



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION**

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

OFFICE USE ONLY

APPLICATION #: OSP-0751

HCAI Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: HEWLETT PACKARD ENTERPRISE COMPANY

Manufacturer's Technical Representative: Scott Smith

Mailing Address: 8000 Foothills Blvd., Roseville, CA 95747

Telephone: (916) 540-1633 Email: scott.r.smith2@hpe.com

Product Information

Product Name: Internal Communication Servers and Routers

Product Type: Servers & Routers

Product Model Number: ARUBA CX 6100/6300/6400 SWITCH SERIES

General Description: Rack mounted (4-post) networking equipment

Mounting Description: Rigid, Mounted within a Rigid Floor Mounted Rack

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: Manwill Engineering LLC

Contact Person: Derek Manwill

Mailing Address: PO Box 1194, Bend, OR 97709

Telephone: (541) 241-2102 Email: derek@manwillse.com

Title: President





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

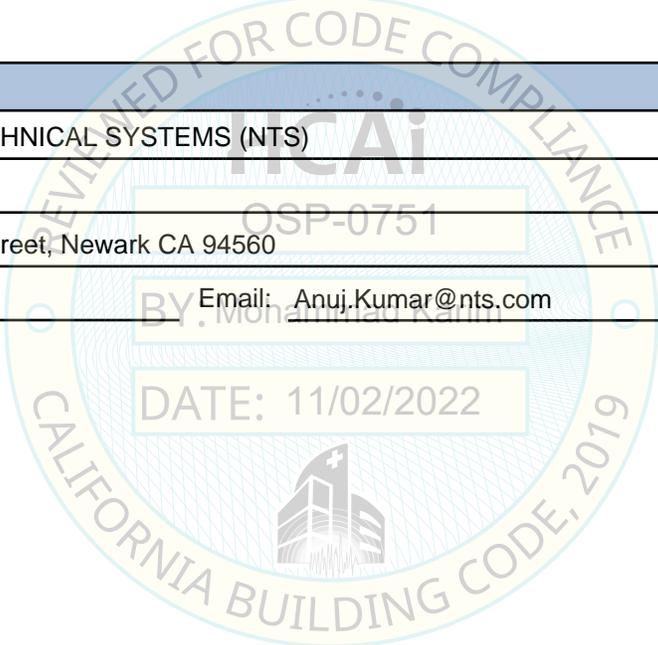
Company Name: MANWILL ENGINEERING LLC
Name: Derek Manwill California License Number: S6266
Mailing Address: PO Box 1194, Bend, OR 97709
Telephone: (541) 241-2102 Email: derek@manwillse.com

Certification Method

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

Testing Laboratory

Company Name: NATIONAL TECHNICAL SYSTEMS (NTS)
Contact Person: Anuj Kumar
Mailing Address: 38995 Cherry Street, Newark CA 94560
Telephone: (510) 578-3500 Email: Anuj.Kumar@nts.com





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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.44 (SDS=2.00, z/h=1), 1.13 (SDS=2.50, z/h=0)

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

a_p (Amplification factor) = 1.0

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 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

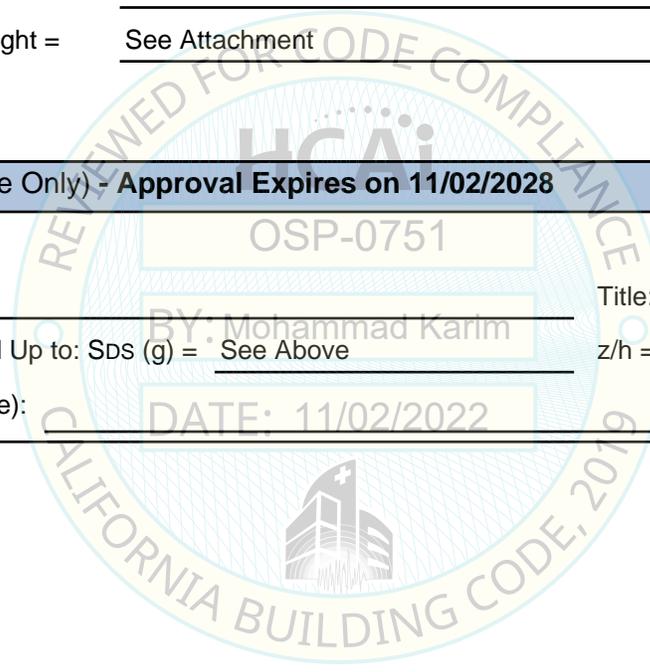
HCAI Approval (For Office Use Only) - Approval Expires on 11/02/2028

Date: 11/2/2022

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = See Above z/h = See Above

Condition of Approval (if applicable): DATE: 11/02/2022



ATTACHMENT 1: CERTIFIED COMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 1

DOCUMENT NO.: 22053CR1.0

MANUFACTURER: HEWLETT PACKARD ENTERPRISE COMPANY						
PRODUCT FAMILY: ARUBA CX 6100/6300/6400 SWITCH SERIES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Aruba CX 6100/6300/6400 Switch Series						
Aruba Custom Rack	42.2	23.0	81.4	795	Wt. incl. rack, Max. CG Ht.=34.5"	UUT 1
MOUNTING:	Rigid floor mounted within Netshelter VX Seismic 42U rack. Use identical rack with a CG ≤ the Maximum CG Height.			SEISMIC LEVELS:	S _{DS} = 2.0g for z/h = 1 S _{DS} = 2.5g for z/h = 0	I _p = 1.5
NOTES:	<p>Product Construction: Carbon steel rack. Frame only, doors and panels are not certified. Empty rack weighs 329-lb.</p> <p>Options/Subcomponents: Rack may contain any combination of subcomponents listed in Table 2 subject to maximum weight and CG height limitations.</p>					



ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS

DOCUMENT NO.: 22053CR1.0

MANUFACTURER: HEWLETT PACKARD ENTERPRISE COMPANY						
PRODUCT FAMILY: ARUBA CX 6100/6300/6400 SWITCH SERIES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Aruba - CX 6400 Switches						
R0X26	17.7	17.5	12.1	65	6405	EXTRAP
R0X29	17.7	17.5	12.1	75	6405 96G CL4 PoE 4SFP56	EXTRAP
R0X30	17.7	17.5	12.1	75	6405 48SFP+ 8SFP56	EXTRAP
R0X24	17.7	17.5	12.1	124	5-Slot Switch Chassis	UUT 1
R0X27	17.7	17.5	20.8	118	6410	INTERP
R0X25	17.7	17.5	20.8	205	10-Slot Switch Chassis	UUT 1
Aruba - 6400 Modules						
R0X31					Included in 6400 switch Management Module	UUT 1
R0X38					Included in 6400 switch 48p 1GbE CLS4 PoE Mod	INTERP
R0X39					Included in 6400 switch 48p 1GbE CLS4 PoE /4SFP56 Mod	UUT 1
R0X40					Included in 6400 switch 48p 1GbE CLS6 PoE /4SFP56 Mod	UUT 1
R0X41					Included in 6400 switch 48p Smart Rate CLS6 PoE /4SFP56	UUT 1
R0X42					Included in 6400 switch 24p 10GT /4SFP56 Mod	UUT 1
R0X43					Included in 6400 switch 24p SFP+ /4SFP56 Mod	UUT 1
R0X44					Included in 6400 switch 48p 10G/25G SFP28 Mod	UUT 1
R0X45					Included in 6400 switch 12p 40G/100G QSFP28 Mod	UUT 1
Aruba - 6400 Power Supplies						
R0X35					Included in 6400 switch 1800W PS w/C16 Inlet	UUT 1
R0X36					Included in 6400 switch 3000W PS w/C20 Inlet	UUT 1
R0X33					Included in 6400 switch C16 Inlet Adapter	UUT 1
R0X34					Included in 6400 switch C20 Inlet Adapter	UUT 1
Aruba - 6400 Fan Tray						
R0X32					Included in 6400 switch	UUT 1
NOTES:	Table continues on the next page. Additional notes, information, and seismic parameters are shown at the end of the table.					

ATTACHMENT 1: CERTIFIED SUBCOMPONENTS

SPECIAL SEISMIC CERTIFICATION

TABLE 2 - SUBCOMPONENTS (continued)

DOCUMENT NO.: 22053CR1.0

MANUFACTURER: HEWLETT PACKARD ENTERPRISE COMPANY						
PRODUCT FAMILY: ARUBA CX 6100/6300/6400 SWITCH SERIES						
MODEL NUMBER	DIMENSIONS (in)			MAX. WT. (lb)	DESCRIPTION / NOTES	BASIS
	DEPTH	WIDTH	HEIGHT			
Aruba - CX 6300 Switches						
JL668	12.9	17.4	1.7	9.6	24p 1GbE, 4p SFP56	EXTRAP
JL667	12.9	17.4	1.7	9.8	48p 1GbE, 4p SFP56	EXTRAP
JL666	12.9	17.4	1.7	10.9	24p 1GbE Cl.4 PoE, 4p SFP56	EXTRAP
JL665	12.9	17.4	1.7	11.2	48p 1GbE Cl.4 PoE, 4p SFP56	EXTRAP
JL664	15.2	17.4	1.7	12.0	24p 1GbE, 4p SFP56	EXTRAP
JL663	15.2	17.4	1.7	12.1	48p 1GbE, 4p SFP56	EXTRAP
JL662	15.2	17.4	1.7	12.2	24p 1GbE Cl.4 PoE, 4p SFP56	EXTRAP
JL661	15.2	17.4	1.7	12.6	48p 1GbE Cl.4 PoE, 4p SFP56	EXTRAP
JL658	15.2	17.4	1.7	12.8	24p SFP+, 4p SFP56	EXTRAP
JL660	15.2	17.4	1.7	13.4	24p 1/2.5/5GbE Cl.6 PoE, 4p SFP56	UUT 1
JL762	15.2	17.4	1.7	13.8	48p 1GbE, 4p SFP56 Bundle	UUT 1
JL659	15.2	17.4	1.7	14.8	48p 1/2.5/5GbE Cl.6 PoE, 4p SFP56	UUT 1
Aruba - 6300 Power Supplies						
JL085	Included in 6300 switch				X371 12VDC 250W 100-240VAC	EXTRAP
JL086	Included in 6300 switch				X372 54VDC 680W 100-240VAC	UUT 1
JL087	Included in 6300 switch				X372 54VDC 1050W 110-240VAC	UUT 1
JL670	Included in 6300 switch				X372 54VDC 1600W 110-240VAC	UUT 1
JL760	Included in 6300 switch				X371 12VDC 250W 100-240VAC	UUT 1
Aruba - 6300 Fan Trays						
JL669	Included in 6300 switch					UUT 1
JL761	Included in 6300 switch				Power-to-Port	UUT 1
Aruba - CX 6100 Switches						
JL678	7.9	17.4	1.7	5.8	24G 4SFP+	EXTRAP
JL676	9.7	17.4	1.7	7.5	48G 4SFP+	EXTRAP
JL677	10.6	17.4	1.7	9.2	24G Class4 PoE 4SFP+ 370W	UUT 1
JL675	12.0	17.4	1.7	11.1	48G Class4 PoE 4SFP+ 370W	UUT 1
MOUNTING:	Mounted within unit using 4-post mounting brackets.			SEISMIC LEVELS:	S _{DS} = 2.0g for z/h = 1 S _{DS} = 2.5g for z/h = 0	I _p = 1.5
NOTES:	Construction/Options: Model number uniquely identifies manufacturer, materials, and configuration of subcomponents.					

ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

UUT 1

DOCUMENT NO.: 22053CR1.0

MANUFACTURER:	HEWLETT PACKARD ENTERPRISE COMPANY
MODEL NUMBER:	ARUBA CUSTOM RACK
UNIT FUNCTION:	NETWORKING EQUIPMENT
SERIAL NUMBER:	N/A

DIMENSIONS (in)			WEIGHT (lb)	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT		F-B	S-S	V
42.2	23.0	81.4	795	14.3	8.1	27.8

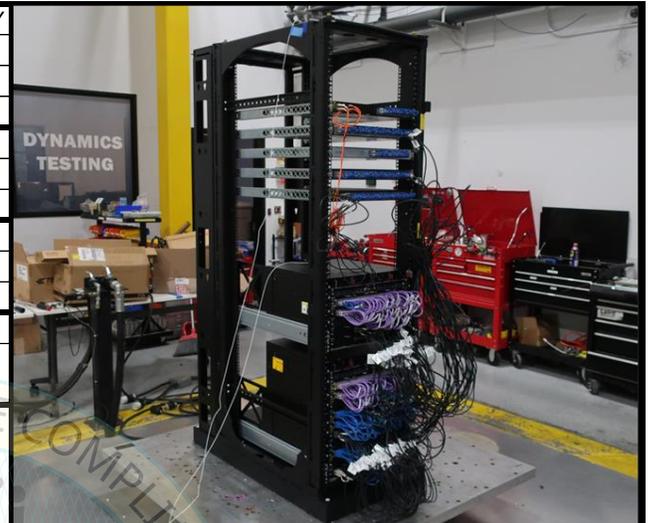
CODE & CRITERIA:	2022 CBC	ICC-ES AC156
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TEST LABORATORY:	NTS - NEWARK
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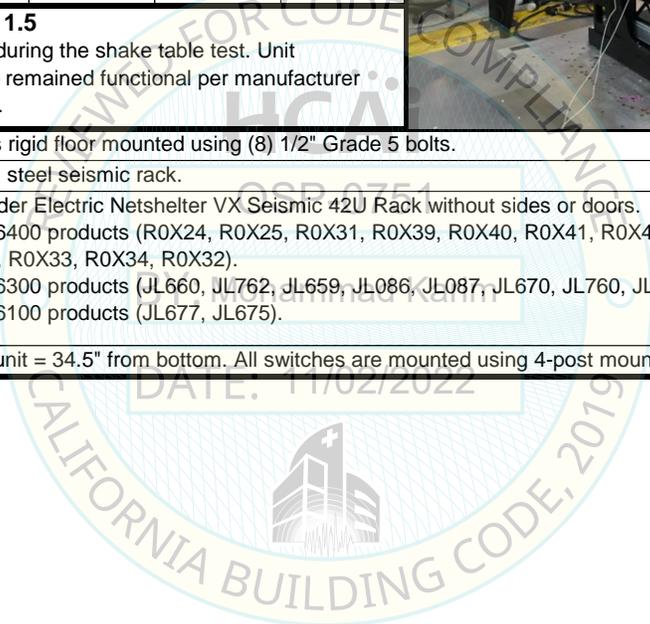
REPORT & DATE:	22053TR1.0	November 13, 2022
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S _{DS} (g)	z/h	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
2.0	1	3.20	2.40	1.68	0.68
2.5	0				

IMPORTANCE FACTOR, I_p = 1.5
Unit was full of operating content during the shake table test. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.



MOUNTING:	Rack is rigid floor mounted using (8) 1/2" Grade 5 bolts.
CONSTRUCTION:	Carbon steel seismic rack.
SUBCOMPONENTS:	Schneider Electric Netshelter VX Seismic 42U Rack without sides or doors. Aruba 6400 products (R0X24, R0X25, R0X31, R0X39, R0X40, R0X41, R0X42, R0X43, R0X44, R0X45, R0X35, R0X36, R0X33, R0X34, R0X32). Aruba 6300 products (JL660, JL762, JL659, JL086, JL087, JL670, JL760, JL699, JL761). Aruba 6100 products (JL677, JL675).
TESTING NOTES:	CG of unit = 34.5" from bottom. All switches are mounted using 4-post mounting brackets.



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

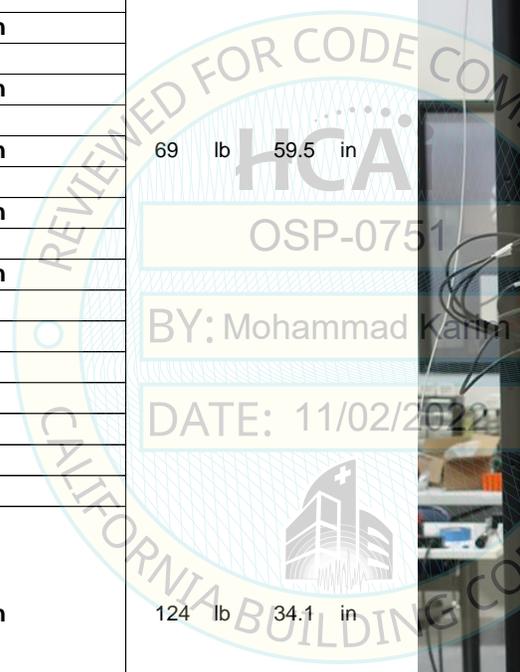
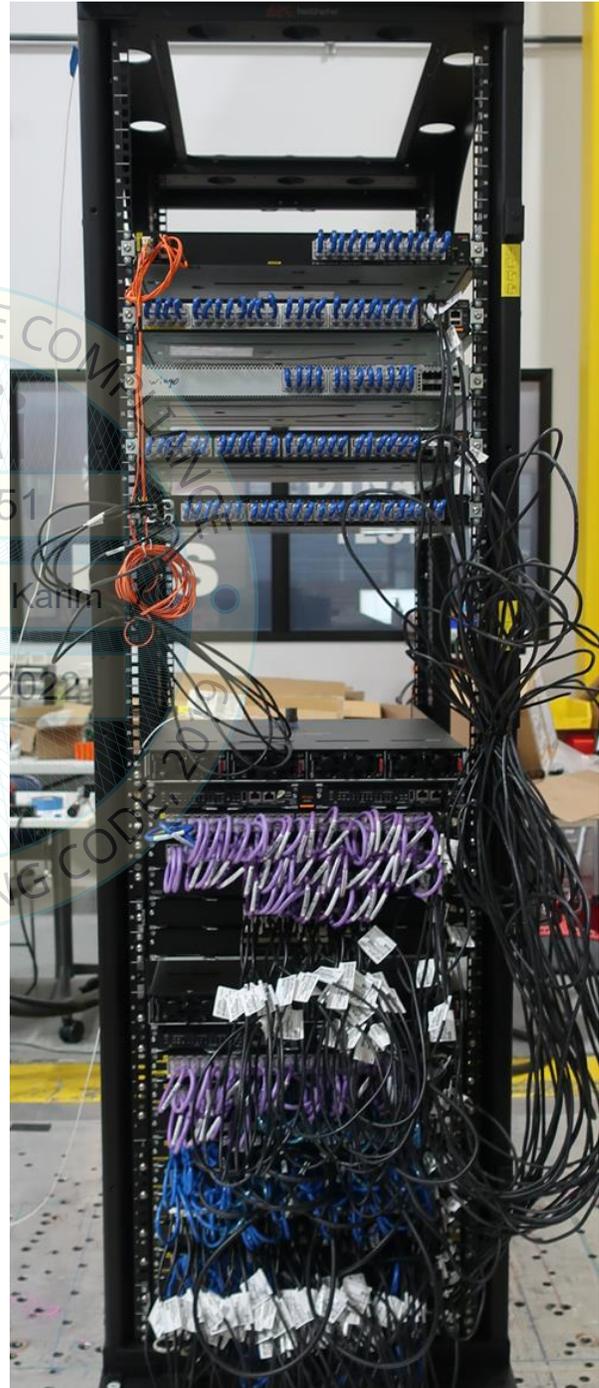
SPECIAL SEISMIC CERTIFICATION

UUT 1 - RACK CONFIGURATION

DOCUMENT NO.: 22053CR1.0

CG of unit = 34.5" from bottom. Maximum Weight = 795-lb. Total height = 81.4".

		Weight	CG
45			
44			
43			
42			
41			
40			
39			
38			
37			
36	6100 Switch		
35			
34	6300 Switch		
33			
32	6300 Switch	69 lb	59.5 in
31			
30	6300 Switch		
29			
28	6100 Switch		
27			
26			
25			
24			
23			
22			
21			
20			
19			
18			
17	6405 Switch	124 lb	34.1 in
16			
15			
14			
13	Wires, etc.	68 lb	26.3 in
12			
11			
10			
9			
8			
7	6410 Switch	205 lb	15.8 in
6			
5			
4			
3			
2			
1			



ATTACHMENT 2: UNIT UNDER TEST SUMMARIES

SPECIAL SEISMIC CERTIFICATION

EMPTY RACK NATURAL FREQUENCIES

DOCUMENT NO.: 22053CR1.0

MANUFACTURER:		SCHNEIDER ELECTRIC				
MODEL NUMBER:		NETSHELTER VX SEISMIC 42U RACK				
UNIT FUNCTION:		SUPPORTS FOR NETWORKING EQUIPMENT				
SERIAL NUMBER:		N/A				
DIMENSIONS (in)			WEIGHT	RES. FREQ. (Hz)		
DEPTH	WIDTH	HEIGHT	(lb)	F-B	S-S	V
42.2	23.0	81.4	329	16.4	9.3	>33
CODE & CRITERIA:		2022 CBC		ICC-ES AC156		
TEST LABORATORY:		NTS - NEWARK				
REPORT & DATE:		22053TR1.0		November 14, 2022		
S_{DS} (g)	z/h	A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)	
N/A	1	N/A	N/A	N/A	N/A	
N/A	0	N/A	N/A	N/A	N/A	
IMPORTANCE FACTOR, I_p = N/A						
Empty rack was not subjected to seismic testing.						
MOUNTING:		Rack is rigid floor mounted using (8) 1/2" Grade 5 bolts.				
CONSTRUCTION:		Carbon steel seismic rack.				
TESTING NOTES:		Empty rack was only subjected to frequency searches.				

