ruler : Distance tool
- Angle : Angle measurement tool
- Zoom : Image zoom in/out
- Magnify : Image magnify glass window
- Pan : Image panning
- Fit Image : Auto fitting to window size
- 1:1 View : Display 1:1 mapped image between monitor pixels and detector pixels or the real size on screen
- Image Crop : Image crop function / Supported by left double-click mouse
- Image Recovery : Recover the original image
- Image Bright/Contrast control : Supported by right-click mouse
- Module3 Processing Type function (Soft, Standard, Strong)
- Hip Measurement

4) CD Burning

- DICOMDIR based CDR data generation
- Support CD/DVD Recording
- Include internal DICOM Viewer
- Support multi-study data

5) DICOM Features : DICOM PRINT

- DICOM 3.0 compatible
- Support Print Preview
- Support Film Orientation : Portrait / Landscape
- Support Film Size : 8X10 / 10X12 / 10X14 / 11X14 / 14X14 / 14X17 / 24X24 / 24X30 / 25X30
- Support Film Layout : 1:1 / 1:2 / 2:1 / 2:2 / 3:1 / 1:3 / 3:3 / 4:4
- Support Real size printing
- Support image swap in layout

6) DICOM Feature : DICOM STORAGE

- DICOM 3.0 compatible
- Support DX/CR modality (can be extended for DR and other)
- Support RDSR(Radiation Dose Structured Report)
- Support the modification of Transfer Syntax

7) DICOM Feature : MPPS

- Support Modality Performed Procedure Step feature
- Provides only three state : FAILED / IN PROGRESS / COMPLETED

8) DICOM Feature : WORKLIST

- Support DICOM Modality Worklist Standard
- Support DICOM Query/Retrieve
- Support Search Filter (ID / Name / Access Number)

9) DICOM Feature : STORAGE COMMITMENT

10) DICOM Feature : QUERY/RETRIEVE

11) DICOM Feature : VERIFICATION

12) DICOM Feature : TLS

13) Overlay Display on image

- Projection description
- Patient Name / Sex / Age
- kV / mA / Time / mAs
- Feed-back mAs / Feed-back Time for AEC
- EI(Exposure Index) / DI(Deviation Index)
- Window Width/Level
- Overlay can be set by user

14) Image Stitching

- Support 2 ~ 5 images stitching
- Support zoom in/out of all images simultaneously
- Moves single image or all images simultaneously
- Support automatic stitching using 2 point
- Support image clipping
- Adjust window level of single image or all images simultaneously

2.5 TUBE & COLLIMATOR

● X-ray Tube

Tube Model	E7239X	DXT-8M	E7242X
Manufacturer	CANON	DRGEM	CANON
Focal Spot Size	1.0/2.0mm	1.0/2.0mm	0.6/1.5mm
Rating(0.1s)	22.5/47kW@60Hz	22.5/47kW@60Hz	18/50kW@60Hz
Max. Anode HU	140kHU(100kJ)	140kHU(100kJ)	200kHU(142kJ)
Target Angle	16°	16°	14°
Max. kV	125kV	125kV	125kV
Weight	16kg(35.3lbs)	16kg(35.3lbs)	16kg(35.3lbs)
Inherent Filtration	0.9mmAl/75kV	1.0mmAl/75kV	0.9mmAl/75kV
Half Value Layer	More than 2.9mmAl eq. at 80kVp		
Leakage Radiation	Less than 100mR/hr		

Tube Model	DXT-11M	E7299X	E7876X
Manufacturer	DRGEM	CANON	CANON
Focal Spot Size	0.6/1.5mm	0.3/1.0mm	0.6/1.2mm
Rating(0.1s)	18/50kW@60Hz	3.7/39kW@60Hz	22/54kW@60Hz
Max. Anode HU	200kHU(142kJ)	140kHU(100kJ)	230kHU(163kJ)
Target Angle	14°	12°	12°
Max. kV	125kV	150kV	150kV
Weight	16kg(35.3lbs)	16kg(35.3lbs)	16kg(35.3lbs)
Inherent Filtration	1.0mmAl/75kV	1.3mmAl/75kV	1.3mmAl/75kV
Half Value Layer	More than 2.9mmAl eq. at 80kVp		
Leakage Radiation	Less than 100mR/hr		

Tube Model	E7884X	DXT-10M	DXT-12M
Manufacturer	CANON	DRGEM	DRGEM
Focal Spot Size	0.6/1.2mm	0.6/1.2mm	0.6/1.2mm
Rating(0.1s)	22/54kW@60Hz	17/48kW@60Hz	22/54kW@60Hz
Max. Anode HU	300kHU(210kJ)	150kHU(111kJ)	300kHU(210kJ)
Target Angle	12°	12°	12°
Max. kV	150kV	125kV	150kV
Weight	16kg(35.3lbs)	16kg(35.3lbs)	16kg(35.3lbs)
Inherent Filtration	0.9mmAl/75kV	1.0mmAl/75kV	1.0mmAl/75kV
Half Value Layer	More than 2.9mmAl eq. at 80kVp		
Leakage Radiation	Less than 100mR/hr		

* Total filtration including X-ray tube assembly and collimator will be matched by appropriate additional filters to within the range from 2.9 to 3.3mmAl. eq.

● **Collimator**

Model	R108/R108F	DXC-RML
Manufacturer	RALCO	DRGEM
Control	Manual with 30sec. lamp timer	
Field Shape	Rectangular	
Max. Field Size	More than 43x43cm(17x17inch) at 100cm SID	
Leakage Radiation	Less than 100mR/hr	Less than 40 mR/h
Max. kVp shield	150kV	
Inherent Filtration	Min. 2.0mmAl eq.	
Luminosity	Over 160LUX at 100cm SID (Typ. 250LUX)	Over 160LUX at 100cm SID
Light source	Single LED	LED
Standard	Tape measure, Rotating flange	Rotating flange with fixing knob
Option	Line laser, near port shutters	Line laser+shutter, Measure tape Near port moving shutters, Mounting flange mechanical detent Accessory guides spring Additional filter, DAP rail
Electrical Rating	20~30Vac, 30VA, 50/60Hz	12~45V DC 35VA / 20~30VAC 35VA - 50~60Hz
Dimension / Weight	223(W) x 246(D) x 140(H) mm / 6.6kg(14.6lb)	196(W) x 250(D) x 171(H) mm / 7.1kg(15.6lb)

2.6 OPTION & ACCESSORIES

● Option

- AEC Ion Chamber

Model	Mobil-AID
Manufacturer	Mobil-Aid
Field	2 Fields
Field size	Nominal 76 mm (3 inch) diameter by 10mm (0.38 inch) thick
Reproducibility	<0.05 coefficient of variation
Dimension	135(W) x 13(D) x 545(H) mm
Weight	1.0kg (2.2lb)

● Accessory

- DAP (Dose Area Product) meter

Model	120-131HS (RS485)
Manufacturer	IBA
DAP Resolution	0.01 μGym^2
Interface	RS485
Active area	115 x 115mm / 146 x 146mm
Display	Integrated or separate display (single or dual line)
Dimension	158 x 134.5 x 17mm / 180 x 156 x 17mm
Inherent Filtration	0.5 mm Al
Power input	12 – 29 VDC, 100mA
Measurement Uncertainty	$\pm 25\%$

- Detachable High Resolution Grid

Model	Grid 1000
Manufacturer	JPI
Focal distance	100, 130, 150, 180cm
Line number	103 lpi, 200 lpi, 215 lpi
Reason	8:1 ~ 12:1

- **Live stream camera**

Model	HU205
Display resolution	1920×1080
Max. Image Transfer Rate	30FPS @ FHD
Electrical Rating	5VDC, 210mA

* Only DXC collimator can use a Live Stream Camera.

* Live stream camera images are used only for reference.

- **DAP (Dose Area Product) meter with display**

- **Detachable High Resolution Grid Holder**

2.7 ENVIRONMENT

OPERATING ENVIRONMENT

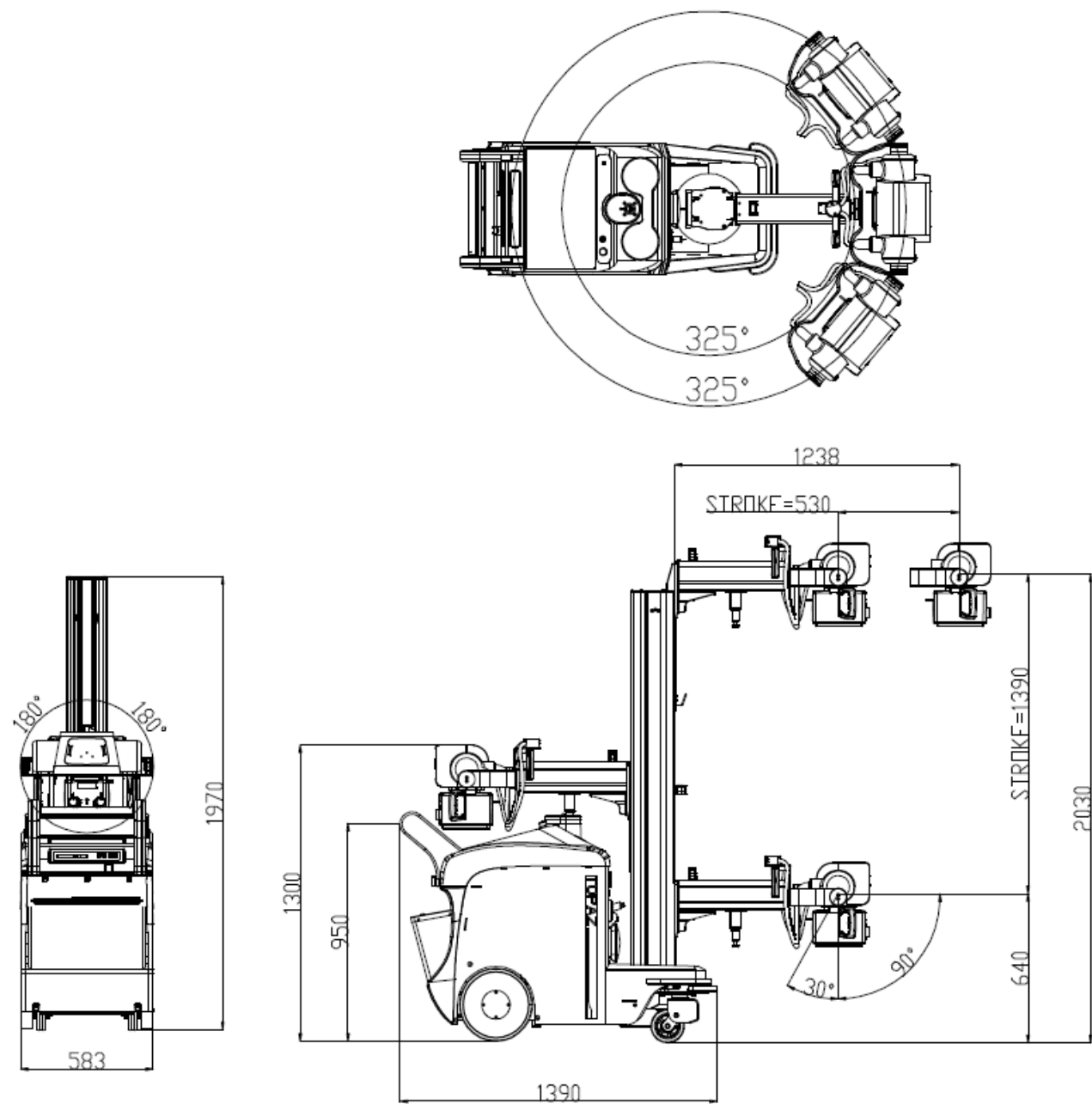
Ambient temperature range	10 °C to 35°C (50 °F to 95 °F)
Relative humidity range	30% to 75%, non-condensing
Atmospheric pressure range	700 hPa to 1060 hPa
Altitude Limit	This product is rated to operate at an altitude ≤3000m

TRANSPORT AND STORAGE ENVIRONMENT

Ambient temperature range	-10 °C to 50 °C (14 °F to 122 °F).
Relative humidity range	35% to 75%, non-condensing.
Atmospheric pressure range	700hPa to 1060 hPa

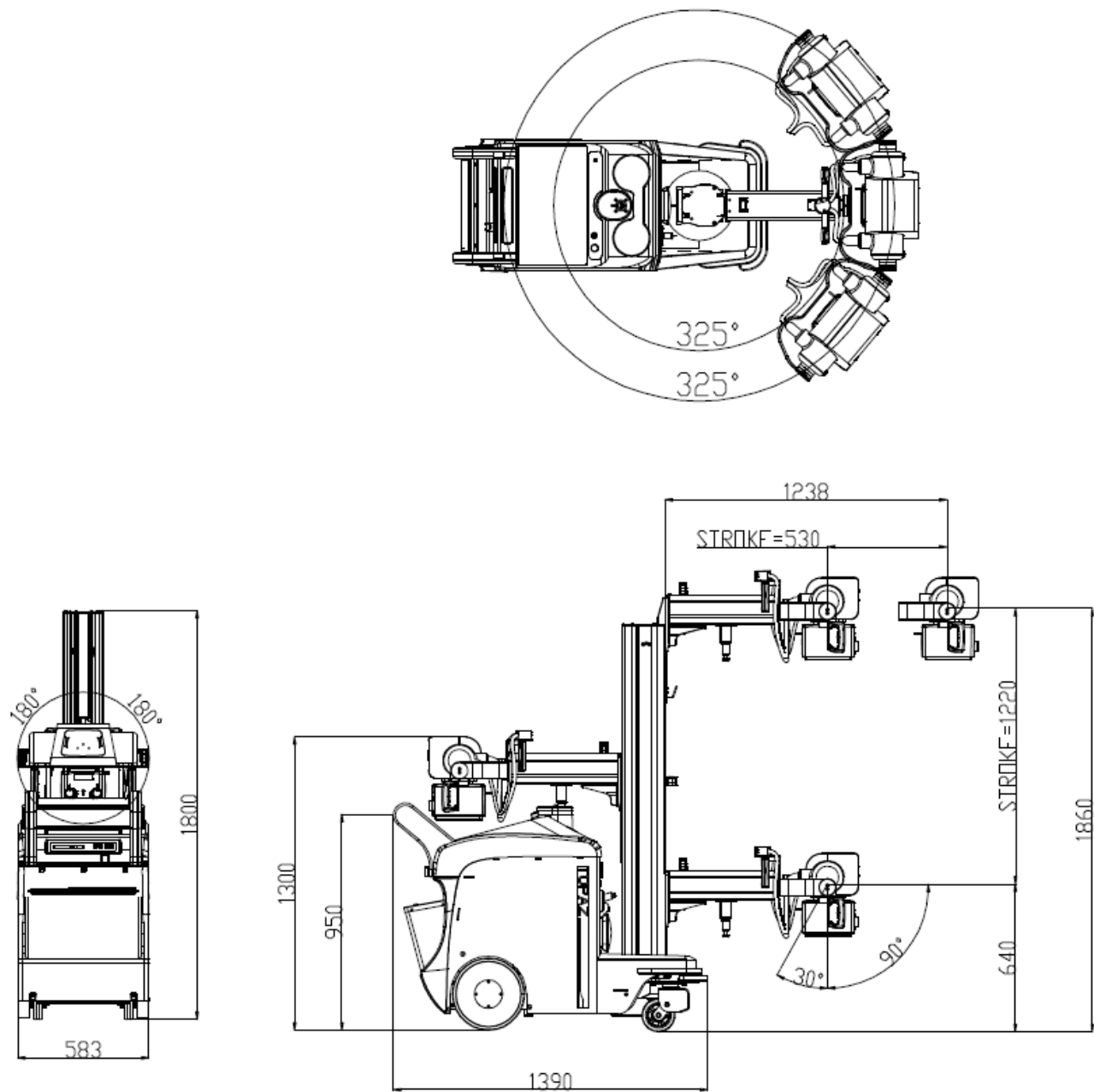
3. DIMENSION

Unit: mm



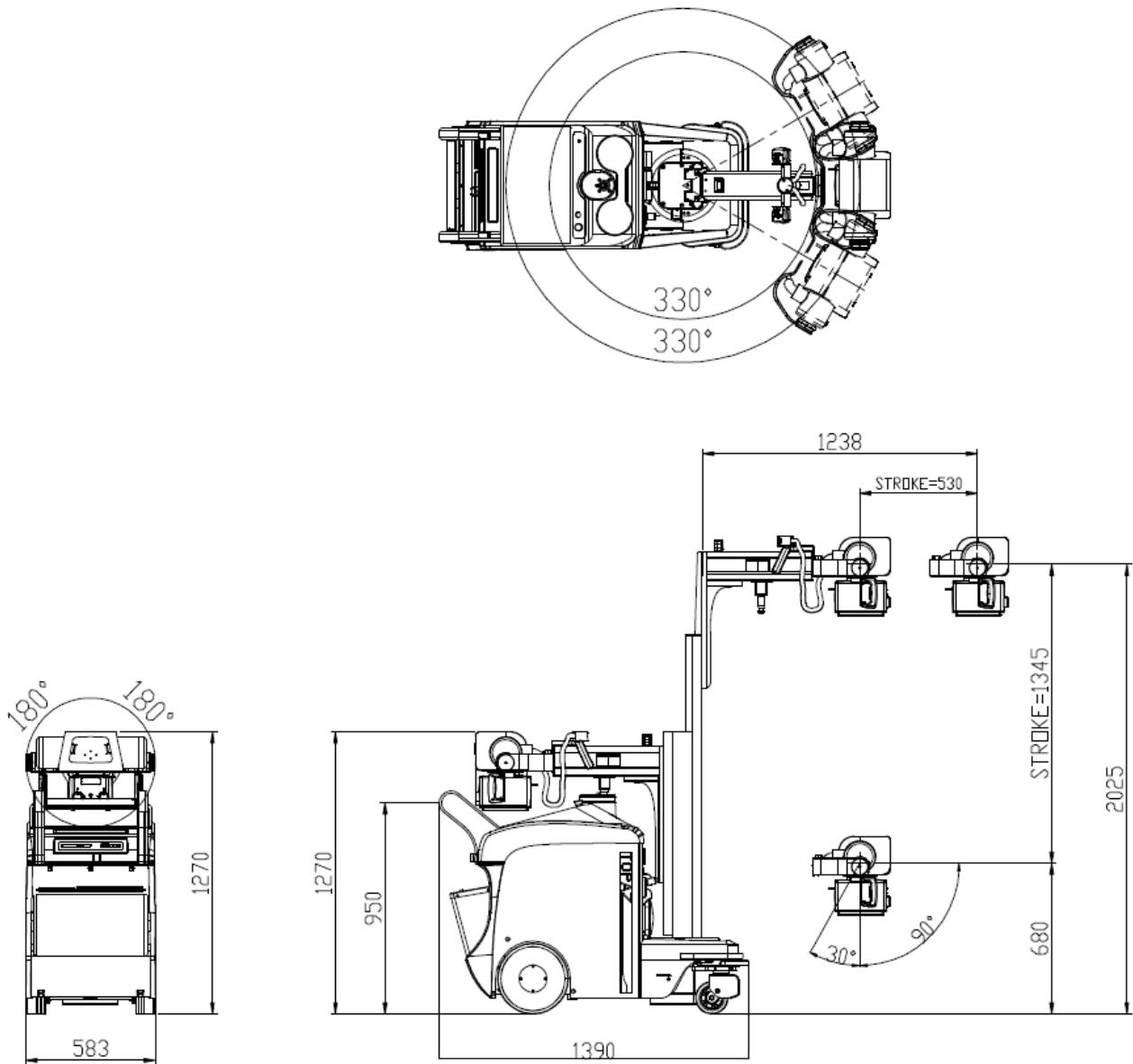
TOPAZ (Basic type, Vertical Stroke 1390 mm)

Unit: mm



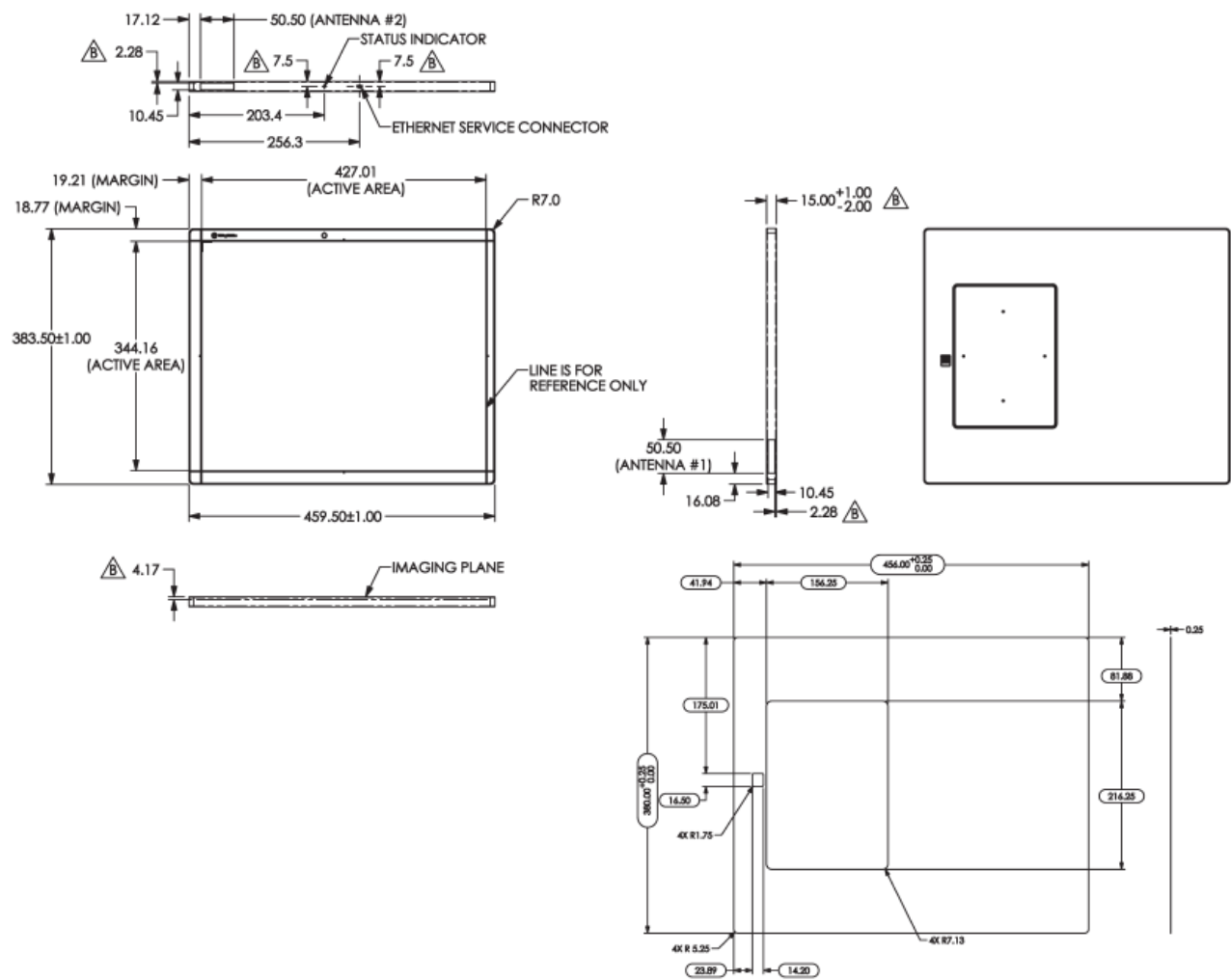
TOPAZ (Basic type, Vertical Stroke 1220 mm)

Unit: mm



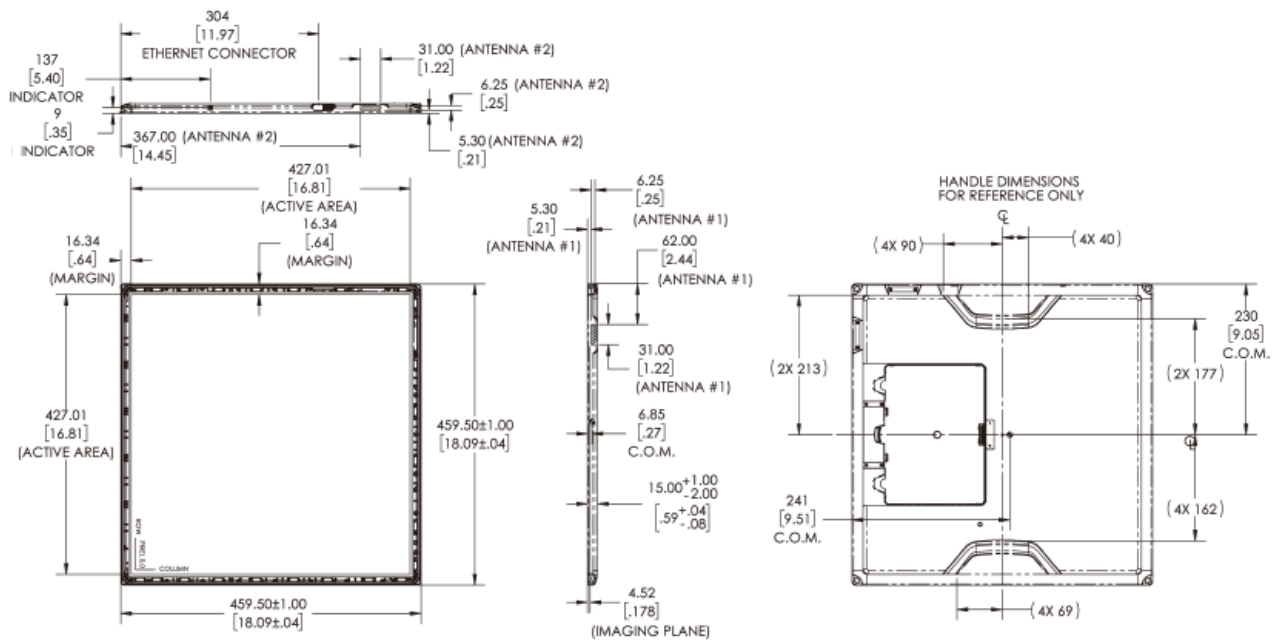
TOPAZ (Collapsible type)

Unit: mm

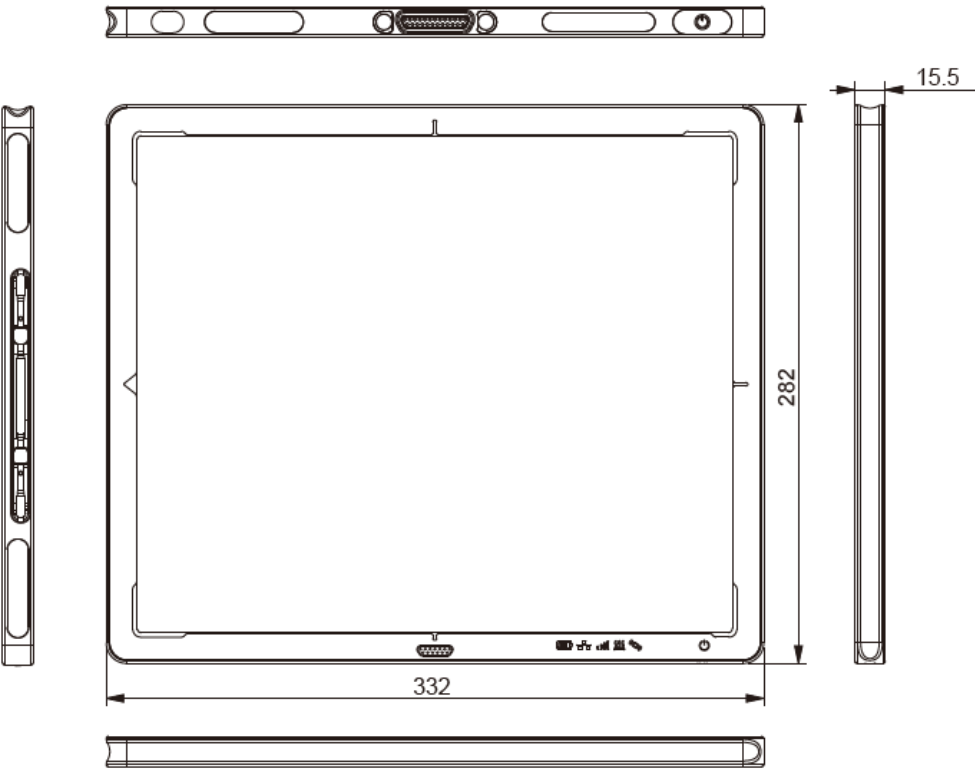


Digital Flat Panel Detector (Model: PaxScan 4336W V4)

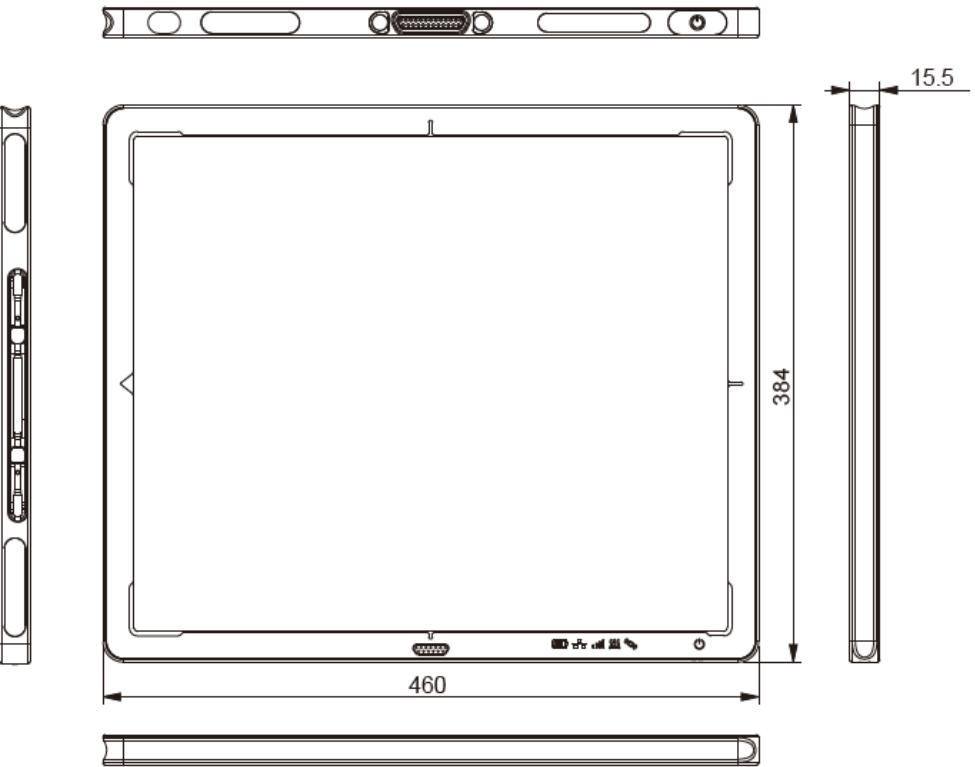
Unit: mm

Digital Flat Panel Detector (Model: 4343W(Basic))

Unit: mm

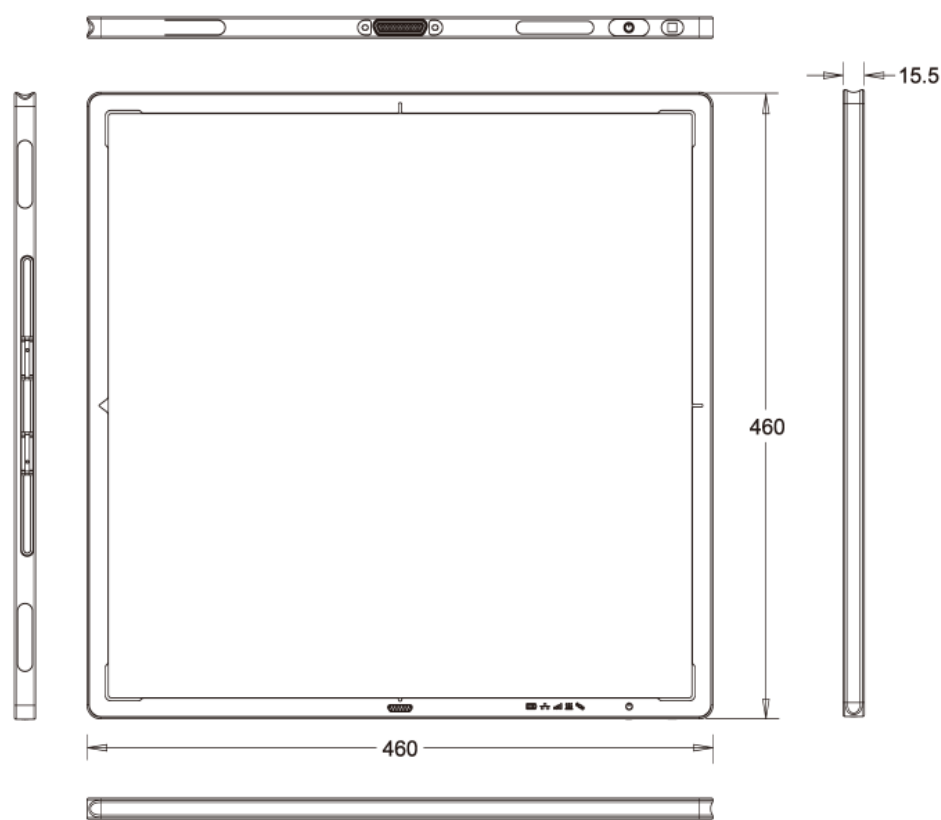


Digital Flat Panel Detector (Model: XRpad2 3025 HWC-M)



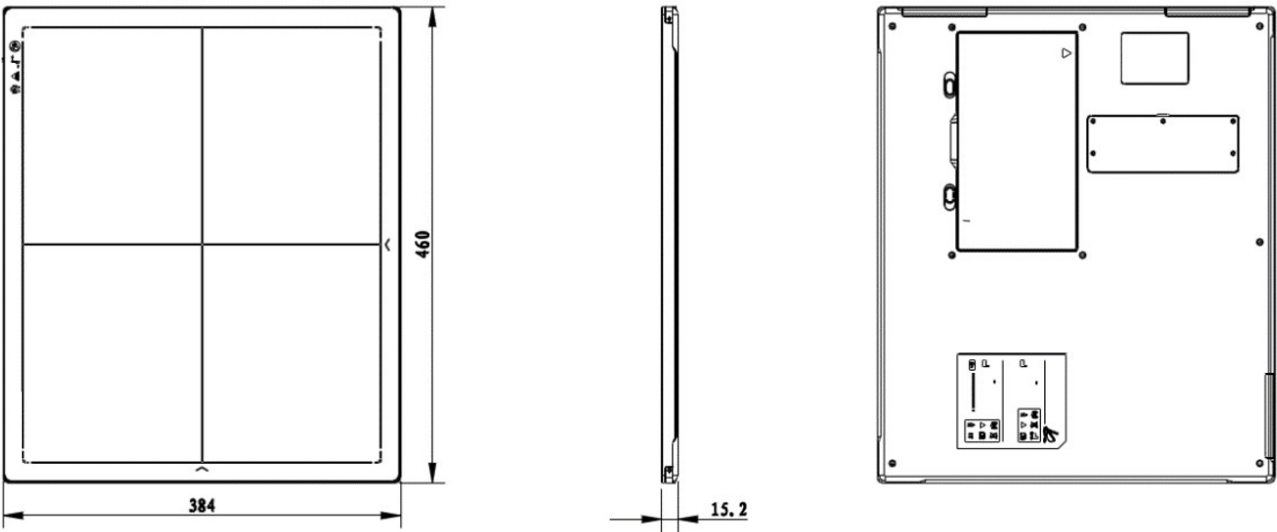
Digital Flat Panel Detector (Model: XRpad2 4336 HWC-M)

Unit: mm

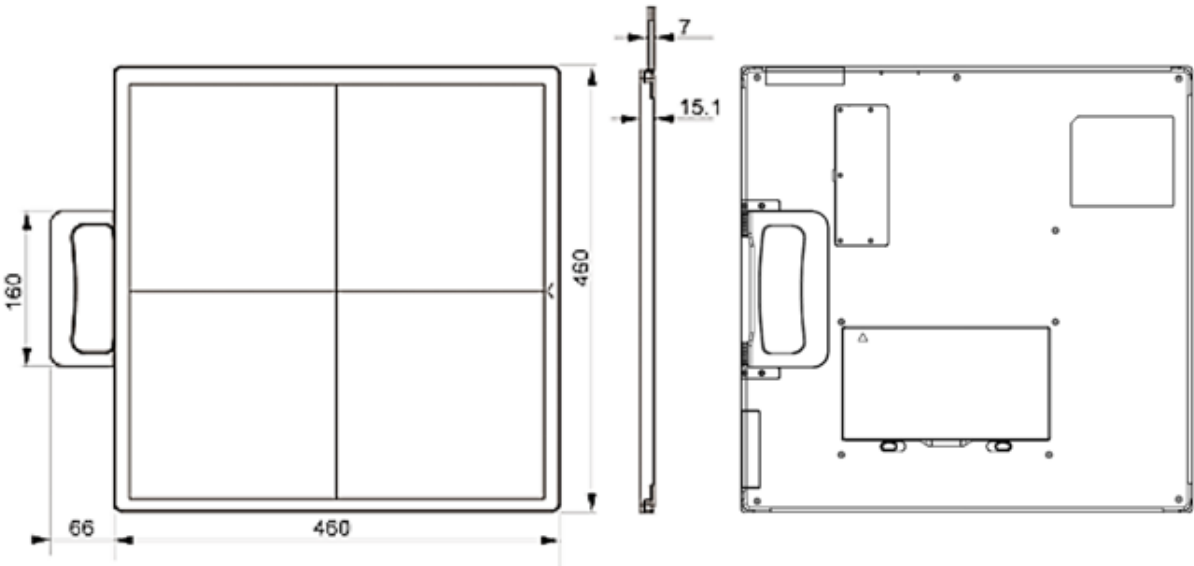


Digital Flat Panel Detector (Model: XRpad2 4343 HWC-M)

Unit: mm

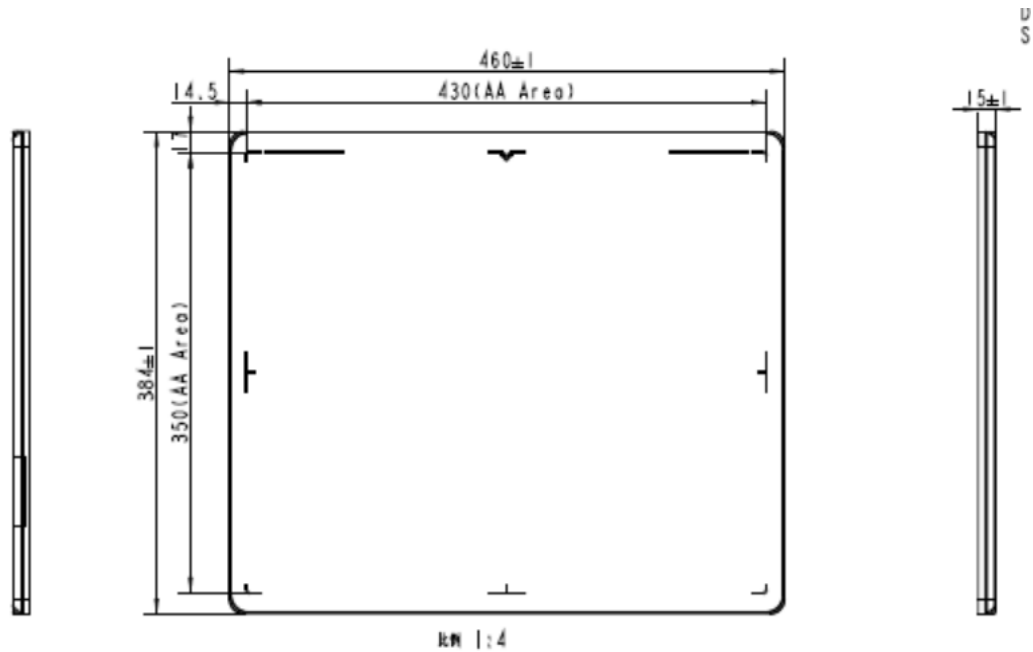


Digital Flat Panel Detector (Model: Mano4336W)

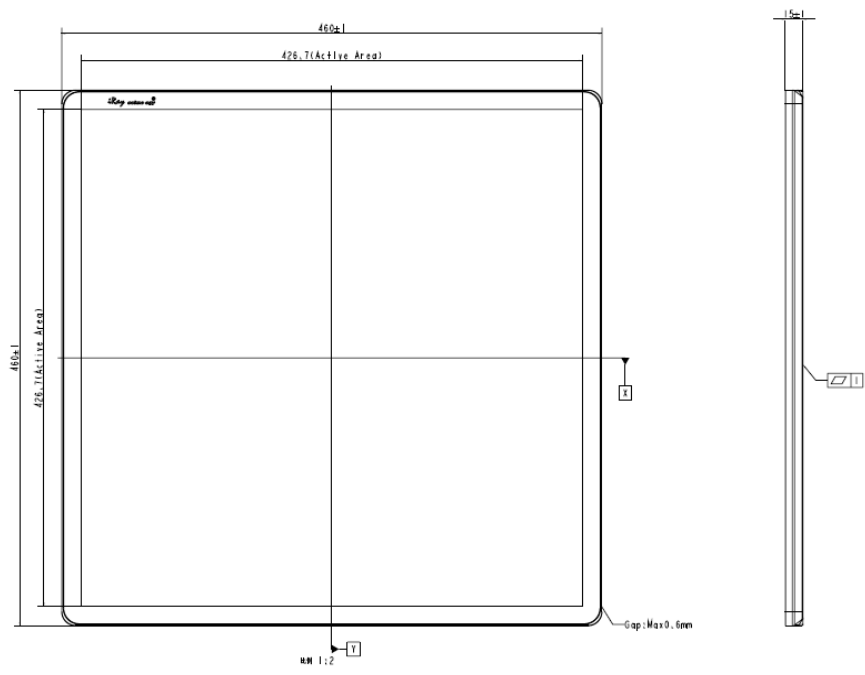


Digital Flat Panel Detector (Model: Mano4343W)

Unit: mm

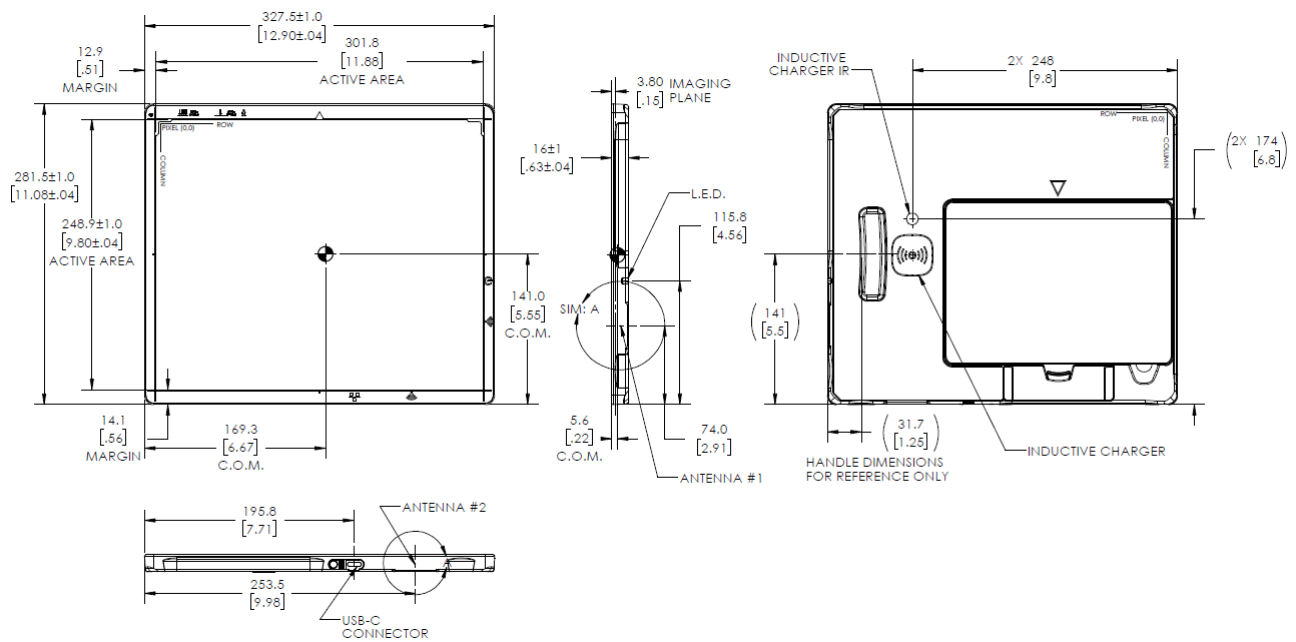


Digital Flat Panel Detector (Model: Mars1417X)

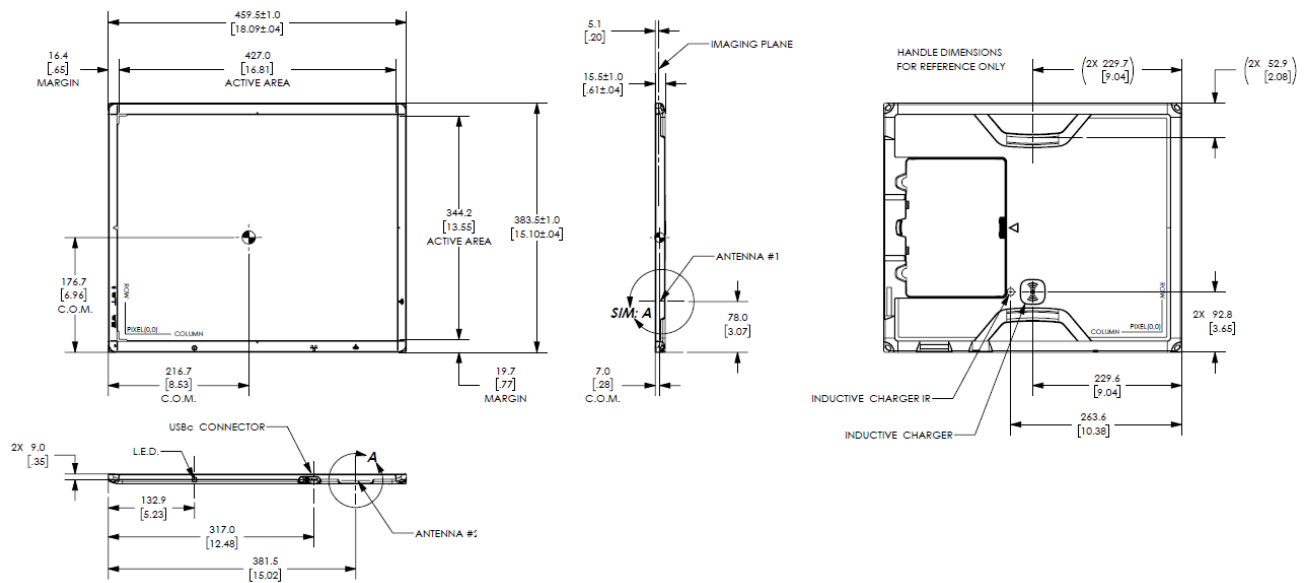


Digital Flat Panel Detector (Model: Mars1717X)

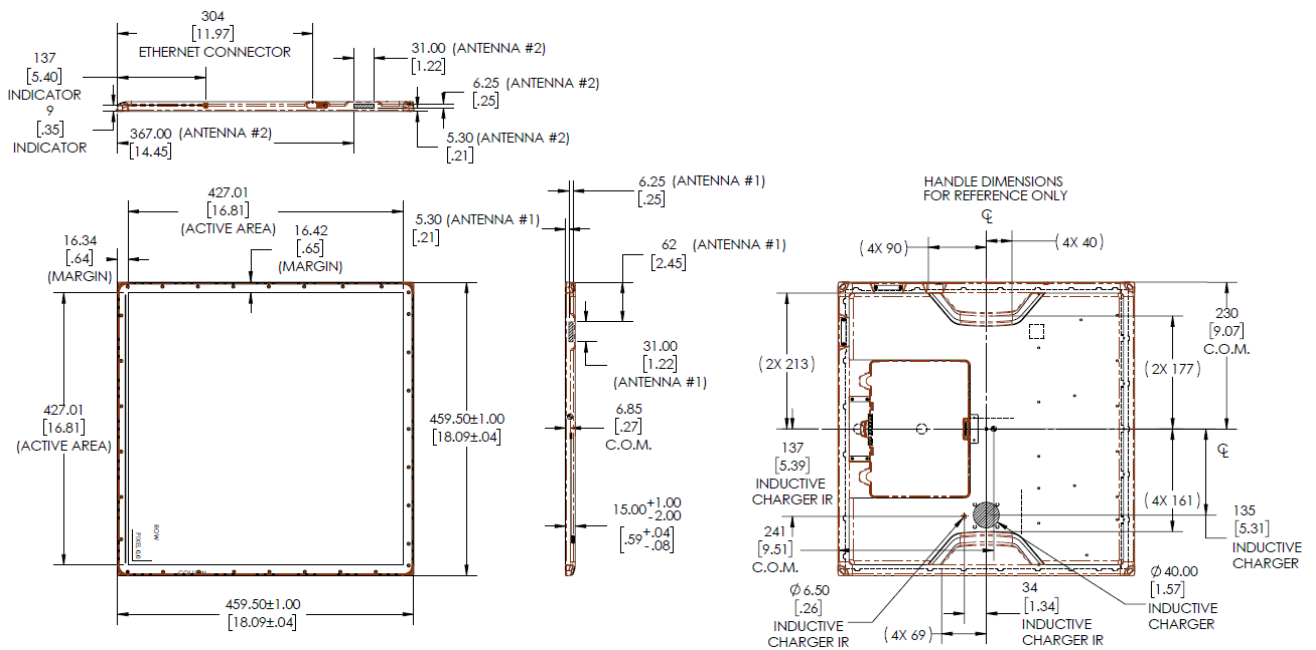
Unit: mm

Digital Flat Panel Detector (Model: 2530W-G5)

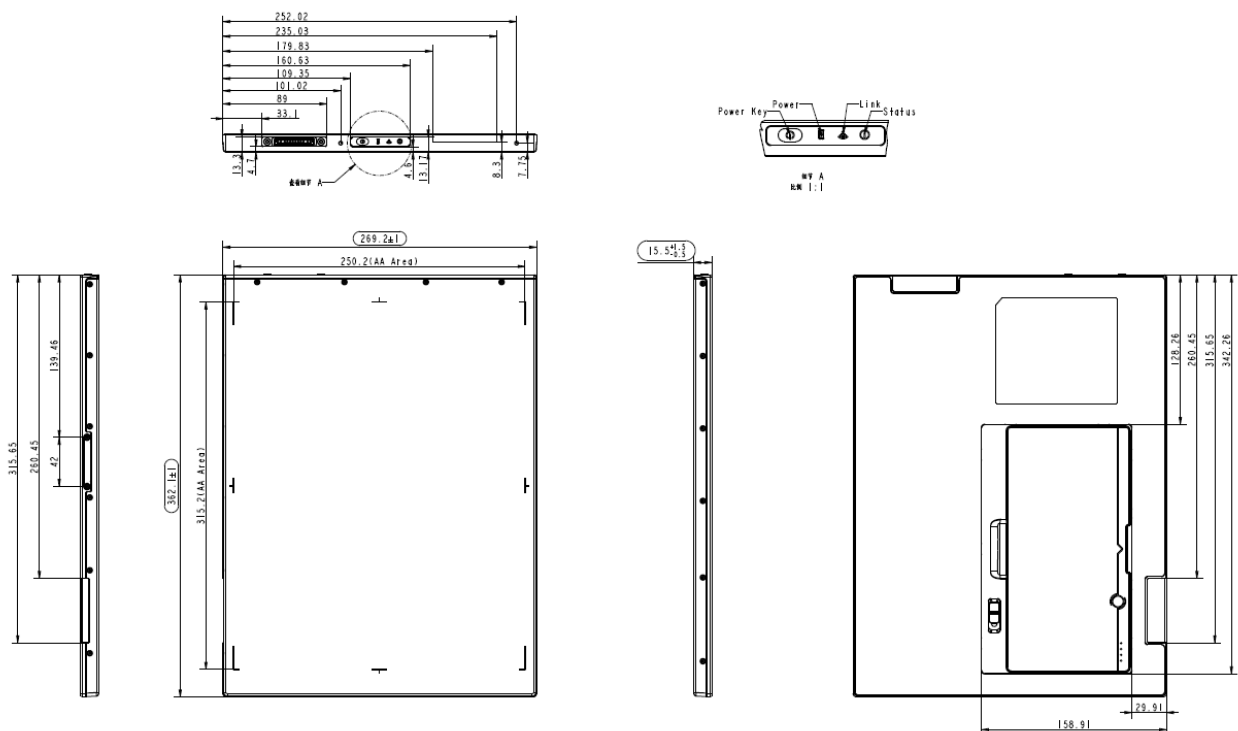
Unit: mm

Digital Flat Panel Detector (Model: 4336W-G5)

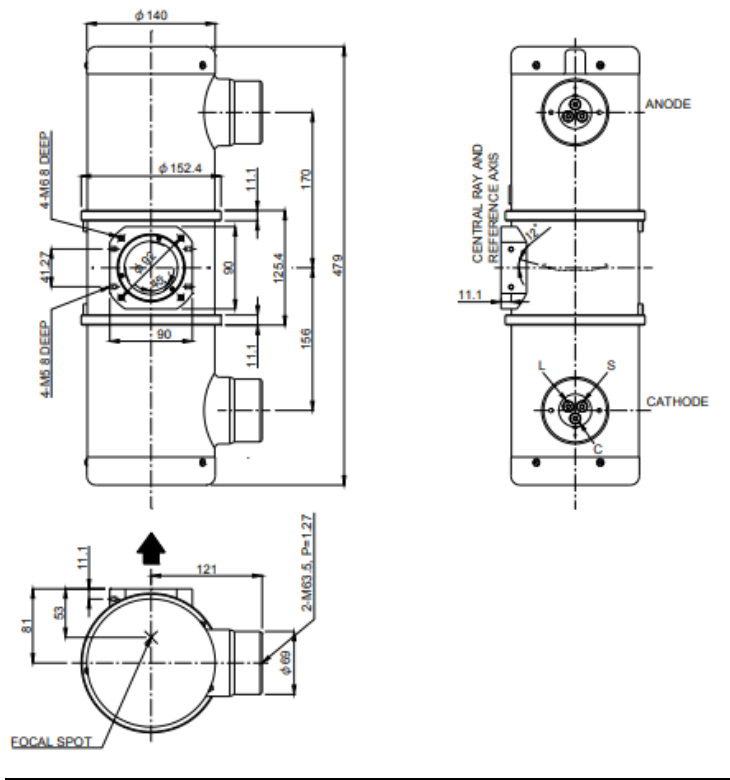
Unit: mm

Digital Flat Panel Detector (Model: 4343W(Lumen))

Unit: mm

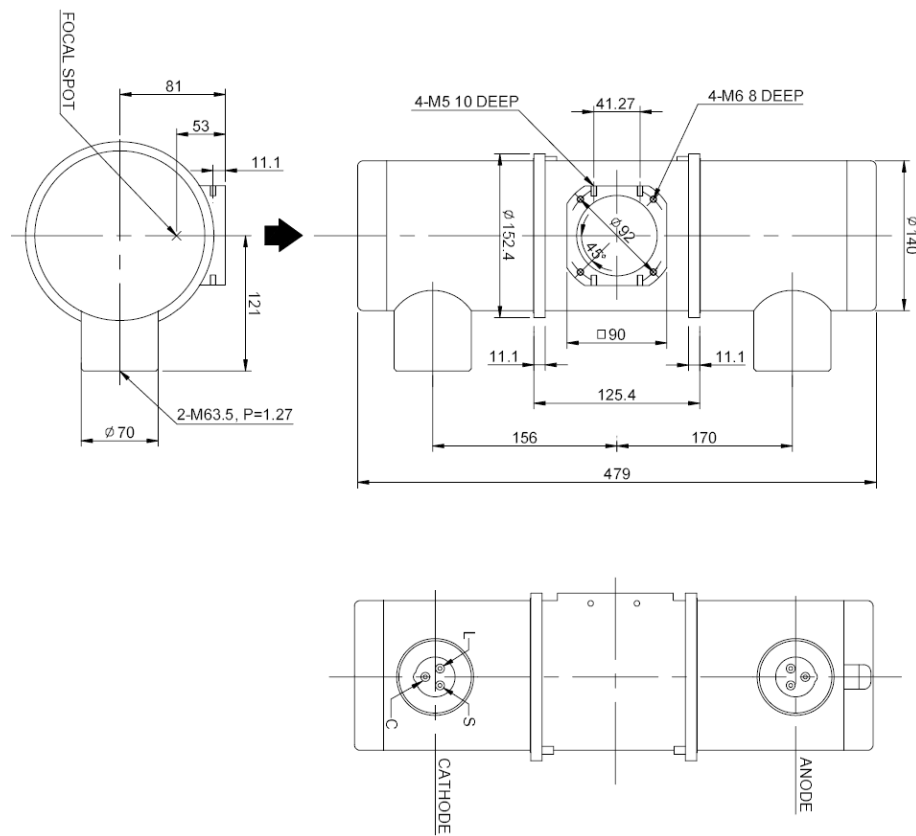
Digital Flat Panel Detector (Model: Luna1012X)

Unit: mm



X-ray Tube Assembly (Model: E7299X)

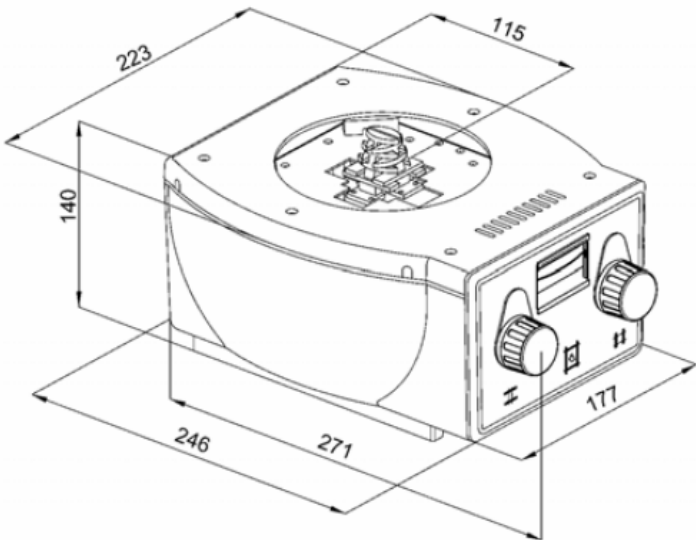
Unit: mm



X-ray Tube Assembly

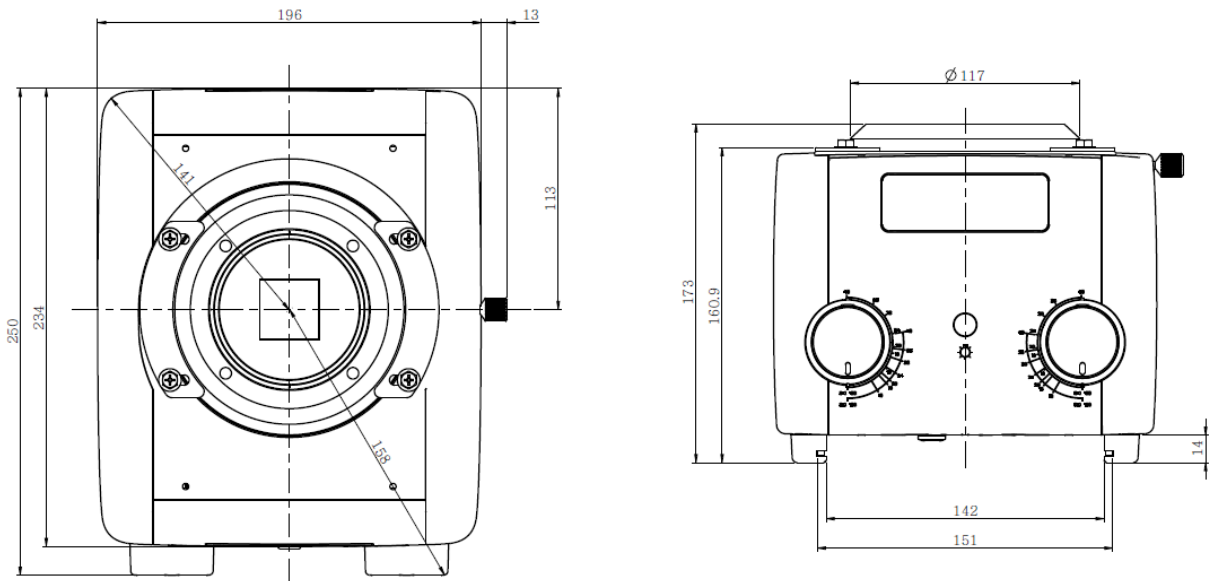
(Model: E7239X, E7242X, DXT-8M, DXT-10M, DXT-11M, DXT-12M, E7876X, E7884X)

Unit: mm



Collimator (Model: R108/R108F)

Unit: mm



Collimator (Model: DXC-RML/DXC-RMH)

4. EXTERNAL VIEWS



TOPAZ (Basic type)



TOPAZ (Collapsible type)



Remote Control

REVISION HISTORY

Revision Number	Date	Description
0	OCT 25, 2012	First Edition
1	NOV 29, 2016	Change the design
2	OCT 15, 2019	Add the Detector(Mano Series)
3	JAN 16, 2020	Add VAREX Detector Software (XRpad2 3025 HWC-M, XRpad2 4336 HWC-M, XRpad2 4343 HWC-M) 3.2
4	MAR 30,2020	Apply Install for Mono wireless Type in USA
5	APR 17,2020	Add VIEWWORKS Detector
6	JUL 24, 2020	Add 9 preset function Add cobb's angle function Add tube & line enhancement function Add detector built-in charger function Add APR positioning guide function
7	OCT 12, 2020	Add built-in charger function
8	OCT 29, 2020	Added D button function Added Screen Locker function Added Auto ROI function Added ROI Masking function Added Authority setting function Added Patient information tag deletion function Added Altumira Processing Type function
9	MAR 17, 2021	Separate Accessory and Options Added section 2.11 APPLICABLE STANDARDS 1) ME Equipment classification Application of new TOPAZ ARM and COLUMN
10	APR 30, 2021	Mars1417X , Mars1717X detector added
11	OCT 15, 2021	Change Remote Control Membrane
12	DEC 22, 2021	Changes of 21.5 Inch Monitor Add the Live stream camera
13	FEB 25, 2022	Delete Section 2.7 Application Standard Luna1012X detector added

14	APR 28, 2022	Add the Audit Trail Add the Patient movement alarm Lumen2530W, Lumen4336W, Lumen4343W detector added
15	NOV 25, 2022	Added Collapsible column (Optional)
16	FEB 27, 2023	Add the Polygon ROI Function Add Image Processing parameter individual save Add support for 9 body sizes
17	MAY 31, 2023	Detector name change (PaxScan4343W -> 4343W(Basic), 4343W -> 4343W(Lumen), Lumen2530W -> 2530W-G5, Lumen4336W -> 4336W-G5) Obtained Luna Detector FDA, NRTL (CSA mark) certification. Relevant countries available for sale