



ELECTRIC & ELECTRONIC
CALIBRATION DEPARTMENT

CALIBRATION CERTIFICATE NO. 9212336173

תעודת כיול מס'

CUSTOMER: קי.א.ל.סי ישראל בעמ שם הלקוח:
ADDRESS: הדקלים 97 א.ת. קדימה 60920 ת.ד. 05013 כתובת:

RECEIVED ON: 05/12/2012 התקבל בתאריך:
CAL. DATE: 05/12/2012 תאריך הכיול:

INSTRUMENT: DIGITAL POWER METER המכשיר:
MANUFACTURER: --- היצרן:
MODEL: --- הדגם:
S.N.: --- מס' סידורי:
CUSTOMER No.: 01 מס' לקוח:

AMBIENT CONDITIONS תנאי סביבה
TEMPERATURE: 23°C ± 4.0 °C טמפרטורה:
REL. HUMIDITY: 40% ± 30% לחות יחסית:

1. TEST DESCRIPTION AND CONCLUSIONS

The calibration was performed according to SII calibration procedures based on national and international standards and on instrument specifications. The measurements were made using calibrated standard instruments with traceability to international and/or accredited laboratories, according to SII Calibration Center traceability diagrams.

The calibration was performed by supplying known powers from a power calibrator used as a Standard Instrument and the measuring of these powers by the Unit Under Test

1. תיאור הבדיקה ומסקנות

הכיול בוצע בהתאם לנוהלי הכיול של מת"י המבוססים על תקנים לאומיים ובינלאומיים ועל מפרטי המכשיר. המדידות בוצעו באמצעות מכשירי אב מכוילים עם עקיבות למעבדות בינלאומיות ו/או מוסמכות, לפי עקיבות של המרכז לכיול.

נוהל עבודה מס': 203 Procedure number :

הכיול התבצע ע"י אספקת הספקים ידועים מכייל הספק ששימש כמכשיר אב ומדידתם ע"י המכשיר הנבדק

The main standard instrument used in this calibration

was No. 252-170

(see our "List of Standard Instruments").

מכשיר האב העיקרי ששימש לכיול

זה היה מס' 252-170

(ראה "רשימת מכשירי אב" של

המרכז לכיול).

See the calibration results on pages 2 - 7

ראה תוצאות הכיול בדפים 2 - 7

Expanded uncertainties: see on pages 2 - 7 The uncertainties shown are based on a combination of the individual contributions and are calculated as standard uncertainty multiplied by a coverage factor $k=2$, providing a confidence level approximately of 95% and are inclusive to the instrument under test. They relate to the measured values and do not carry any implication regarding to the long term stability of the instrument.

אי-ודאויות מורחבות: ראה בדפים 2 - 7 אי-ודאויות אלו מבוססות על שילוב כל התורמים ומחושבות כסטית התקן מוכפלת בגורם הרחבה $k=2$ עבור רמת סמך של בערך 95% וכוללות את התרומה של המכשיר הנבדק. ערכים אלו מבוססים רק על המדידות שבוצעו ללא שום השלכה על יציבות המכשיר לטווח ארוך.

This certificate contains 7 pages and need to be related in full and no part thereof shall be quoted in other document.

תעודה זאת כוללת 7 דפים יש להתייחס למסמך במלואו ואין להעתיק חלקים ממנו למסמכים אחרים.



RANGE	STANDARD INSTRUMENT	UNIT UNDER TEST			UNCERTAINTY ±	c
		LOWER LIMIT	READING	UPPER LIMIT		
VOLTAGE						
<i>50 Hz</i>						
UA	215.00 V	213.92 V	214.67 V	216.08 V	1.4 m V	c
	230.00 V	228.85 V	229.54 V	231.15 V	6.3 m V	c
	235.00 V	233.82 V	235.75 V	236.18 V	7.5 m V	c
UB	215.00 V	213.92 V	214.92 V	216.08 V	1.4 m V	c
	230.00 V	228.85 V	229.84 V	231.15 V	6.3 m V	c
	235.00 V	233.82 V	234.91 V	236.18 V	7.5 m V	c
UC	215.00 V	213.92 V	214.91 V	216.08 V	1.4 m V	c
	230.00 V	228.85 V	229.92 V	231.15 V	6.3 m V	c
	235.00 V	233.82 V	235.02 V	236.18 V	7.5 m V	c
FREQUENCY						
	50.00 Hz	49.75 Hz	49.93 Hz	50.25 Hz	5 m Hz	c
CURRENT						
<i>50 Hz</i>						
CT1	1.00 A	0.99 A	1.00 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.00 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.01 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.05 A	50.25 A	700 m A	c
CT2	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.01 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.01 A	50.25 A	700 m A	c
CT3	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.01 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.03 A	50.25 A	700 m A	c
CT4	1.00 A	0.99 A	1.00 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.01 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.05 A	50.25 A	700 m A	c
CT5	1.00 A	0.99 A	0.99 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.00 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.00 A	10.05 A	33 m A	c
	50.00 A	49.75 A	49.99 A	50.25 A	700 m A	c
CT6	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.02 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.03 A	50.25 A	700 m A	c
CT7	1.00 A	0.99 A	1.00 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.01 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.06 A	50.25 A	700 m A	c

c = complies with the specification expanded with the uncertainty value
 nc = does not comply with the specification expanded with the uncertainty value
 --- compliance or noncompliance cannot be established



RANGE	STANDARD INSTRUMENT	UNIT UNDER TEST			UNCERTAINTY ±	c
		LOWER LIMIT	READING	UPPER LIMIT		
CT8	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.01 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.00 A	50.25 A	700 m A	c
CT9	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.02 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.01 A	50.25 A	700 m A	c
CT10	1.00 A	0.99 A	1.00 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.06 A	50.25 A	700 m A	c
CT11	1.00 A	0.99 A	1.00 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.02 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.03 A	50.25 A	700 m A	c
CT12	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.02 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.03 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.05 A	50.25 A	700 m A	c
CT13	1.00 A	0.99 A	1.00 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.00 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.01 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.03 A	50.25 A	700 m A	c
CT14	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.02 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.04 A	50.25 A	700 m A	c
CT15	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.02 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.05 A	50.25 A	700 m A	c
CT16	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.03 A	50.25 A	700 m A	c
CT17	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	23 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	33 m A	c
	50.00 A	49.75 A	50.02 A	50.25 A	700 m A	c

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RANGE	STANDARD INSTRUMENT	UNIT UNDER TEST			UNCERTAINTY ±	c
		LOWER LIMIT	READING	UPPER LIMIT		
CT18	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.02 A	5.03 A	8.5 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	11 m A	c
	50.00 A	49.75 A	50.05 A	50.25 A	200 m A	c
CT19	1.00 A	0.99 A	1.00 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	8.5 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	11 m A	c
	50.00 A	49.75 A	50.04 A	50.25 A	200 m A	c
CT20	1.00 A	0.99 A	1.01 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.01 A	5.03 A	8.5 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	11 m A	c
	50.00 A	49.75 A	50.02 A	50.25 A	200 m A	c
CT21	1.00 A	0.99 A	1.00 A	1.01 A	6.0 m A	c
	5.00 A	4.97 A	5.02 A	5.03 A	8.5 m A	c
	10.00 A	9.95 A	10.02 A	10.05 A	11 m A	c
	50.00 A	49.75 A	50.04 A	50.25 A	200 m A	c

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RANGE	STANDARD INSTRUMENT	UNIT UNDER TEST			UNCERTAINTY ±	c
		LOWER LIMIT	READING	UPPER LIMIT		
POWER FACTOR						
CT1						
LEAD	0.600	0.597	0.599	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.803	0.804	0.01	c
	0.900	0.895	0.902	0.905	0.01	c
CT2						
LEAD	0.600	0.597	0.599	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.802	0.804	0.01	c
	0.900	0.895	0.902	0.905	0.01	c
CT3						
LEAD	0.600	0.597	0.598	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT4						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT5						
LEAD	0.600	0.597	0.598	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT6						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT7						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c

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RANGE	STANDARD INSTRUMENT	UNIT UNDER TEST			UNCERTAINTY ±	c
		LOWER LIMIT	READING	UPPER LIMIT		
POWER FACTOR						
CT8						
LEAD	0.600	0.597	0.598	0.603	0.01	c
	0.800	0.796	0.799	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT9						
LEAD	0.600	0.597	0.598	0.603	0.01	c
	0.800	0.796	0.799	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.802	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT10						
LEAD	0.600	0.597	0.599	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.802	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT11						
LEAD	0.600	0.597	0.599	0.603	0.01	c
	0.800	0.796	0.799	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT12						
LEAD	0.600	0.597	0.598	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT13						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.899	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT14						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.799	0.804	0.01	c
	0.900	0.895	0.899	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c

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RANGE	STANDARD INSTRUMENT	UNIT UNDER TEST			UNCERTAINTY ±	c
		LOWER LIMIT	READING	UPPER LIMIT		
POWER FACTOR						
CT15						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.802	0.804	0.01	c
	0.900	0.895	0.902	0.905	0.01	c
CT16						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT17						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.901	0.905	0.01	c
CT18						
LEAD	0.600	0.597	0.600	0.603	0.01	c
	0.800	0.796	0.799	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.902	0.905	0.01	c
CT19						
LEAD	0.600	0.597	0.598	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.602	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.902	0.905	0.01	c
CT20						
LEAD	0.600	0.597	0.599	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.601	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.902	0.905	0.01	c
CT21						
LEAD	0.600	0.597	0.599	0.603	0.01	c
	0.800	0.796	0.800	0.804	0.01	c
	0.900	0.895	0.900	0.905	0.01	c
LAG	0.600	0.597	0.601	0.603	0.01	c
	0.800	0.796	0.801	0.804	0.01	c
	0.900	0.895	0.902	0.905	0.01	c

c = complies with the specification expanded with the uncertainty value
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--- compliance or noncompliance cannot be established

Tec. Y. Yushuvayev
Test. Technician
Date of issue:

06/12/2012

APPROVED BY:
Eng. P. Diamantstein
Test. Engineer