



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: OSP-0678

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Canon Medical Systems Corporation

Manufacturer's Technical Representative: Krystal Ouren

Mailing Address: 2441 Michelle Drive, Tustin, CA 92780

Telephone: On File Email: On File

Product Information

Product Name: CT Systems

Product Type: NA

Product Model Number: Aquilion Lightning 40/80/160

General Description: Multiple component systems for the provision of Computed Tomography (CT) medical imaging. Seismic Certification is limited to the systems and components identified in component table.

Mounting Description: See Certified Product Tables

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

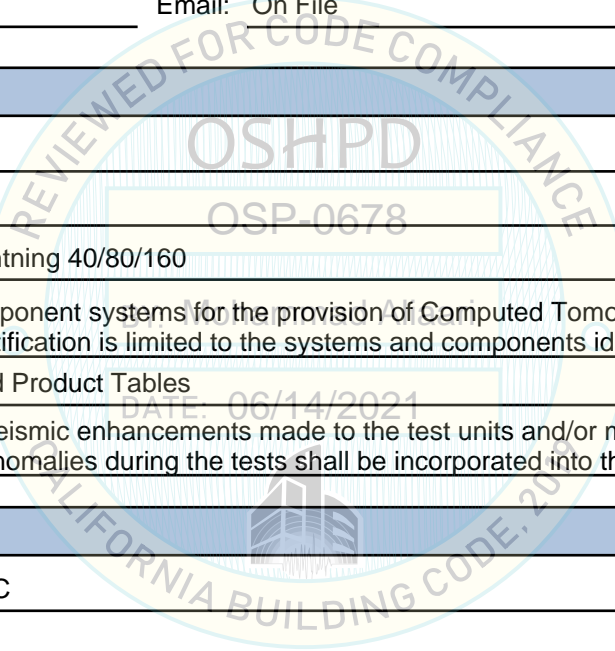
Applicant Company Name: EASE LLC

Contact Person: Jonathan Roberson

Mailing Address: 5877 Pine Ave., Suite 210, Chino Hills, CA 91709

Telephone: (909) 606-7622 Email: jon@easeco.com

Title: Principal Engineer





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

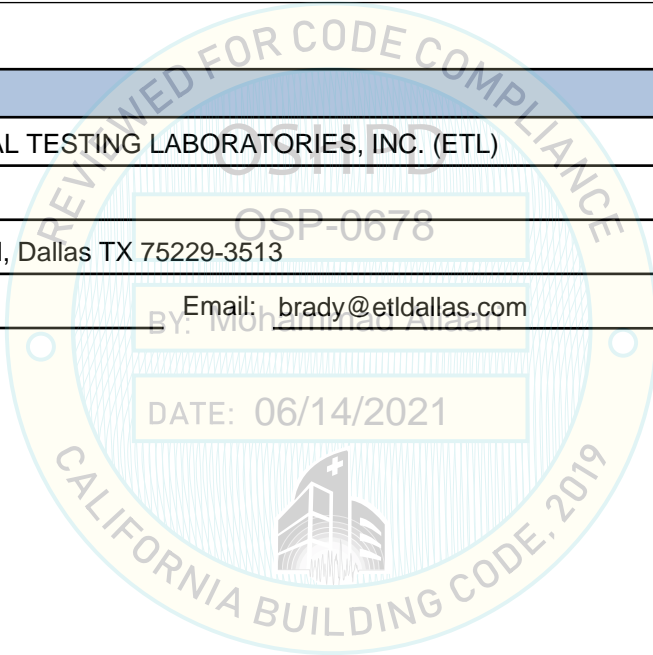
Company Name: EASE
Name: Jonathan Roberson California License Number: S4197
Mailing Address: 5877 Pine Ave., Suite 210, Chino Hills, CA 91709
Telephone: (951) 295-1892 Email: jon@EASECo.com

Certification Method

GR-63-Core ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3
 Other (Please Specify): _____

Testing Laboratory

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)
Contact Person: Brady Richard
Mailing Address: 11034 Indian Trail, Dallas TX 75229-3513
Telephone: (972) 247-9657 Email: brady@etldallas.com





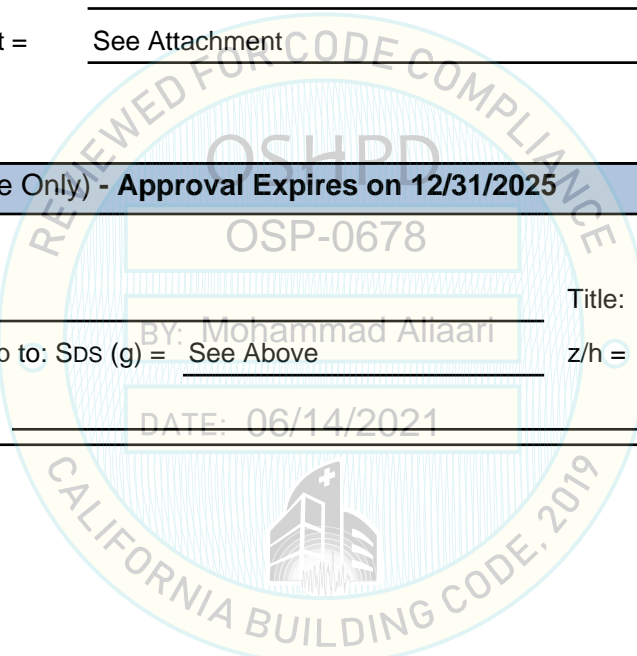
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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) =	See Certified Product Tables
SDS (Design spectral response acceleration at short period, g) =	2.0 at z/h = 1 & 2.5 at z/h = 0
a_p (Amplification factor) =	See Certified Product Tables
R_p (Response modification factor) =	See Certified Product Tables
Ω_0 (System overstrength factor) =	2.0
I_p (Importance factor) =	1.5
z/h (Height ratio factor) =	1 and 0
Natural frequencies (Hz) =	See Attachment
Overall dimensions and weight =	See Attachment

OSHPD Approval (For Office Use Only) - Approval Expires on 12/31/2025

Date:	6/14/2021		
Name:	Mohammad Aliaari	Title:	Senior Structural Engineer
Special Seismic Certification Valid Up to: SDS (g) =	See Above	z/h =	See Above
Condition of Approval (if applicable):	DATE: 06/14/2021		



ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

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TABLE 1:

Manufacturer		CANON MEDICAL SYSTEMS CORPORATION							S _{DS} = 2.0 at z/h = 1 S _{DS} = 2.5 at z/h = 0			
System		Aquilion Lightning 40/80/160 (TSX-036A/7)										
Component	Model No.	Approx. Dimensions [in]			Wt. [lb]	Mount	Basis ^[1]	F _p /W _p	a _p	R _p	Ω ₀	
		W	D	H								
CT GANTRIES												
Aquilion CT Scanner Gantry – Type E ^[2]	CGGT-037A/1D	80.7	37.8	75.2	3197	Rigid Base	UUT-1703-1	2.40	1	1 ½	2	
Aquilion CT Scanner Gantry – Type E ^[2]	CGGT-037A/2D	80.7	37.8	75.2	3197	Rigid Base	INT	2.40	1	1 ½	2	
Aquilion CT Scanner Gantry – Type G	CGGT-039A/1A	89.4	37.8	75.8	5171	Rigid Base	UUT-1906-2	2.40	1	1 ½	2	
w/ Optional Gantry Rear Operating Panel Kit	CAGP-003A/2B											
w/ Optional Area Finder	CGAP-001A/1B											
PATIENT COUCHES												
Patient Couch – High Capacity – Extended ^[3]	CBTB-032A/7A	26	113.8 - 197.7	18.5 - 41.0	1512 ^[4]	Rigid Base	SAME AS UUT-1303-2A	2.40	1	1 ½	2	
Patient Couch – High Capacity – Extended	CBTB-032A/7A	26	113.8 - 197.7	18.5 - 41.0	1512	Rigid Base	INT	2.40	1	1 ½	2	
w/ Lateral Movement Kit	CALU-001A/5B	---	---	3.5	396							
Patient Couch – High Capacity – Compact	CBTB-032B/7A	26	94.1 - 158.4	18.5 - 41.0	1445	Rigid Base	INT	2.40	1	1 ½	2	
w/ Lateral Movement Kit	CALU-001A/5B	---	---	3.5	396							
Patient Couch – High Capacity – Compact ^[3]	CBTB-032B/7A	26	94.1 - 158.4	18.5 - 41.0	1445	Rigid Base	INT	2.40	1	1 ½	2	
Patient Couch – High Capacity – Extended	CBTB-021A/1A	26	113.8 - 197.7	18.5 - 44.4	1486 ^[4]	Rigid Base	UUT-1103-A1	2.40	1	1 ½	2	
w/ Lateral Movement Kit	CALU-001A/1C	---	---	3.5	396							
CONSOLE COMPONENTS												
Con Box - Type B ^[5]	CKCN-020C/1B	23.2	37.6	53.7	617	Rigid Base	UUT-2002-7	1.44	1	2 ½	2	
Con Box - Type B ^[5]	CKCN-020C/1B	23.2	37.6	53.7	651	Rigid Base	UUT-2002-8	1.44	1	2 ½	2	
w/ Display Console Kit	CGS-72B/1B											
NAVI Box – Type A ^[6]	CKCN-020C/1B	7.9	12.2	13.8	28	CTA	SAME AS UUT-1901-4	1.44	1	2 ½	2	


Table continues next page


ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

TABLE 1:

<i>Manufacturer</i>		CANON MEDICAL SYSTEMS CORPORATION								S_{DS} = 2.0 at z/h = 1	
<i>System</i>		Aquilion Lightning 40/80/160 (TSX-036A/7)								S_{DS} = 2.5 at z/h = 0	
Component	Model No.	Approx. Dimensions [in]			Wt. [lb]	Mount	Basis ^[1]	F _p /W _p	a _p	R _p	Ω ₀
		W	D	H							
POWER DISTRIBUTION											
Power Distributor – Type E	CETF-016A/1A	27.6	27.4	38.3	1105	Rigid Base	SAME AS ^[7] UUT-1603-11	1.44	1	2 ½	2
w/ UPS Kit for Power Distributor	CEUC-001B/3B										
USER INTERFACE											
Monitor (Mfr: EIZO)	MX-192	16.3	8.1	16.1 - 21.5	13	CTA	UUT-1603-6	1.44	1	2 ½	2
Keyboard (scan) ^[6]	BSX74-2866-01*D	21	9.25	3.0	7	CTA	SAME AS UUT-1901-8	1.44	1	2 ½	2
Keyboard (display) ^[6]	BSX74-2866-02*D	21	9.25	3.0	7	CTA	SAME AS UUT-1603-13	1.44	1	2 ½	2
<i>Mount</i>	<u>Rigid Base:</u> free-standing, base-mounted configuration with the component rigidly attached to a supporting structure and no lateral support above the base. <u>CTA (Countertop Anchored):</u> refers to a condition where the unit is anchored to a counter, desk, or other piece of rigid fixed furniture.										
<i>Notes</i>	<ol style="list-style-type: none"> BASIS: <ul style="list-style-type: none"> “UUT-#” indicates that a test specimen matching these characteristics was tested as part of a seismic test program. “SAME” indicates component is physically, mechanically, and electrically the same as another test specimen with differences limited to model number, color, and/or software. “INT” (Interpolated or Extrapolated) indicates model of equipment not specifically tested for which seismic qualification is established through testing of similar models in the product line. Gantry – Type E requires the use of Seismic Kits P/N: CAFP-001A/2B and P/N: ANC-CA-LIGHTNING Patient Couch – High Capacity (without Lateral Kit) requires the use of Seismic Kit P/N: ANC-CA-CBTB032 Patient Couch weight does not include 660 lb Max Patient Load. Con Box – Type B requires the use of Seismic Kit P/N: ANC-CA-002COX Component requires the use of seismic kit P/N: ANC-CA-002NAVI Power Distributor – Type E (CETF-016A/1A) contains all tested hardware of UUT-1603-11 (CETF-013A/1A including seismic kit hardware) as standard production and does not require a seismic kit. <i>Gray italic formatting indicates unit is not a component of system and used as basis for interpolation only.</i> 										


ATTACHMENT 2: TEST SPECIMEN SUMMARY


UUT-1103-A1 Patient Couch High Capacity w/ Couch Lateral Movement Kit									
MANUFACTURER: Toshiba Medical Systems Corporation (Now Canon Medical Systems Corporation)									
IDENTIFICATION: Model No.: CBTB-021A									
SUP Symbol: 1A									
Serial No.: N/A									
DESCRIPTION: Component of the Aquilion ONE [®] CT Scanner System. *Note: Aquilion ONE renamed to Aquilion ONE 640 Series.									
MOUNTING: Rigid Base (Floor) Mounted: (6) - 5/8" Dia bolts to interface plate									
PROPERTIES:									
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)					
Width	Depth	Height	Weight (lb.)	F/B AXIS	S/S AXIS	VERT AXIS	OFF-AXIS		
26"	113.8 min. – 197.7 max.	18.5" min. – 44.4" max.	1882 lbs + 660 lb simulated patient load.	4.9	2.8	8.5	1.8		
SHAKE TABLE TEST PARAMETERS									
CODE	TEST CRITERIA	S _{DS}	z/h	I _P	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}	
CBC 2019	ICC-ES AC156	2.6	1.0	1.5	4.16	3.12	1.74	0.70	
Unit satisfied ICC-ES AC-156 requirements for structural integrity and function following Multifrequency Seismic test phase.									

UUT-1303-2A Patient Couch – High Capacity Extended									
MANUFACTURER: Toshiba Medical Systems Corporation (Now Canon Medical Systems Corporation)									
IDENTIFICATION: Model No.: CBTB-032A SUP Symbol: /1A									
S/N: 1AA1362015									
DESCRIPTION: Component of the Aquilion PRIME System. Also common to other Aquilion CT systems Included required seismic kit P/N: ANC-CA-CBTB032									
MOUNTING: Rigid Base (Floor) Mounted: (6) – 5/8" dia. Grade 8 Hex Head Bolts to aluminum interface plate.									
PROPERTIES:									
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)					
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis			
26	113.75 min – 197.9 max	18.5 min – 41 max	1512 + 660 Patient Load	2.8	14.0	6.1			
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS									
S _{DS} (G)	z/h	I _P	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}	CODE: 2019 CBC		
2.6	1.0	1.5	4.16	3.12	1.74	0.70			
Unit satisfied ICC-ES AC-156 requirements for structural integrity and function following Multifrequency Seismic test phase.									


ATTACHMENT 2: TEST SPECIMEN SUMMARY


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UUT-1603-6 Monitor (EIZO)						
MANUFACTURER: EIZO						
IDENTIFICATION: Model No.: MX-192						
DESCRIPTION: Component common to all Aquilion CT systems. Unit full of contents during test.						
MOUNTING: Counter Top Anchor (CTA) mounted using (4) - #8 x 1" flat head construction screws w/ 15/32 O.D. countersink grommet into 3/4" thick plywood.						
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
16.3	8.1	16.1-21.5	13	4.7	5.5	23.7
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC
S _{DS} (G)	z/h	I _P	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)
2.6	1	1.5	4.16	3.12	1.74	0.70
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.						


UUT-1603-11 Power Distributor - Type E w/ UPS Kit for Power Distributor						
MANUFACTURER: Toshiba Medical Systems Corporation (Now Canon Medical Systems Corporation)						
IDENTIFICATION: Power Distributor CETF-013A/1A UPS Kit CEUC-001B/3B						
DESCRIPTION: Component of the Aquilion Lightning CT system. Seismic kit P/N: CAFF-001A/1B Unit full of contents during test.						
MOUNTING: Rigid Base (Floor) mounted using (6) - 1/2" dia SAE J429 Grade 8 bolts through manufacturer-provided mounting brackets w/ 1" O.D. & 1 5/16" O.D. stacked washers.						
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Side-Axis	Front-Axis	Vert-Axis
27.6	27.4	38.3	1105	15.5	>50	32.8
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC
S _{DS} (G)	z/h	I _P	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)
2.6	1	1.5	4.16	3.12	1.74	0.70
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.						

ATTACHMENT 2: TEST SPECIMEN SUMMARY


UUT-1603-13 Keyboard						
MANUFACTURER: Toshiba Medical Systems Corporation (Now Canon Medical Systems Corporation)						
IDENTIFICATION: Model No.: BSX74-2866-02*A						
DESCRIPTION: Component common to all Aquilion CT systems. Unit full of contents during test. Requires use of seismic kit P/N ANC-CA-002NAVI						
MOUNTING: Rigid Base mounted using (2) lines of 1" x 19" Velcro brand Industrial hook & loop tape space 5.5" apart applied to rear face of specimen and test plate.						
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Front -Axis	Side-Axis	Vert-Axis
21	9.25	3	7	31	42.5	26.8
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC
S _{DS} (G)	z/h	I _p	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)
2.6	1	1.5	4.16	3.12	1.74	0.70
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.						

UUT- 1703-1 Aquilion CT Scanner Gantry – Type E						
MANUFACTURER: Toshiba Medical Systems Corporation (Now Canon Medical Systems Corporation)						
IDENTIFICATION: Model No.: CGGT-037A/1D Serial No.: 1DA1772066						
DESCRIPTION: Component of the Aquilion Lightning 40/80/160 CT Scanner system. <u>Modifications to standard production unit:</u> Seismic kit (Model # CAFP-001A/2B & ANC-CA-LIGHTNING) provided and installed by Toshiba.						
MOUNTING: Rigid Base (Floor) Mounted using (10) – ¾" dia. SAE J429 Grade 8 Bolts w/ washers. (Torque- 110 ft-lb)						
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	Front-Axis	Side-Axis	Vert-Axis
80.7	37.8	75.2	3173	6.94	6.82	21.14
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC
S _{DS} (G)	z/h	I _p	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)
2.0 2.5	1 0	1.5	3.2	2.4	1.68	0.68
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.						


ATTACHMENT 2: TEST SPECIMEN SUMMARY


UUT-1901-4 NAVI Box – Type A						
MANUFACTURER: Canon Medical Systems Corporation						
IDENTIFICATION: Model No.: KCCN-019A / 1B S/N.: 1BB1667005						
DESCRIPTION: Component of the Aquilion Lightning 40/80/160 System Requires the use of seismic kit P/N: ANC-CA-002NAVI						
MOUNTING: <u>CTA (Countertop Attached) Mounted:</u> (4) – #10 panhead coarse thread sheet metal screws into 3/4" plywood						
PROPERTIES:						
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis
7.9	12.2	13.8	28	>50	45.16	44.46
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC
S _{DS} (G)	z/h	I _P	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)
2.0 2.5	1 0	1.5	3.20	2.40	1.68	0.68
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.						

DATE: 06/14/2021

UUT-1901-8 Keyboard						
MANUFACTURER: Canon Medical Systems Corporation						
IDENTIFICATION: Model No.: BSX74-2866-01*B S/N.: G5000234						
DESCRIPTION: Component of the Aquilion Lightning 40/80/160 CT System Requires use of seismic kit P/N ANC-CA-002NAVI						
MOUNTING: <u>Countertop Attached Mounted:</u> (2) 1" x 7.5" VELCRO BRAND INDUSTRIAL STRENGTH HOOK AND LOOP						
PROPERTIES:						
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis
20.5	3.5	9.5	6.5	>50	35.36	36.20
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC
S _{DS} (G)	z/h	I _P	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)
2.0 2.5	1 0	1.5	3.20	2.40	1.68	0.68
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.						


ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT-1906-2 Aquilion CT Scanner Gantry – Type G							
MANUFACTURER: Canon Medical Systems Corporation							
IDENTIFICATION: Model No.: CGGT-039A/1A S/N.: 1AA1967001							
DESCRIPTION: Component of the Aquilion Lightning 40/80/160 CT System Includes Rear Operating Panel Kit: Model No.: CAGP-003A/2B; S/N: 2BA1967001 Includes Area Finder: Model No.: CGAP-001A/1B; S/N: 1BB1967003							
MOUNTING: Rigid Base (Floor) Mounted: (6) – 3/4" dia. SAE J429 Grade 5 Hex Head Bolts to aluminum interface plate.							
PROPERTIES:							
DIMENSIONS (in.)				Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height			X-Axis	Y-Axis	Z-Axis
89.4	37.8	75.8	5171	7.42	8.73	11.15	
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC	
S _{DS} (G)	z/h	I _P	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)	
2.0 2.5	1 0	1.5	3.20	2.40	1.68	0.68	
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.							

UUT-2002-7 Con Box – Type B							
MANUFACTURER: Canon Medical Systems Corporation							
IDENTIFICATION: Model No.: CKCN-020C / 1B S/N.: 1BA1977001							
DESCRIPTION: Component of the Aquilion Lightning 40/80/160 CT System Requires Seismic Kit P/N: ANC-CA-002COX							
MOUNTING: Rigid Base (Floor) Mounted: (4) – 3/8" dia. SAE J429 Grade 5 Hex Head Bolts to aluminum interface plate.							
PROPERTIES:							
DIMENSIONS (in.)				Weight (lb.)	LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height			X-Axis	Y-Axis	Z-Axis
23.2	37.6	53.7	617	> 50	22.90	13.21	
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC	
S _{DS} (G)	z/h	I _P	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)	
2.0 2.5	1 0	1.5	3.20	2.40	1.68	0.68	
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.							

ATTACHMENT 2: TEST SPECIMEN SUMMARY

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UUT-2002-8 Con Box - Type B w/ Optional Display Console Kit						
MANUFACTURER: Canon Medical Systems Corporation						
IDENTIFICATION: Model No.: CKCN-020C / 1B S/N.: 1BA1977001						
DESCRIPTION: Component of the Aquilion Lightning 40/80/160 CT System <u>Includes Optional Display Console Kit</u> Model No.: CGS-72B / 1B; Serial No.: 1BA1977001 Requires Seismic Kit P/N: ANC-CA-002COX						
MOUNTING: <u>Rigid Base (Floor) Mounted:</u> (4) – 3/8" dia. SAE J429 Grade 5 Hex Head Bolts to aluminum interface plate.						
PROPERTIES:						
DIMENSIONS (in.)				LOWEST RESONANT FREQUENCY (Hz.)		
Width	Depth	Height	Weight (lb.)	X-Axis	Y-Axis	Z-Axis
23.2	37.6	53.7	652	> 50	19.05	12.36
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC
S _{Ds} (G)	z/h	I _p	A _{FLX-H} (G)	A _{RIG-H} (G)	A _{FLX-V} (G)	A _{RIG-V} (G)
2.0 2.5	1 0	1.5	3.20	2.40	1.68	0.68
Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.						

DATE: 06/14/2021

