Test Report issued under the responsibility of:

TEST REPORT
IEC 61010-1
Safety requirements for electrical equipment for measurement, control, and laboratory use
Part 1: General requirements

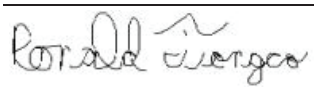
Report Reference No ..... :	E343191-A1-CB-1
Date of issue ..... :	2014-08-25
Total number of pages ..... :	9
CB Testing Laboratory ..... :	UL Brea
Address ..... :	2929 Imperial Hwy, Ste 100, Brea, CA, 92821, USA
Applicant's name ..... :	EKM METERING INC
Address ..... :	122 BENITO AVE SANTA CRUZ CA 95062 UNITED STATES
Test specification:	
Standard ..... :	IEC 61010-1:2001, 2nd Edition
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC61010_1D
Test Report Form originator ..... :	UL
Master TRF ..... :	Dated 2004-09

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description	:	Energy Meter
Trade Mark	:	EKM METERING INC.
Manufacturer	:	EKM METERING INC 122 BENITO AVE SANTA CRUZ CA 95062 UNITED STATES
Model/Type reference	:	OmniMeter II UL v.3, OmniMeter Pulse v.4
Ratings	:	Input Voltage: Single phase or 3-phase 1x120V, 2x120-240V, 3x120-240Vac Line to Line 50/60Hz Input Current Measuring: Max. 26.6mA Power Consumption: Max. 2W Measurement Category: CAT III

Testing procedure and testing location:			
[x]	**CB Testing Laboratory**		
	Testing location / address..... :	UL Brea 2929 Imperial Hwy, Ste 100, Brea, CA, 92821, USA	
[ ]	**Associated CB Test Laboratory**		
	Testing location / address..... :		
	Tested by (name + signature) ..... :	Randy Min	
	Approved by (name + signature) ... :	Ronald Tiongco	
[ ]	**Testing Procedure: TMP/CTF Stage 1**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: WMT/CTF Stage 2**		
	Tested by (name + signature) ..... :		
	Witnessed by (+ signature)..... :		
	Approved by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: SMT/CTF Stage 3 or 4**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Supervised by (+ signature) ..... :		
	Testing location / address..... :		
[ ]	**Testing Procedure: RMT**		
	Tested by (name + signature) ..... :		
	Approved by (+ signature) ..... :		
	Supervised by (+ signature) ..... :		
	Testing location / address..... :		

List of Attachments

National Differences (0 pages)

Enclosures (0 pages)

Summary Of Testing

Unless otherwise indicated, all tests were conducted at UL Brea 2929 Imperial Hwy, Ste 100, Brea, CA, 92821, USA.

	Tests performed (name of test and test clause)	**Testing location / Comments**
	Dielectric Voltage Withstand Test (6.8)	

Humidity Conditioning Test (6.8.2)

Temperature Test (10.1-10.4)

Resistance to Heat of Nonmetallic Enclosure Test (10.5.2)

Summary of Compliance with National Differences:

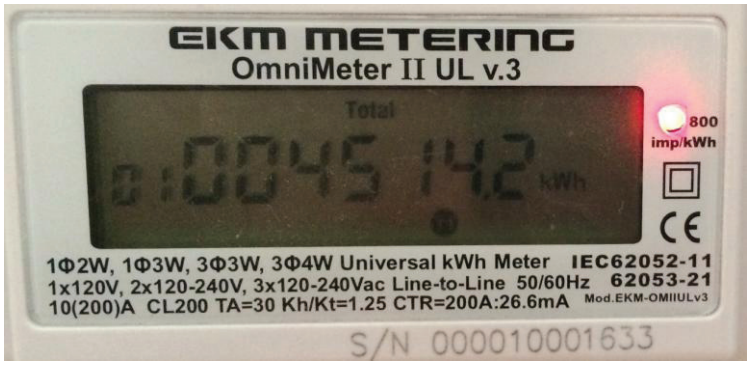
Countries outside the CB Scheme membership may also accept this report.

List of countries addressed: AT, AU, BE, BG, CA, CH, CZ, DE, DK, ES, FI, FR, GB, GR, HR, HU, IE, IL, IT, JP, KR, NL, NO, PL, PT, RO, RU, SE, SG, SI, SK, UA, US

The product fulfills the requirements of: We recognize that the TRF used in this file may not be the latest version. However we have reviewed the newest TRF and there are no technical changes from the one that was used for this report. All changes involve formatting only.

Copy of Marking Plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Test item particulars :	
Type of item tested .....:	Measurement
Description of equipment function .....:	Intended to continuously measure voltage and current, and display electrical parameters of appliances powered by single phase or 3-phase mains supply.
Measurement category .....:	III
Pollution degree .....:	2
Environmental rating .....:	-30 to 70C, 85% Humidity
Equipment mobility .....:	Fixed
Connections to mains supply .....:	Permanent
Operating conditions .....:	continuous
Overall size of the equipment: width; depth; height .....:	99 by 66 by 99 mm
Mass of the equipment (kg) .....:	0.32kg
Marked degree of protection to IEC 60529 .....:	N/A
Accessories and detachable parts included in the evaluation .....:	EKM Models BCT-013-XXXUL3, BCT-025-XXX, BCT-015-XXX, SCT-013-XXX, BCT-019-XXX, BCT-007-XXX, SCT-025-XXX, SCT-023-XXX and SCT-032-XXX Current Transformers. Where XXX can be a number 0 to 640 represents primary amperage rating.
Options included .....:	None
Possible test case verdicts:	
- test case does not apply to the test object .....:	N / A
- test object does meet the requirement .....:	P(Pass)
- test object does not meet the requirement .....:	F(Fail)
Testing:	
Date(s) of receipt of test item .....:	2015-12-07
Date(s) of Performance of tests .....:	2015-12-11 to 2015-12-14
General remarks:	
"(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a point is used as the decimal separator.	
Manufacturer's Declaration per Sub Clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... When differences exist, they shall be identified in the General Product Information section.	Not Applicable
Name and address of Factory(ies):	

GENERAL PRODUCT INFORMATION:

Report Summary

The original report was modified on 2016-01-07 to include the following changes/additions:
Adding accessories current transformer, Models BCT-007-xxx, BCT-019-xxx, and SCT-025-xxx, for use exclusively with the applicant's models OmniMeter II UL v.3 and OmniMeter Pulse v.4. Based on previous test results, only limited testing was deemed necessary.

Also, the accessory current transformer models were revised to add suffixes -xxx representing primary current rating, ranges from 0 to 640 A.

Product Description

The device is energy meter intended to continuously measure voltage and current, and display main electrical parameters of appliance powered by single phase or 3 phase mains supply.

Voltage measurements are performed through terminals for connection of maximum 3 phases. Current measurements are performed with through external current transformers and the maximum input current is 26.6mA.

Model Differences

The model OmniMeter II v.3 and OmniMeter Pulse v.4 are similar in constructions, utilizing identical enclosure, power supply and metering circuitry. Except, the model EKM-OmniMeter Pulse is equipped with added digital input and output capability.

Additional Information

N/A

Technical Considerations

Equipment classification: Professional

Equipment class: Class II

Equipment type: Fixed

The product was submitted and tested for use at the maximum recommended ambient temperature (Tmra) of: 70°C

Measurement Category: III

IEC 61010-1			
Clause	Requirement + Test	Result - Remark	Verdict

6.8	**TABLE: Dielectric strength tests**			Pass
	Test site altitude (m) ..... :		N/A	--
	Test voltage correction factor (see 6.8.4.1) ..... :		N/A	--
Location		Working voltage (V)	Test voltage r.m.s./peak/d.c. (V)	Result / Comments
-		-	-	-
Current Transformer Model BCT-019-200 Foil wrapped plastic enclosure to lead wire conductors		240V	2224Vac	No Breakdown
Current Transformer Model BCT-007-100 Foil wrapped plastic enclosure to lead wire conductors		240V	2224Vac	No Breakdown
Current Transformer Model SCT-025-200 Foil wrapped plastic enclosure to lead wire conductors		240V	2224Vac	No Breakdown
supplementary information:				

10	**TABLE: Temperature measurements (Thermocouple method)**				Pass
	Frequency (Hz) ..... :		60		--
	Voltage (V) ..... :		108, Single Phase 2 Wire		--
	Test room ambient temperature (ta) (°C) ..... :		70		--
	Test duration (h:min) ..... :		4 hours 55 minutes		--
Part / Location	tm (°C)	tc (°C)	tmax (°C)	Comments	
-	-	-	-	-	
Alternate current transformer model BCT-019-200 plastic case	40.3	57.2	80	Loaded = 200 A	
Ambient	23.1	-	40		
Alternate current transformer model BCT-007-100 plastic case	47.7	67.2	80	Loaded = 100 A	
Ambient	20.5	0	40		
Alternate current transformer model SCT-025-200	45.1	62.3	80	Loaded = 200 A	
Ambient	22.8	40	40		
supplementary information:					

10.5.2	**TABLE: Resistance to heat of non-metallic enclosures**		Pass
	Test method used ..... :	Non-Operational	--
	Temperature during tests ..... :	85	--
	Treated samples were subjected to mechanical resistance to shock and impact tests (see Table 8) :	Yes	--
	Treated samples were subjected to dielectric	Yes	--

IEC 61010-1			
Clause	Requirement + Test	Result - Remark	Verdict

	strength tests (see Table 6.8) ..... :		
	Non-operative treatment ..... :	Pass	
	- Empty ENCLOSURE ..... :	N/A	
	Operative treatment..... :	N/A	

Description	Material	Comments
-	-	-
Alternate current transformer model BCT-019-200	Shinkong Synthetic, type D202G15, V0	No deformation or softening of enclosure material. No live parts exposed as a result of the 7hrs@70C conditioning.
Alternate current transformer model BCT-007-100	Shinkong Synthetic, type D202G15, V0	No deformation or softening of enclosure material. No live parts exposed as a result of the 7hrs@70C conditioning.
Alternate current transformer model SCT-025-200	Bayer Material Science, type FR110+(z), V0	No deformation or softening of enclosure material. No live parts exposed as a result of the 7hrs@70C conditioning.
supplementary information:		