



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0868

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☒ New ☐ Renewal

Manufacturer Information

Manufacturer: Samsung Electronics Co.,Ltd.

Manufacturer's Technical Representative: Dongwook Shin

Mailing Address: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea

Telephone: +82-2-2194-5422

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Product Information

Product Name: Diagnostic X-Ray System

Product Model Number(s): GF85-SP/GF85-3P

Product Category: Fluoroscopy and Radiography Systems

Product Sub-Category: Fluoroscopy and Radiography Systems

General Description: Diagnostic X-Ray System

Mounting Description: Base Mounted Rigid

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: Pre Compliance

Contact Person: Galen Reid

Mailing Address: 324 NW Hill St., Bend, OR 97703

Telephone: (541) 241-2310

Email: galen@go-pre.com

Title: Principal & Program Manager



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California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: PRE COMPLIANCE

Name: Andrew Coughlin

California License Number: S6082

Mailing Address: 324 NW Hill St, Bend, OR 97703

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Certification Method

☐ GR-63-Core

☒ ICC-ES AC156

☐ IEEE 344

☐ IEEE 693

☐ NEBS 3

☐ Other (Please Specify): _____

Testing Laboratory

Company Name: CHINA TELECOMMUNICATION TECHNOLOGY LABS (CTTL)

Contact Person: Ying Deng

Mailing Address: 299 Tengfei Road, Lianchi District, Baoding City Hebei Province 000000

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Email: dengying1@caict.ac.cn

BY: Mohammad Karim

DATE: 11/21/2025



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Seismic Parameters

Certified Response Spectral Acceleration Factors: (F_p/W_p)

Horizontal (A Flx-H), $g =$ 3.20 (A Rig-H), $g =$ 2.15

Vertical (A Flx-V), $g =$ 1.67 (A Rig-V), $g =$ 0.67

SDS (Design spectral response acceleration at short period, g) = 2.50 @ $z/h = 0$; 2.00 @ $z/h = 1$

H_f (Force amplification height factor) = 1 @ $z/h = 0$; 3.5 @ $z/h = 1$

R_u (Structure ductility reduction factor) = 1 @ $z/h = 0$; 1.3 @ $z/h = 1$

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 0 and 1

HCAI Approval (For Office Use Only) - Approval Expires on 11/21/2031

Date: 11/21/2025

Name: Mohammad Karim

Title: Supervisor, Health Facilities

Condition of Approval (if applicable): _____

OSP-0868

BY: Mohammad Karim

DATE: 11/21/2025





Manufacturer:	Samsung Electronics Co., Ltd.
Product Type:	Fluoroscopy and Radiography Systems
Model Line:	Diagnostic X-Ray System

$S_{DS} = 2.00g$ for $z/h=1$	$R_\mu=1.3, H_f=3.5$	$I_p=1.5$
$S_{DS} = 2.50g$ for $z/h=0$	$R_u=1.0, H_f=1.0$	

CBC 2025

Mounting Configuration: Base Mounted - Rigid

Notes:

¹Wall stands are rigid base mounted and rigid wall mounted at top of stand.

²This does not account for the 770 lbs. of patient weight used during test.

³Dimensions and weights are inclusive of all included components in assembly.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENTS

Manufacturer: Samsung Electronics Co., Ltd.
Product Type: Fluoroscopy and Radiography Systems
Model Line: Diagnostic X-Ray System

Seismic Parameters

$S_{DS} = 2.00g$ for $z/h=1$ $R_{\mu}=1.3$, $H_f=3.5$
 $S_{DS} = 2.50g$ for $z/h=0$ $R_{\mu}=1.0$, $H_f=1.0$

Building Codes

CBC 2025

TABLE 2

Table Description: System Components

Component	Model	Dimensions (in)			Wt. (lb)	Notes	UUT
		D	W	H			
Tube	E7254FX	18.2	7.9	7.9	44		1
	E7252X	18.7	7.9	7.9	40		Interp.
	E7843X	18.9	7.9	7.1	35		2
Tube Stand Rails	MI97-06094D	150.4	17.9	2.0	287	3.8m Rail	1
	MI97-06094C	122.8	17.9	2.0	240	3.1m Rail	Interp.
	MI97-06094A	103.1	17.9	2.0	162	2.6m Rail	Interp.
	MI97-06094B	79.5	17.9	2.0	152	2.0m Rail	2
Collimators	SDR-OGCL20P (CRUX RF10-FR08)	8.0	11.5	6.1	19	Auto	1
	SDR-OGCL21P (CRUX 110i(SA))	8.0	9.1	5.5	17	Manual	2
Detectors	S4335-AW	18.1	15.1	0.6	7		Interp.
	S4335-AWM	18.1	15.1	0.6	7		Interp.
	F4335-AW	18.1	15.1	0.6	4		4
	S4335-W	18.1	15.1	0.6	7		Interp.
	S4343-AW	18.1	18.1	0.6	8		Interp.
	S4343-AWM	18.1	18.1	0.6	8		3,5
	F4343-AW	18.1	18.1	0.6	6		Interp.
	S4343-W	18.1	18.1	0.6	8		Interp.
System Cabinets	SDR-OGCA20P	19.7	15.9	17.8	87	System Cabinet (for GF85-3P)	6b
	SDR-OGCA21P	19.7	15.9	17.8	87	System Cabinet (for GF85-SP)	7
High Voltage Generator (HVG)	Cetus 80R01 / Cetus 65R01 / Cetus 50R01	17.9	14.1	18.1	90	HVG (for GF85-3P)	6c
	Cetus 40R03	17.9	14.1	18.1	90	HVG (for GF85-SP)	8b
	SDR-OGHR20Q	25.7	24.2	23.7	108	HVG Rack	6a,8a
Workstations	DELL 7000 (MI59-01384A)	1.4	7.2	6.8	2	Workstation (PC)	12,14
	DIR-850L	0.8	0.5	0.1	0.2	AP	13,15

SPECIAL SEISMIC CERTIFICATION TESTING SUMMARY

UUT	Model	Test Report	Test Laboratory	Test Date	S _{DS}	z/h	R _μ	H _f	I _p
1	Tube Stand (3.8m rail)	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
2	Tube Stand (2.0m rail)	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
3	Wall Stand (Tilting)	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
4	Wall Stand (Slim)	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
5	Patient Table	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
6	SDR-OGCA20P + SDR-OGHR20Q + Cetus 80R01/65R01/50R01	25T04X81124-001 (UUTs 6, 8, & 10)	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
6a	HVG Rack	25T04X81124-001 (UUT10)	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
6b	System Cabinet (for GF85-3P)	25T04X81124-001 (UUT6)	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
6c	HVG (for GF85-3P)	25T04X81124-001 (UUT8)	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
7	System Cabinet (for GF85-SP)	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
8	Cetus 40R03 + SDR-OGHR20Q	25T04X81124-001 (UUTs 9 & 11)	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
8a	SDR-OGHR20Q	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
8b	Cetus 40R03	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
UUT 9-11 NOT USED									
12	Work Station (PC)	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
13	AP	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
14	Work Station (PC)	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5
15	AP	25T04X81124-001	CAICT	July 18-25, 2025	2.0 2.5	1 0	1.3 1.0	3.5 1.0	1.5



UUT 1

Test Report# 25T04X81124-001

S_{DS}	z/h	Highest Passed Test Level						
		R_μ	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
3.13	2.74	10.94

[illegible]

Notes:

²UUT was tested under normal operating conditions.



UUT 2

Test Report# 25T04X81124-001

S_{DS}	z/h	Highest Passed Test Level						
		R_μ	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
3.13	2.77	11.72

[illegible]

Notes:

¹Dimensions and weight listed here represent the maximum outside measurements and total weight of all included components.

²UUT was tested under normal operating conditions.



UUT 3

Test Report# 25T04X81124-001

		Highest Passed Test Level						
S_{DS}	z/h	R_μ	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
14.3	6.25	16.07

UUT Mounting Details:	List of Included Subcomponents
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Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per

¹Dimensions and weight listed here represent the maximum outside measurements and total weight of all included components.

²UUT was tested under normal operating conditions.

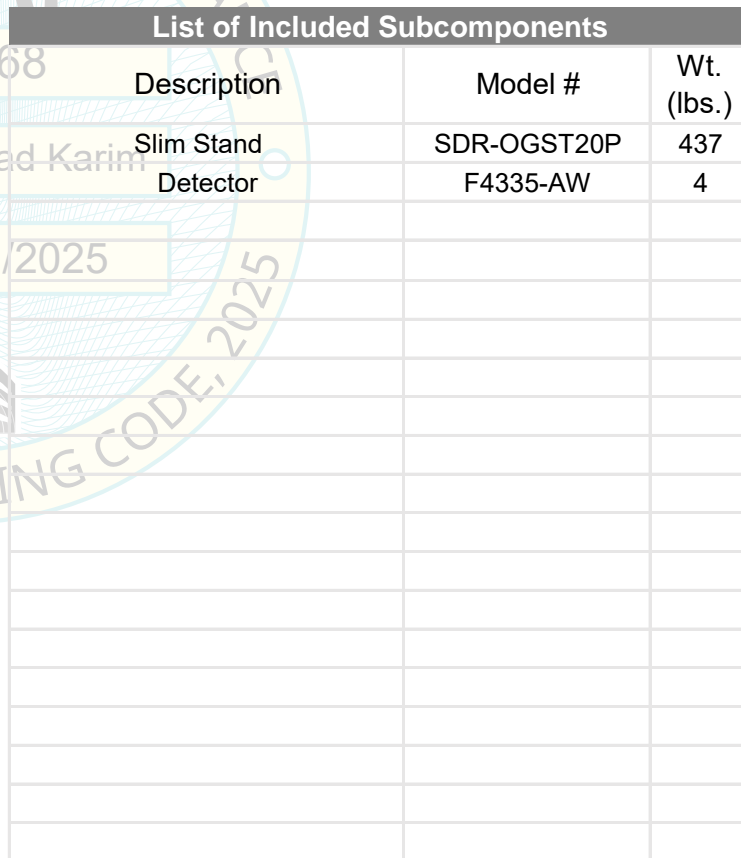


UUT 4

Test Report# 25T04X81124-001

S _{DS}	z/h	Highest Passed Test Level						
		R _μ	H _f	I _p	A _{flx-h}	A _{rig-h}	A _{flx-v}	A _{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
15.29	16.03	23.79

[illegible]

Notes:

¹Dimensions and weight listed here represent the maximum outside measurements and total weight of all included components.

²UUT was tested under normal operating conditions.



UUT 5

Test Report# 25T04X81124-001

S_{DS}	z/h	Highest Passed Test Level						
		R_μ	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
4.3	>33.3	9.77

UUT Mounting Details:	List of Included Subcomponents
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[illegible]

Notes:

¹Weight listed includes 770 lbs. of simulated patient weight.

²UUT was tested under normal operating conditions.



UUT 6

Test Report# 25T04X81124-001
(UUTs 6, 8, & 10)

Manufacturer: Samsung Electronics Co., Ltd.
Model Line: Diagnostic X-Ray System
Model: SDR-OGCA20P + SDR-OGHR20Q + Cetus
80R01/65R01/50R01

S_{DS}	z/h	R_μ	H_f	I_p	$A_{\text{flx-h}}$	$A_{\text{rig-h}}$	$A_{\text{flx-v}}$	$A_{\text{rig-v}}$
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)

Depth (in)	Width (in)	Height (in)	Weight (lbs.)
25.7	24.2	41.4	285

Front-Back	Side-Side	Vertical
15.63	21.1	≥ 33.3

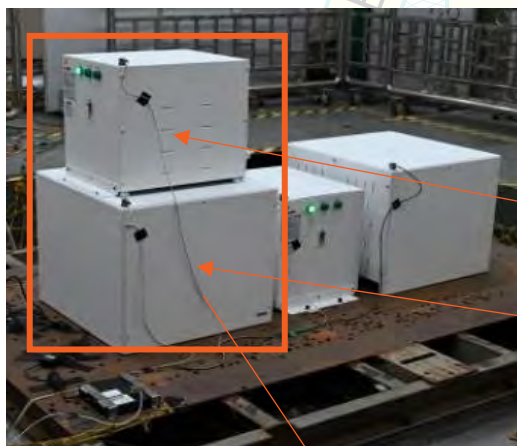
Construction/Option Summary

CBC 2025

ICC-ES AC156

Constructed of Carbon Steel.

List of Included Subcomponents



UUT6c

[illegible]

UUT6 was rigid base mounted using (4) Grade 8.8 M10 screws.

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.

Notes:

¹Weight listed is total of all components included in UUT6 (6a-6c).



UUT 6a

Test Report# 25T04X81124-001
(UUT10)

Manufacturer: Samsung Electronics Co., Ltd.
Model Line: Diagnostic X-Ray System
Model: HVG Rack
Serial Number: N/A

Highest Passed Test Level

S_{DS}	z/h	R_μ	H_f	I_p	$A_{\text{flx-h}}$	$A_{\text{rig-h}}$	$A_{\text{flx-v}}$	$A_{\text{rig-v}}$
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Dimensions/Weights

Depth (in)	Width (in)	Height (in)	Weight (lbs.)
25.7	24.2	23.7	195

Lowest Natural Frequency (Hz)

Front-Back	Side-Side	Vertical
>33.3	21.1	>33.3

Building Codes

CBC 2025

Test Criteria

ICC-ES AC156

Construction/Option Summary

Constructed of Carbon Steel.

UUT Mounting Details:

List of Included Subcomponents

[illegible]

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



Pre No. CC251700-01-R0

Test Report# 25T04X81124-001
(UUT6)

		Highest Passed Test Level						
S_{DS}	z/h	R_μ	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
15.63	21.1	>33.3

Building Codes	Test Criteria	Construction/Option Summary
CBC 2025	ICC-ES AC156	Constructed of Carbon Steel.

List of Included Subcomponents



UUT6b was rigid base mounted to UUT6 using (4) Grade 8.8 M10 screws.
Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



UUT 6c

Test Report# 25T04X81124-001
(UUT8)

Serial Number: N/A

2.5 0 1.0 1.0 1.5 3.20 2.15 1.67 0.67

17.9 14.1 18.1 90

>33.3 21.1 >33.3

CBC 2025

ICC-ES AC156

Constructed of Carbon Steel.



UUT6c

Wt.
(lbs.)

HVG (for GF85-3P)

Cetus 80R01 /
Cetus 65R01 /
Cetus 50R01

90

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



UUT 7

Test Report# 25T04X81124-001

S_{DS}	z/h	Highest Passed Test Level						
		R_μ	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
>33.3	>33.3	>33.3

UUT Mounting Details:	List of Included Subcomponents
<p>UUT Part Number: [Blank]</p> <p>UUT Description: [Blank]</p> <p>UUT Quantity: [Blank]</p> <p>UUT Location: [Blank]</p> <p>UUT Orientation: [Blank]</p> <p>UUT Weight: [Blank]</p> <p>UUT Dimensions: [Blank]</p> <p>UUT Material: [Blank]</p> <p>UUT Finish: [Blank]</p> <p>UUT Color: [Blank]</p> <p>UUT Notes: [Blank]</p>	<p>Subcomponent Name: [Blank]</p> <p>Subcomponent Description: [Blank]</p> <p>Subcomponent Quantity: [Blank]</p> <p>Subcomponent Location: [Blank]</p> <p>Subcomponent Orientation: [Blank]</p> <p>Subcomponent Weight: [Blank]</p> <p>Subcomponent Dimensions: [Blank]</p> <p>Subcomponent Material: [Blank]</p> <p>Subcomponent Finish: [Blank]</p> <p>Subcomponent Color: [Blank]</p> <p>Subcomponent Notes: [Blank]</p>

[illegible]

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



UUT 8

Test Report# 25T04X81124-001
(UUTs 9 & 11)

S _{DS}	z/h	Highest Passed Test Level						
		R _μ	H _f	I _p	A _{flx-h}	A _{rig-h}	A _{flx-v}	A _{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
>33.3	>33.3	>33.3

Construction/Option Summary

Constructed of Carbon Steel.

List of Included Subcomponents

[illegible]

Notes:

¹Weight listed is total of all components included in UUT8 (8a & 8b).



Test Report# 25T04X81124-001
(UUT11)



UUT 8b

Manufacturer: Samsung Electronics Co., Ltd.
Model Line: Diagnostic X-Ray System
Model: HVG (for GF85-SP)
Serial Number: N/A

S_{DS}	z/h	R_{μ}	H_f	I_p	$A_{\text{filx-h}}$	$A_{\text{rig-h}}$	$A_{\text{filx-v}}$	$A_{\text{rig-v}}$
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Depth (in)	Width (in)	Height (in)	Weight (lbs.)
17.9	14.1	18.1	90

Front-Back	Side-Side	Vertical
>33.3	>33.3	>33.3

CBC 2025

ICC-ES AC156

Constructed of Carbon Steel.



UUT9

Description

HVG (for GF85-SP)

Model #

Cetus 40R03

Wt.
(lbs.)

90

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.

Note: UUT was tested under normal operating conditions.



UUT 12

Test Report# 25T04X81124-001

		Highest Passed Test Level						
S_{DS}	z/h	R_{μ}	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
>33.3	>33.3	>33.3

[illegible]

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



UUT 13

Test Report# 25T04X81124-001

Serial Number: N/A

S_{DS}	z/h	R_μ	H_f	I_p	$A_{\text{flx-h}}$	$A_{\text{rig-h}}$	$A_{\text{flx-v}}$	$A_{\text{rig-v}}$
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Depth (in)	Width (in)	Height (in)	Weight (lbs.)
0.8	0.5	0.1	0.2

Front-Back	Side-Side	Vertical
>33.3	>33.3	>33.3

CBC 2025

ICC-ES AC156

Plastic

Wt. (lbs.)
0.2

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.

SPECIAL SEISMIC CERTIFICATION UUT SUMMARY

UUT 14

Test Report# 25T04X81124-001


Manufacturer: Samsung Electronics Co., Ltd.
Model Line: Diagnostic X-Ray System
Model: Workstation (PC)
Serial Number: N/A

Highest Passed Test Level									
S_{DS}	z/h	R_{μ}	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}	
2.0	1	1.3	3.5						
2.5	0	1.0	1.0	1.5	3.20	2.15	1.67	0.67	

Dimensions/Weights			
Depth (in)	Width (in)	Height (in)	Weight (lbs.)
1.4	7.2	6.8	2

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
>33.3	>33.3	>33.3

Building Codes	Test Criteria	Construction/Option Summary
CBC 2025	ICC-ES AC156	Steel and Plastic

UUT Mounting Details:	List of Included Subcomponents		
	Description	Model #	Wt. (lbs.)
	OSP-0868		
	Workstation (PC)	DELL 7000 (MI59-01384A)	2

UUT was rigid base mounted using a 1" x 4" piece of Velcro tape.
Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.



UUT 15

Test Report# 25T04X81124-001

Highest Passed Test Level								
S_{DS}	z/h	R_μ	H_f	I_p	A_{flx-h}	A_{rig-h}	A_{flx-v}	A_{rig-v}
2.0	1	1.3	3.5	1.5	3.20	2.15	1.67	0.67
2.5	0	1.0	1.0					

Lowest Natural Frequency (Hz)		
Front-Back	Side-Side	Vertical
>33.3	>33.3	>33.3

[illegible]

Unit maintained structural integrity and remained operational per manufacturer requirement following shake table test. All contents were included in the unit per operating conditions.