



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
FACILITIES DEVELOPMENT DIVISION

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0796

HCAI Special Seismic Certification Preapproval (OSP)

Type: [X] New [ ] Renewal

Manufacturer Information

Manufacturer: Comba Telecom Inc.

Manufacturer's Technical Representative: Steven Cheng

Mailing Address: 568 Gibraltar Dr., Milpitas, CA 95035

Telephone: (408) 609-2901

Email: scheng@combausa.com

Product Information

Product Name: Electrical Control Panels on Life Safety/Critical Branch

Product Type: Fire Alarm & Security Panels

Product Model Number: CriticalPoint™ BDA, DAS, FOU and BBU

General Description: Public Safety Communications Equipment and

Mounting Description: Rigid, Wall Mounted

Tested Seismic Enhancements: None

DATE: 01/04/2024

Applicant Information

Applicant Company Name:

Contact Person: Victoria Ahrens

Mailing Address: 1901 NE Lotus Dr. Apt. 11, Bend, OR 97701

Telephone: (541) 292-5820

Email: vahrens@structint.com

Title: Certification Engineer





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

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

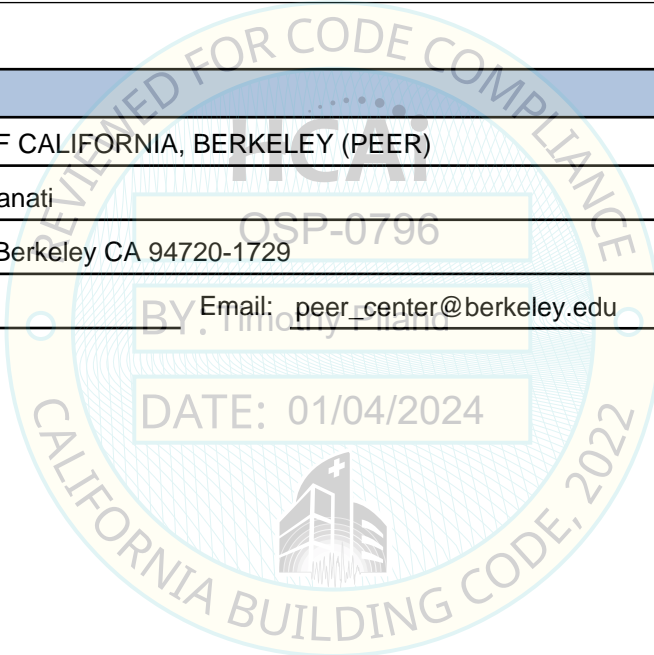
Company Name: STRUCTURAL INTEGRITY ASSOCIATES, INC.  
Name: LACHEZAR HANDZHIYSKI California License Number: S6515  
Mailing Address: 5215 Hellyer Avenue, Suite 210, San Jose, CA 95138  
Telephone: (669) 437-0200 Email: Lhandzhiyski@StructInt.com

**Certification Method**

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

**Testing Laboratory**

Company Name: UNIVERSITY OF CALIFORNIA, BERKELEY (PEER)  
Contact Person: Amarnath Kasalanati  
Mailing Address: 325 Davis Hall, Berkeley CA 94720-1729  
Telephone: (510) 642-6475 Email: peer\_center@berkeley.edu



*"A healthier California where all receive equitable, affordable, and quality health care"*

**STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY**





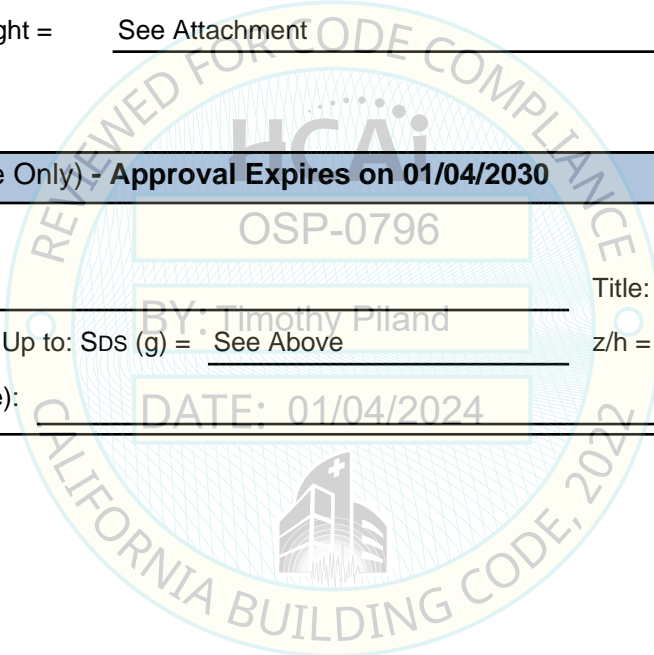
**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
FACILITIES DEVELOPMENT DIVISION**

**Seismic Parameters**

Design Basis of Equipment or Components ( $F_p/W_p$ ) =	1.44 (SDS=2.0 @ z/h=1); 1.13 (SDS=2.5 @ z/h=0)
SDS (Design spectral response acceleration at short period, g) =	2.0 (z/h = 1.0); 2.5 (z/h = 0.0)
$a_p$ (Amplification factor) =	1.0
$R_p$ (Response modification factor) =	2.5
$\Omega_0$ (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 01/04/2030**

Date:	1/4/2024	OSP-0796	
Name:	Timothy Piland	BY: Timothy Piland	Title: Senior Structural Engineer
Special Seismic Certification Valid Up to: SDS (g) =	See Above	DATE: 01/04/2024	z/h = See Above
Condition of Approval (if applicable):			



# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2301043-CR-001-R0



<b>Manufacturer:</b> Comba Telecom Inc.	<b>TABLE 1</b>
<b>Model Line:</b> CriticalPoint™ BDA, DAS, FOU and BBU	

**Certified Product Construction Summary:**  
Enclosure: Aluminum Alloy or Hot-dip Galvanized Carbon Steel  
Bracket: Carbon Steel

**Certified Options Summary:**  
N/A

**Mounting Configuration:**  
Wall mounted - rigid  
Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

**Building Code: CBC 2022**      **Seismic Certification Limits:**       $S_{DS} = 2.0g$     $z/h = 1.0$        $I_p = 1.5$   
 $S_{DS} = 2.5g$     $z/h = 0.0$

Model Line	Model	Dimensions (in)			Weight (lbs.)	Notes	UUT
		Depth	Width	Height			
Bi-Directional Amplifier (BDA) <sup>1</sup>	RX78V3-A3327P0-S1-SR	8.0	13.0	19.3	50	UUT: Master Unit	1
	RX78V3-A3327P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX07V3-A3327P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX08V3-A3327P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX78V3-A2727P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX07V3-A2727P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX08V3-A2727P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX78V3-B3327P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX07V3-B3327P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX08V3-B3327P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
	RX78V3-B2727P0-XX-SR	8.0	13.0	19.3	50	Same as UUT1 (software changes)	Interp.
Fiber DAS <sup>1</sup>	RH78V3-A3300P0-S1-SR	8.0	13.0	19.3	49	UUT: Remote Unit	2
	RH78V3-A3300P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH07V3-A3300P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH08V3-A3300P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH78V3-A2700P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH07V3-A2700P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH08V3-A2700P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH78V3-B3300P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH07V3-B3300P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH08V3-B3300P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.
	RH78V3-B2700P0-XX-SR	8.0	13.0	19.3	49	Same as UUT2 (software changes)	Interp.

**Notes:**  
1. XX = C0, S0, S1, S2, S3, S4, S5 (Differently tuned duplexers, mechanically the same)

# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2301043-CR-001-R0



**Manufacturer:** Comba Telecom Inc.  
**Model Line:** CriticalPoint™ BDA, DAS, FOU and BBU

**TABLE 1**

**Certified Product Construction Summary:**  
Enclosure: Aluminum Alloy or Hot-dip Galvanized Carbon Steel  
Bracket: Carbon Steel

**Certified Options Summary:**  
N/A

**Mounting Configuration:**  
Wall mounted - rigid  
Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

**Building Code: CBC 2022**      **Seismic Certification Limits:**  $S_{DS} = 2.0g$   $z/h=1.0$        $I_p = 1.5$   
 $S_{DS} = 2.5g$   $z/h=0.0$

Model Line	Model	Dimensions (in)			Weight (lbs.)	Notes	UUT
		Depth	Width	Height			
Fiber Optic Unit (FOU)	RHFOUV2F-E04UL-SR	3.5	15.8	18.5	29	<i>Similar to RHFOUV2F-E08UL (depopulated)</i>	Interp.
	RHFOUV2F-E08UL-SR	3.5	15.8	18.5	29		3
Battery Backup Units (BBU)	BBUV3-LFP48030-SR	10.3	23.8	23.5	111	<i>30AH Battery</i>	Interp.
	BBUV3-LFP48060-SR	10.3	23.8	23.5	140	<i>60AH Battery</i>	4
	BBUV3-LFP48100-SR	10.3	23.8	23.5	179	<i>100AH Battery</i>	5
Annunciator Panel	CPAPV1-DC-B-UL-SR	3.1	7.8	11.8	8		6

# SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX

2301043-CR-001-R0



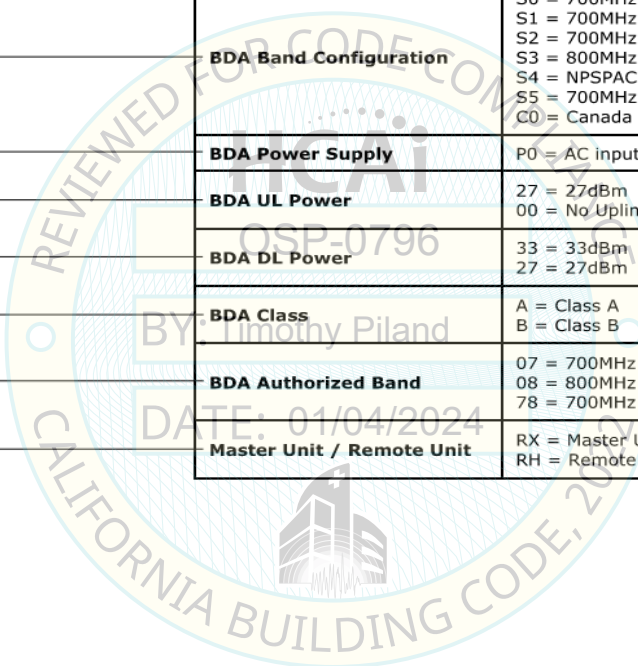
**Manufacturer:** Comba Telecom Inc.  
**Model Line:** CriticalPoint™ BDA, DAS, FOU and BBU

**TABLE 1.1**

Nomenclature: Bi-Directional Amplifier (BDA) and Fiber Distributed Antenna System (DAS)  
FOR REFERENCE ONLY

**RH78V3 - A 33 27 P0 - S1 - (SR)**

<b>Seismic Rated Part</b>	SR = (Optional) Seismic Rated
<b>BDA Band Configuration</b>	S0 = 700MHz NB, 800MHz NB, B14, ESMR S1 = 700MHz NB, 800MHz NB, High Rejection S2 = 700MHz NB, High Rejection S3 = 800MHz NB, High Rejection S4 = NPSAC, High Rejection S5 = 700MHz NB, 800MHz NB, B14, High Rejection C0 = Canada Version
<b>BDA Power Supply</b>	P0 = AC input with internal Charger
<b>BDA UL Power</b>	27 = 27dBm 00 = No Uplink Output (Remote Unit)
<b>BDA DL Power</b>	33 = 33dBm 27 = 27dBm
<b>BDA Class</b>	A = Class A B = Class B
<b>BDA Authorized Band</b>	07 = 700MHz single band 08 = 800MHz single band 78 = 700MHz and 800MHz dual band
<b>Master Unit / Remote Unit</b>	RX = Master Unit RH = Remote Unit

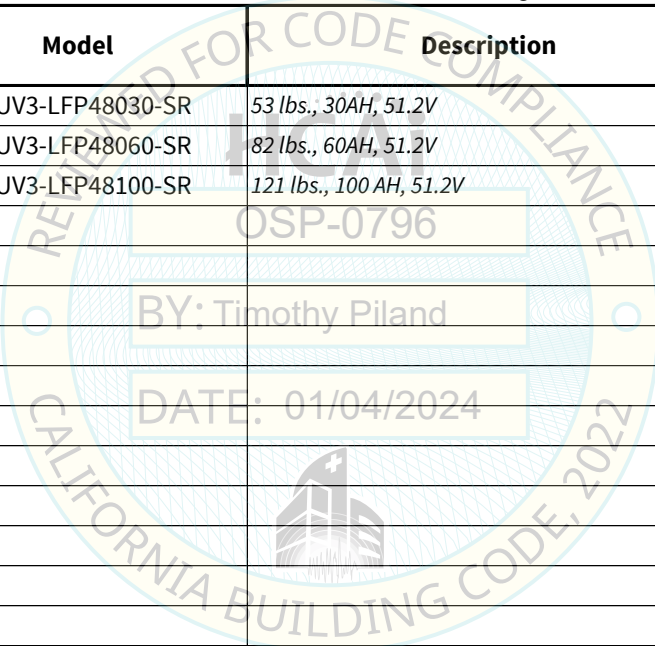


# SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

2301043-CR-001-R0



<b>Manufacturer:</b> Comba Telecom Inc. <b>Table Description:</b> Batteries		<b>TABLE 2</b>			
<b>Model Line:</b> CriticalPoint™ BDA, DAS, FOU and BBU					
<b>Building Code:</b> CBC 2022		<b>Seismic Certification Limits:</b>		$S_{DS} = 2.0 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$ $I_p = 1.5$	
Component Type	Manufacturer	Model	Description	Notes	UUT
LiFePO4 Battery	Comba Telecom	BBUV3-LFP48030-SR	53 lbs., 30AH, 51.2V	P/N: TB4830F-T107A_UL	Interp.
		BBUV3-LFP48060-SR	82 lbs., 60AH, 51.2V	P/N: TB4860F-T104A_UL	4
		BBUV3-LFP48100-SR	121 lbs., 100 AH, 51.2V	P/N: TB48100F-T102A_UL	5





# UNIT UNDER TEST (UUT) SUMMARY SHEET



**2301043-CR-001-R0**

<b>Manufacturer:</b> Comba Telecom Inc.								
<b>Model Line:</b> CriticalPoint™ BDA, DAS, FOU and BBU								
UUT	Unit Description	Report Number (UUT#)	Testing Lab	Year Tested	ISO 17025 Accredited?	S <sub>DS</sub>	z/h	I <sub>P</sub>
1	BDA/MU (RX78V3-A3327P0-S1-SR)	2301043-TR-001 (UUT1)	Pacific Earthquake Engineering Research Center (PEER)	2023	Yes	2.0 2.5	1.0 0.0	1.5
2	DAS/RU (RH78V3-A3300P0-S1-SR)	2301043-TR-001 (UUT2)	Pacific Earthquake Engineering Research Center (PEER)	2023	Yes	2.0 2.5	1.0 0.0	1.5
3	FOU (RHFOUV2F-E08UL-SR)	2301043-TR-001 (UUT3)	Pacific Earthquake Engineering Research Center (PEER)	2023	Yes	2.0 2.5	1.0 0.0	1.5
4	BBU w/ 60AH LiFePO4 Battery (BBUV3-LFP48060-SR)	2301043-TR-001 (UUT4)	Pacific Earthquake Engineering Research Center (PEER)	2023	Yes	2.0 2.5	1.0 0.0	1.5
5	BBU w/ 100AH LiFePO4 Battery (BBUV3-LFP48100-SR)	2301043-TR-001 (UUT5)	Pacific Earthquake Engineering Research Center (PEER)	2023	Yes	2.0 2.5	1.0 0.0	1.5
6	CPAPV1 (CPAPV1-DC-B-UL-SR)	2301043-TR-001 (UUT6)	Pacific Earthquake Engineering Research Center (PEER)	2023	Yes	2.0 2.5	1.0 0.0	1.5
<b>Notes:</b>								



# UNIT UNDER TEST (UUT) SUMMARY SHEET

2301043-CR-001-R0



<b>Manufacturer:</b> Comba Telecom Inc.	<h2>UUT 1</h2>
<b>Model Line:</b> CriticalPoint™ BDA, DAS, FOU and BBU	
<b>Model Number:</b> BDA/MU (RX78V3-A3327P0-S1-SR)	
<b>Serial Number:</b> AA2280504378	
<b>Test Report:</b> 2301043-TR-001 (UUT1)	

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
50	8.0	13.0	19.3	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	$S_{DS}(g)$	$z/h$	$I_p$	$A_{FLX-H}(g)$	$A_{RIG-H}(g)$	$A_{FLX-V}(g)$	$A_{RIG-V}(g)$	
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67	
		2.5	0.0						

Product Construction Summary:					Test Mounting Details:				
Enclosure: Aluminum Alloy Bracket: Carbon Steel									

Options/Subcomponent Summary:	
Description	Part Number
N/A	N/A

UUT1 was wall mounted to the fixture using four (4) M10 Grade 8.8 bolts and flat washers.  
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

# UNIT UNDER TEST (UUT) SUMMARY SHEET

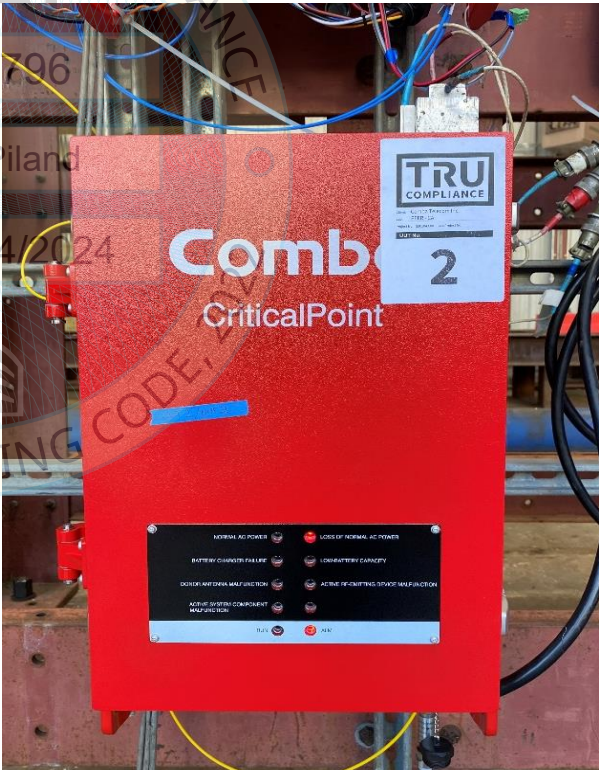
2301043-CR-001-R0



<b>Manufacturer:</b> Comba Telecom Inc.		<h2>UUT 2</h2>
<b>Model Line:</b> CriticalPoint™ BDA, DAS, FOU and BBU		
<b>Model Number:</b> DAS/RU (RH78V3-A3300P0-S1-SR)		
<b>Serial Number:</b> AA2360167759	<b>Test Report:</b> 2301043-TR-001 (UUT2)	

UUT Properties						
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
49	8.0	13.0	19.3	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information								
Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Product Construction Summary:	Test Mounting Details:
Enclosure: Aluminum Alloy Bracket: Carbon Steel	

Options/Subcomponent Summary:	
Description	Part Number
N/A	N/A

UUT2 was wall mounted to the fixture using four (4) M10 Grade 8.8 bolts and flat washers.  
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

# UNIT UNDER TEST (UUT) SUMMARY SHEET

2301043-CR-001-R0



<b>Manufacturer:</b> Comba Telecom Inc.	<b>UUT 3</b>
<b>Model Line:</b> CriticalPoint™ BDA, DAS, FOU and BBU	
<b>Model Number:</b> FOU (RHFOUV2F-E08UL-SR)	
<b>Serial Number:</b> T2109000002	
<b>Test Report:</b> 2301043-TR-001 (UUT3)	

### UUT Properties

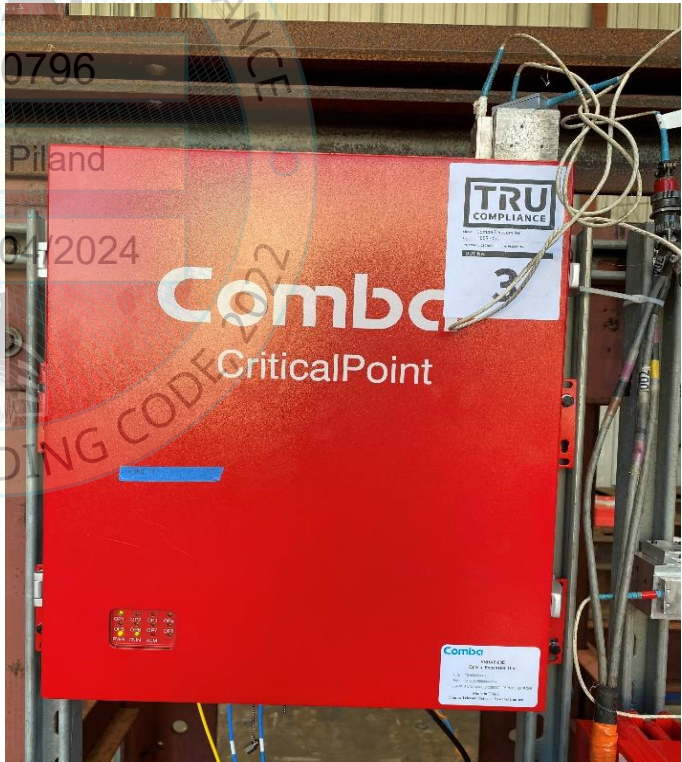
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
29	3.5	15.8	18.5	N/A	N/A	N/A

### UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

**Product Construction Summary:**  
Enclosure: Hot-dip Galvanized Carbon Steel  
Bracket: Carbon Steel

### Test Mounting Details:



### Options/Subcomponent Summary:

Description	Part Number
N/A	N/A

UUT3 was wall mounted to the fixture using four (4) M6 Grade 8.8 bolts and flat washers.  
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.



# UNIT UNDER TEST (UUT) SUMMARY SHEET


2301043-CR-001-R0



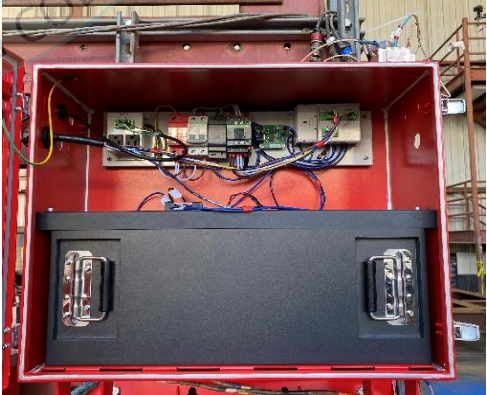
<b>Manufacturer:</b>	Comba Telecom Inc.	<b>UUT 4</b>
<b>Model Line:</b>	CriticalPoint™ BDA, DAS, FOU and BBU	
<b>Model Number:</b>	BBU w/ 60AH LiFePO4 Battery (BBUV3-LFP48060-SR)	
<b>Serial Number:</b>	AA2203200001	
<b>Test Report:</b>		2301043-TR-001 (UUT4)

UUT Properties						
Weight (lbs.) <sup>1</sup>	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
140	10.3	23.8	23.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information								
Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>P</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

<b>Product Construction Summary:</b>	<b>Test Mounting Details:</b>
Enclosure: Hot-dip Galvanized Carbon Steel	

<b>Options/Subcomponent Summary:</b>	
Description	Part Number
LiFePO4 Battery 60AH (Comba Telecom)	BBUV3-LFP48060-SR

<b>Test Mounting Details:</b>	
<p><sup>1</sup> The weight is the combination of the unit and the battery.</p> <p>Unit: 58.5 Battery: 81.5</p>	
<p>UUT4 was wall mounted to the fixture using four (4) M10 Grade 8.8 bolts and flat washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.</p>	

# UNIT UNDER TEST (UUT) SUMMARY SHEET

2301043-CR-001-R0



<b>Manufacturer:</b>	Comba Telecom Inc.	<b>UUT 5</b>
<b>Model Line:</b>	CriticalPoint™ BDA, DAS, FOU and BBU	
<b>Model Number:</b>	BBU w/ 100AH LiFePO4 Battery (BBUV3-LFP48100-SR)	
<b>Serial Number:</b>	AA2290029182	
<b>Test Report:</b>		2301043-TR-001 (UUT5)

**UUT Properties**

Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
179	10.3	23.8	23.5	N/A	N/A	N/A

**UUT Highest Passed Seismic Run Information**

Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

**Product Construction Summary:**

Enclosure: Hot-dip Galvanized Carbon Steel

**Test Mounting Details:**



**Options/Subcomponent Summary:**

Description	Part Number
LiFePO4 Battery 100AH (Comba Telecom)	BBUV3-LFP48100-SR



**Test Mounting Details:**

<sup>1</sup> The weight is the combination of the unit and the battery.

Unit: 58.5  
Battery: 120.5

UUT5 was wall mounted to the fixture using four (4) M10 Grade 8.8 bolts and flat washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

# UNIT UNDER TEST (UUT) SUMMARY SHEET

2301043-CR-001-R0



<b>Manufacturer:</b>	Comba Telecom Inc.	<h2>UUT 6</h2>
<b>Model Line:</b>	CriticalPoint™ BDA, DAS, FOU and BBU	
<b>Model Number:</b>	CPAPV1 (CPAPV1-DC-B-UL-SR)	
<b>Serial Number:</b>	AA2134022344	
<b>Test Report:</b>		2301043-TR-001 (UUT6)

**UUT Properties**

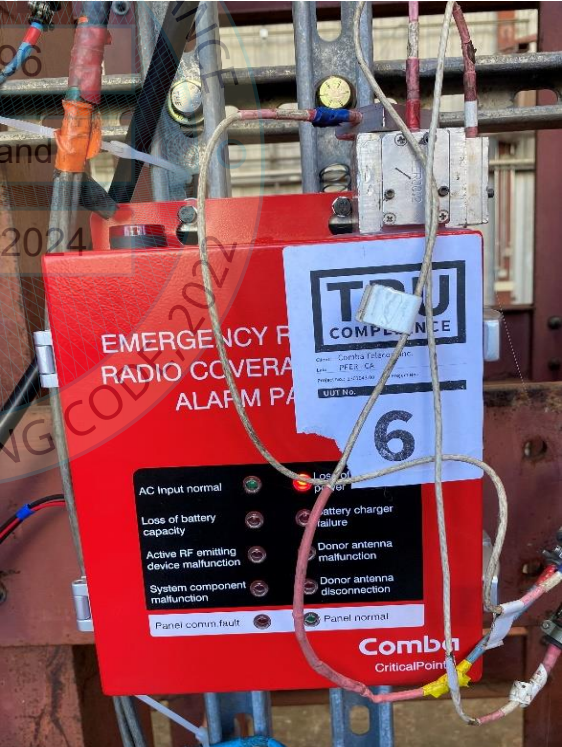
Weight (lbs.)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
8	3.1	7.8	11.8	N/A	N/A	N/A

**UUT Highest Passed Seismic Run Information**

Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2022	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

<b>Product Construction Summary:</b>	<b>Test Mounting Details:</b>
Enclosure: Hot-dip Galvanized Carbon Steel	

<b>Options/Subcomponent Summary:</b>	
Description	Part Number
N/A	N/A



UUT6 was wall mounted to the fixture using four (4) M10 Grade 8.8 bolts and flat washers. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.