APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0646

OSHPD Special Seismic Certification Preapproval (OSP)

Type: [X] New [ ] Renewal

Manufacturer Information

Manufacturer: KONE

Manufacturer's Technical Representative: Jorge Torres

Mailing Address: 450 Century Parkway, Allen, TX 75013

Telephone: ON FILE Email: ON FILE

Product Information

Product Name: Elevator Equipment

Product Type: Elevator Controllers

Product Model Number: LCE Traction Elevator Logic and Drive Controller w/ KDM90 Drive

General Description: Electronic motion control system for the operation of people-moving elevators.

Mounting Description: Rigid, Floor/Wall Mounted

Applicant Information

Applicant Company Name: EASE

Contact Person: Jonathan Roberson

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

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

Title:

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 752293513

Telephone: (972) 247-9657 Email: brady@etldallas.com

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.44

S_{DS} (Design spectral response acceleration at short period, g) = 2.0

a_p (Amplification factor) = 1

R_p (Response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment 2

Overall dimensions and weight = See Attachment 1, Table 1

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

Date: 8/25/2020

Name: Timothy Piland Title: Senior Structural Engineer

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.00 z/h = 1

Condition of Approval (if applicable):

TABLE 1: CERTIFIED COMPONENTS

Manufacturer	**KONE**
Product Line	**LCE Traction Elevator Logic and Drive Controller w/KDM90 Drive**

COMPONENT	MODEL NO.	DIMENSIONS (IN.)			APPROX. WT. (LB.)	MOUNT	BASIS
		W	D	H			
KCM831 - LCE TRACTION ELEVATOR LOGIC AND DRIVE CONTROLLER WITH KDM90 DRIVE MODULE	KM51208374C01	24.5	13.6	79	365	Wall / Floor	UUT1807-1 UUT1807-2
ReSolve 400 - LCE TRACTION ELEVATOR LOGIC AND DRIVE CONTROLLER WITH KDM90 DRIVE MODULE	KM51208374C01	24.5	13.6	79	365	Wall / Floor	INT

Mount	Wall/Floor: combined rigid base and rigid wall mount configuration; base of unit bears on and is anchored to a supporting structure at its base. Additionally, unit is anchored above the base to a rigid wall structure.
Notes	1. BASIS: • UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program. • INT (Interpolate/Extrapolate): Indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line. 2. Seismic certification limited to components using subcomponents listed in Table 2.

TABLE 2: SEISMIC CERTIFIED SUBCOMPONENTS

SUBCOMPONENT DESCRIPTION	MANUFACTURER	PART NO.	MATERIAL	BASIS
CABINET, CONTROL PANEL (HCP)	KLOECKNER METALS CORPORATION	KM51208389C01	Galvannealed or Galvanized CRS	UUT1807-1 UUT1807-2
LOGIC PANEL consisting of	KONE Inc.	KM51208377C01	Assembly of	UUT1807-1 UUT1807-2
CONTROL MODULE, 230VAC W BYPASS	KONE Inc.	KM51208463G01	Galvanized CRS / Copper / Plastic / FR4 PCB	UUT1807-1 UUT1807-2
INTERCOM MODULE, KDL	KONE Inc.	KM996186G01	Galvanized CRS / Copper / Plastic / FR4 PCB	UUT1807-1 UUT1807-2
TRANSFORMER, CURRENT CONTROL 400V	Pacific Transformers Corp.	KM713383G01	Laminated Steel / Copper / Varnished / Open Core	UUT1807-1 UUT1807-2
PCB, LCEREC RECTIFIER MULTIFUSE	Eutron	KM713140G08	FR4 PCB	UUT1807-1 UUT1807-2
ASSEMBLY, EBR4 MX14/20 NMX14	KONE Inc.	KM51490275G02	Galvanized CRS / Copper / Plastic / FR4 PCB	UUT1807-1 UUT1807-2
MODULE OPT1, 1 INPUT ONLY AND 1 IO BOARD	KONE Inc.	KM51223522G01	Galvanized CRS / FR4 PCB	UUT1807-1 UUT1807-2
MODULE OPT1, 2 INPUT ONLY	KONE Inc.	KM51223522G03	Galvanized CRS / FR4 PCB	INT
MODULE, OPT2 W/EAQ&LCEOPT	KONE Inc.	KM51223521G01	Galvanized CRS / FR4 PCB	UUT1807-1 UUT1807-2
MODULE, LCEGTW	KONE Inc.	KM51223523G01	Galvanized CRS / FR4 PCB	UUT1807-2
MODULE, OPT2 W/TWO LCEGTWO	KONE Inc.	KM51223500G02	Galvanized CRS / FR4 PCB	UUT1807-2
ETSL MODULE, 1 BOARD	KONE Inc.	KM51223501G01	Galvanized CRS / FR4 PCB	UUT1807-1
ETSL MODULE, 2 BOARDS	KONE Inc.	KM51223501G02	Galvanized CRS / FR4 PCB	UUT1807-2
EXTRA OPTIONAL BOARD	KONE Inc.	KM51223502G01	Galvanized CRS / FR4 PCB	UUT1807-1 UUT1807-2
EXTRA OPTIONAL BOARD	KONE Inc.	KM51223502G01	Galvanized CRS / FR4 PCB	UUT1807-2
EXTRA OPTIONAL BOARD	KONE Inc.	KM51223502G01	Galvanized CRS / FR4 PCB	UUT1807-2
CABLE SET, LCE W/KDM	Unities Alliance Group	KM51208385C01	Copper / Plastic	UUT1807-1 UUT1807-2
POWER PANEL, LCE KDM consisting of	KONE Inc.	KM51208380C01	Assembly of	UUT1807-1 UUT1807-2
AC DRIVE, KR7 90A IP23	Vacon	KM997160	Galvanized CRS / Copper / Plastic / FR4 PCB	UUT1807-1 UUT1807-2
VENT HOOD FOR KDM	KLOECKNER METALS CORPORATION	KM51208408H01	Galvannealed or Galvanized CRS	UUT1807-1 UUT1807-2
KDA MODULE, BCM25, KDM90, MR, LCE, NA	Scanfil Suzhou	KM987078G14	Galvanized CRS / Copper / Plastic / FR4 PCB	UUT1807-1 UUT1807-2

Table continues on next page

TABLE 2: SEISMIC CERTIFIED SUBCOMPONENTS

SUBCOMPONENT DESCRIPTION	MANUFACTURER	PART NO.	MATERIAL	BASIS
KDA MODULE FOR ASYNC, NA	Scanfil Suzhou	KM1368628G14	Galvanized CRS / Copper / Plastic / FR4 PCB	UUT1403-1 UUT1403-2
TERMINAL MODULE, TB1 TO TB4	KONE Inc.	KM51208414G02	Galvanized CRS / Copper / Plastic / FR4 PCB	UUT1807-1 UUT1807-2
MODULE, FSP/TSD ES PHOENIX	Phoenix Contact	KM783040G01	Copper / Plastic	UUT1807-1 UUT1807-2
POWER MODULE, 24VDC	KONE Inc.	KM51223512G01	Galvanized CRS / Copper / Plastic / FR4 PCB	UUT1807-2
HIGH HARNESS, LOGIC TO JUNCTION BOX	Wallace Electronics	KM51196801V001	Galvanized CRS / Copper / Plastic	UUT1807-1 UUT1807-2
LOW HARNESS, LOGIC TO JUNCTION BOX	Wallace Electronics	KM51196800V001	Galvanized CRS / Copper / Plastic	UUT1807-1 UUT1807-2
TB2 KDM	Weidmuller	KM51208413G03	Galvanized CRS / Copper / Plastic	UUT1807-1 UUT1807-2
BRAKE CONTROL MODULE, 400V 10A MX32	Enics Eesti AS	KM825580G06	Formed Aluminum / Galvanized CRS / Copper / FR4 PCB	UUT1807-2
BRAKE CONTROL, KDHBCM for Geared Machine Brake	Enics Eesti AS	KM825580G05	Formed Aluminum / Galvanized CRS / Copper / FR4 PCB	UUT1403-2
AUTOTRANSFORMER, 230/120VAC	Trafomic Oy	KM808156	Laminated Steel / Copper / Varnished / Open Core	UUT1403-1 UUT1403-2
TRACTION LOSS RESET SWITCH	KONE Inc.	KM50071398G01	Galvanized CRS / Plastic	UUT1403-1 UUT1403-2
MODULE, BCXIFB, w/ Brake > 2.5 amps	Enics Finland Oy	KM50028924G01	Galvanized CRS / FR4 PCB	UUT1403-2

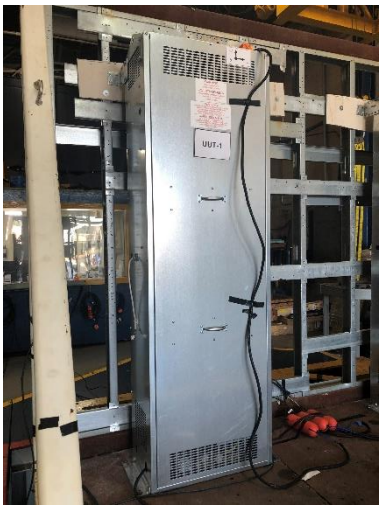
Notes

1. BASIS:
   - UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program.
   - INT (Interpolate/Extrapolate): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line.
   - PT: Indicates that a test specimen matching these characteristics was tested as part of a previous testing program. (UUT-#) further indicates UUT in the previous test report.
2. Seismic Certification is limited to subcomponents identified, when installed as part of a complete assembly of the equipment defined in Table 1.
3. CRS = Cold-Rolled Sheet-Steel.
4. FR4 PCB = Copper-clad, epoxy-fiberglass substrate, printed circuit board (PCB) material.

ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT1807-1 KCM 831 LCE Logic Drive Controller Assembly w/ KDM90 Drive (Min. Config.)

Manufacturer:	KONE
Identification:	Part No.: KM51208374C01 Serial No.: 43354852 (UUT-1)
Description:	See Attachment 1, Table 2.
Mounting:	Rigid Wall/Floor mount using: (4) – 3/8" diam. ASTM J429 Grade 5 bolts at base. (4) – 1/4" diam. HWH self-tapping, self-threading sheet metal screws through each of (2) –Top Brackets (KONE P/N: KM51634643V000) to 16 ga. steel backing plate (36T125-54).



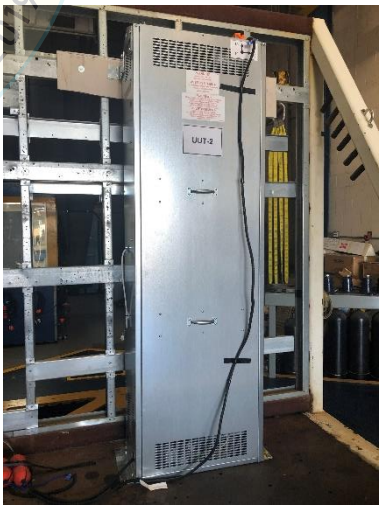
Dimensions (in.)				Lowest Resonant Frequency (Hz.)		
Width	Depth	Height	Weight (lb.)	(S/S) X-Axis	(F/B) Y-Axis	(Vert.) Z-Axis
24.5	13.6	79	355	7.93	8.61	22.20

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	1.0	1.5	3.2	2.4	1.34	0.54

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT1807-2 KCM 831 LCE Logic Drive Controller Assembly w/ KDM90 Drive (Max. Config.)

Manufacturer:	KONE
Identification:	Part No.: KM51208374C01 Serial No.: 43354852 (UUT-2)
Description:	See Attachment 1, Table 2.
Mounting:	Rigid Wall/Floor mount using: (4) – 3/8" diam. ASTM J429 Grade 5 bolts at base. (4) – 1/4" diam. HWH self-tapping, self-threading sheet metal screws through each of (2) –Top Brackets (KONE P/N: KM51634643V000) to 16 ga. steel backing plate (36T125-54).



Dimensions (in.)				Lowest Resonant Frequency (Hz.)		
Width	Depth	Height	Weight (lb.)	(S/S) X-Axis	(F/B) Y-Axis	(Vert.) Z-Axis
24.5	13.6	79	363	7.91	8.38	23.58

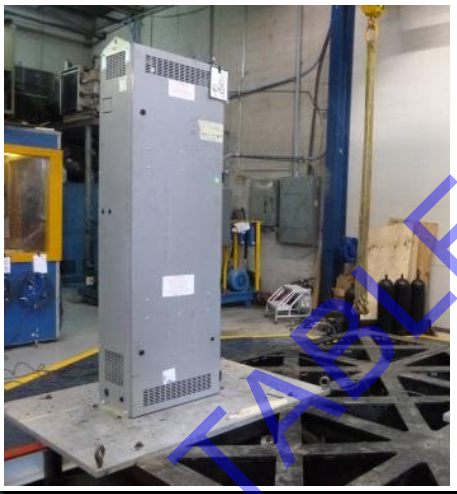
ICC-ES AC156 SHAKE TABLE TEST PARAMETERS						CODE: 2019 CBC
S_{DS} (G)	z/h	I_P	A_{FLX-H} (G)	A_{RIG-H} (G)	A_{FLX-V} (G)	A_{RIG-V} (G)
2.0	1.0	1.5	3.2	2.4	1.34	0.54

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT1403-1 ReSolve 400 LCE Logic and KDM90 Drive Controller Assembly

Manufacturer:	KONE Inc.
Identification:	Model No.: 50304404D20
Description:	ReSolve 400 LCE Logic and KDM90 Drive Controller Assembly: Inputs: Control: 208-480 Vac, 1-ph, 50/60 Hz, 6 A; Drive Input: 400Vac, 3-ph, 50/60 Hz, 82 A. Outputs: motor circuit 0 - 400 Vac, 3-ph, 0-250 Hz, 90 A nominal, 37 kW/50 hp at 360V, brake circuits (Main) 200 Vdc, 3 A pick, 1.5 A hold, (Secondary) 120 Vac, 1-ph, 50/60 hz, 6A; door circuit 230 Vac, 1-ph, 50/60 Hz; 6 A, safety circuit 120/230 Vac, 1-ph, 50/60 Hz; 1 A, logic circuits (3) 24 Vdc, 3 A.
Mounting:	Rigid Base mount using: (4) – 3/8" diam. ASTM A754 Allen head cap screws.



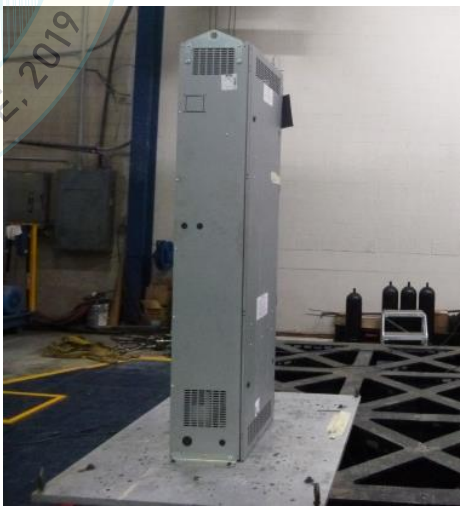
Dimensions (in.)			Weight (lb.)	Lowest Resonant Frequency (Hz.)		
Width	Depth	Height		(S/S) X-Axis	(F/B) Y-Axis	(Vert.) Z-Axis
24	14.5	79	373	5.8	5.9	14.9

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	1.0	1.5	3.2	2.4	1.34	0.54

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.

UUT1403-2 KCM 831 LCE Traction Elevator Logic and KDM90 Drive Controller Assembly

Manufacturer:	KONE Inc.
Identification:	Model No.: 50304404D20
Description:	KCM 831 LCE Traction Elevator Logic and KDM90 Drive Controller Assembly: Input: 400 Vac, 3-ph, 50/60 Hz, 82 A; Outputs: motor circuit 0 - 400 Vac, 3-ph, 0-250 Hz, 90 A nominal, 45 kW/60hp at 400V, brake circuits (2) 200 Vdc, 3 A pick, 1.5 A hold; door circuit 230 Vac, 1-ph, 50/60 Hz; 6 A, safety circuit 120/230 Vac, 1-ph, 50/60 Hz; 1 A, logic circuits (3) 24 Vdc, 3 A.
Mounting:	Rigid Base mount using: (4) – 3/8" diam. ASTM A754 Allen head cap screws.



Dimensions (in.)			Weight (lb.)	Lowest Resonant Frequency (Hz.)		
Width	Depth	Height		(S/S) X-Axis	(F/B) Y-Axis	(Vert.) Z-Axis
24	14.5	79	363	7.0	6.1	14.9

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	1.0	1.5	3.2	2.4	1.34	0.54

Unit satisfied AC156 requirements for structural integrity and manufacturer requirements for functionality after AC156 test.