TEST REPORT

Details of Applicant	Applicant	KESECO Co., Ltd.			
	Address	8F, Namyoung Bldg., 284-49 SungSuDong-2Ga, SungDong-Gu, Seoul, South Korea			
	Telephone No.	82-2-3409-1105	FAX No.	82-2-3409-2106	
Details of Manufacturer	Kind of Product	Power Saving Device			
	Model Name	UC-50	Serial No.	N/A	
	Manufacturer	KESECO Co., Ltd.			
	Address	8F, Namyoung Bldg., 284-49 SungSuDong-2Ga, SungDong-Gu, Seoul, South Korea			
Testing Laboratory	Test Report No.	F690501/RF-SAF004580			
	Name	SGS Korea Co., Ltd. (Gunpo Laboratory)			
	Address	18-34, Sanbon-dong, Gunpo-city, Gyeonggi-do, Korea			
	Telephone No.	82-31-428-5700	FAX No.	82-31-427-2373	
	Date of Test(s)	2011. 09. 02 ~ 2011. 09. 05			
	Date of Issue	2011. 10. 04			
	Standard	Test Condition from applicant			
	Test Result	Complied			

Tested by Aaron Kang　　**Approved by** Yuta Kim

SGS Korea Co., Ltd.

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1. Test Environment (測試環境)

- Ambient Temperature: 25 ℃ - 30 ℃ (室溫 25度C ~30度C)

- Relative Humidity: 40 % R.H. - 60 % R.H.(相對溼度40 ~60%)

2. Test Instruments (測試儀器)

(名稱) Name of instruments	(型號) Model name	(序號) Serial No.	(製造商) Manufacturer	(校正日期) Calibration Data
PRECISION POWER ANALYZER	PPA2510	247	KINETIQ	2011-01-07 ~ 2012-01-07
DIGITAL HYGRO-TERMOGRAPH	DHT-1	N/A	DAEYOON Corp.	2011-01-06 ~ 2012-01-06
STOP WATCH	W073-400	710378	SEIKO	2011-01-05 ~ 2013-01-05

3. Test Condition(測試條件)

Process(步驟)	Time (時間)	Remark (備註)
(預熱) Pre-heating	(On:30min, Off:10min)* 1 安裝Ultra前,測試	120℃, 1000ml (設定溫度120度C, 水的容量1000ml)
(未安裝ULTRA) Before	(On:30min, Off:10min)* 2	120℃, 1000ml
(安裝ULTRA) Install	10 min	UC-50 (ULTRA 型號 UC-50)
(安裝ULTRA,調適期1) Adaptation 1	安裝完成後,調適期12小時	
(安裝ULTRA,調適期2) Adaptation 2	more than 12 hours (總共時間約 12 hr)	120℃, 1000ml
(安裝ULTRA,調適期3) Adaptation 3		
(預熱) Pre-heating	(On:30min, Off:10min)* 1 調適期過後,測試	120℃, 1000ml
(安裝ULTRA之後) After	(On:30min, Off:10min)* 2	120℃, 1000ml

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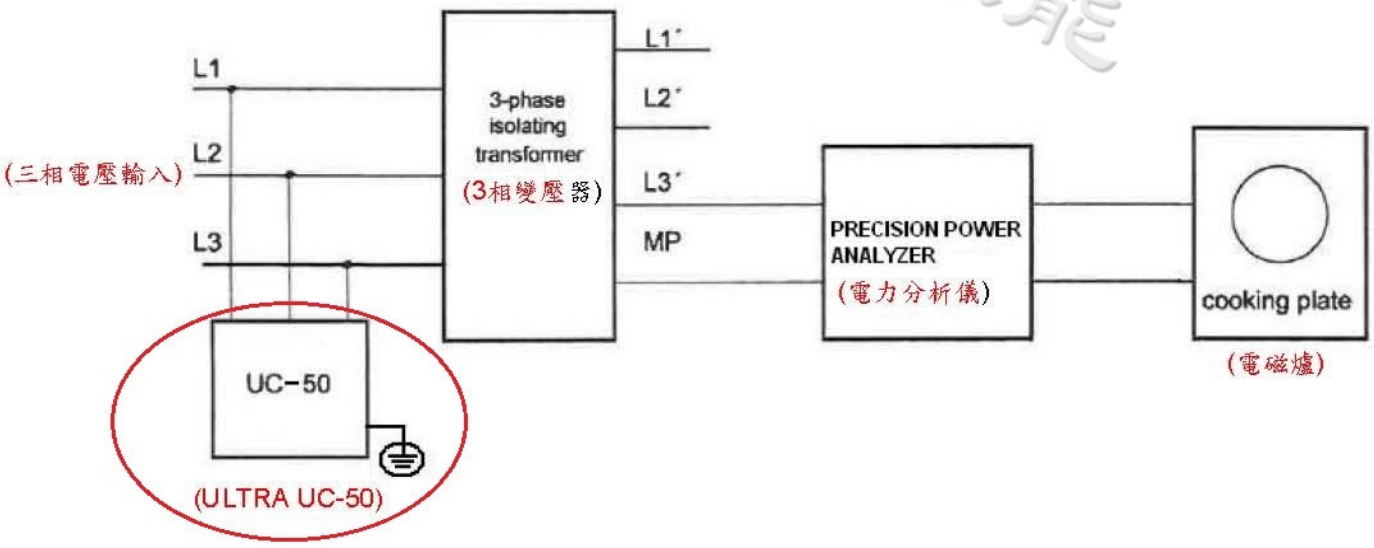
4. Photograph of Product (該測試設備UC-50照片)

陷通資通綠能

5. Test Set-Up (測試系統圖)



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6. Test Result (測試結果)

6.1 Before installation(ULTRA安裝前)

6.1.1 First measuring without UC-50(無ULTRA時,第一次量測)

Time	V	Hz	A	Wh (耗電量)
PM 2:40:00	225.7	59.98	0.0	0
PM 2:45:00	217.5	59.95	4.3	76.40998331
PM 2:50:00	220.5	60.00	3.0	138.0598939
PM 2:55:00	226.5	59.99	0.0	182.1972804
PM 3:00:00	218.2	59.99	3.9	226.2257165
PM 3:05:00	226.3	59.99	0.0	268.7902074
PM 3:10:00	222.1	59.98	2.3	① 313.0049893

6.1.2 Second measuring without UC-50 (無ULTRA時,第二次量測)

Time	V	Hz	A	Wh (耗電量)
PM 3:20:00	227.5	59.99	0.0	0
PM 3:25:00	218.1	59.98	4.3	76.70668205
PM 3:30:00	219.8	59.96	3.5	142.5415251
PM 3:35:00	219.1	60.00	3.7	190.7165219
PM 3:40:00	225.6	59.98	1.7	239.873587
PM 3:45:00	224.9	59.98	2.1	289.535204
PM 3:50:00	217.1	59.99	4.3	② 338.2155585

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6.2 After installation(安裝ULTRA後)

6.2.1 First measuring with UC-50(有ULTRA時,第一次量測)

Time	V	Hz	A	Wh (耗電量)
PM 2:40:00	226.4	60.00	0.0	0
PM 2:45:00	218.1	60.00	4.3	76.53511744
PM 2:50:00	226.2	60.02	0.0	137.6314804
PM 2:55:00	218.6	60.02	3.9	179.2413911
PM 3:00:00	220.0	60.00	3.2	224.8650468
PM 3:05:00	226.4	60.02	0.0	265.7384133
PM 3:10:00	218.3	60.00	4.0	③ 308.2110326

6.2.2 Second measuring with UC-50(有ULTRA時,第二次量測)

Time	V	Hz	A	Wh (耗電量)
PM 3:20:00	226.6	59.99	0.0	0
PM 3:25:00	218.0	59.99	4.3	76.04603694
PM 3:30:00	220.5	60.02	3.0	132.9507811
PM 3:35:00	221.6	60.00	2.5	174.5863011
PM 3:40:00	219.7	60.02	3.5	216.0700045
PM 3:45:00	221.8	60.00	2.5	257.4167623
PM 3:50:00	224.0	59.99	2.4	④ 299.0127759

6.3 Calculation(節能率%計算)

節能率

{(① + ②) - (③ + ④)} / (① + ②) x 100 % = 6.756042856 %

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7. Photograph under Test (測量時照片)

佑通資通綠能

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德國萊茵認證

電磁爐節電測試

TÜV AUSTRIA
SERVICES GMBH

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pzw@tuv.at

Division:
Product Safety

Contact:
Ing. Johann Lipp
Telephon:
+43 (0)1 61091-6730
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TÜV ®

Company
DODEKA Ltd.

To the attention of Mr. Stefan Nestler

Statteggerstraße 60
A-8045 Graz

Vienna, 22.06.2011
dodw0209-LI

Regarding: Power consumption measurement with and without power saving device (有無節能設備時之電力耗能量測)
(主題)
(TÜV order no: 2011-PS/PZW-EX-0068)
TUV 訂單號碼: 2011-PS/PZW-EX-0068)

REPORT
(報告)

佑通資通綠能

As per the order, TUV Austria carried out a comparative measurement of the power consumption of an induction hob with and without power saving device in June 2011.
(TUV 於2011 六月針對電磁爐進行有無節能設備時的電力耗能量測)

Applicant: (申請者)	**DODEKA Ltd.** Statteggerstraße 60 A-8045 Graz
Test object: (測試標的物)	Power saving devices UC-50 and UR-7 (節能設備UC-50 & UR-7)
Manufacturer: (標的物製造商)	KESECO CO., LTD. Korea (韓國 KESECO CO., LTD)

Testing Laboratory,
Inspection Body,
Certification Body,
Calibration Laboratory,
Gaugeing center

Notified Body 0408

Non-executive Board of Directors:
KR Dipl.-Ing. Johann MARIHART

Management:
Dipl.-Ing. Dr. Hugo EBERHARDT
Mag. Christoph WENNINGER

Registered Office:
Krugerstrasse 16
1015 Vienna/Austria

Branch Offices:
Dornbirn, Graz, Innsbruck, Klagenfurt, Linz, Salzburg, St. Pölten Wels, Vienna, Brixen (I) and Filderstadt (D)

Company Register Court / - Number:
Vienna / FN 288476 f

Bank Details:
UC BA 52949 001 066
IBAN
AT131200052949001066
BIC BKAUATWW
RZB 001-04.093.282
IBAN
AT153100000104093282
BIC RZBAATWW

VAT ATU63240488
DVR 3002476

Test object - Figures: (測試標的物照片)

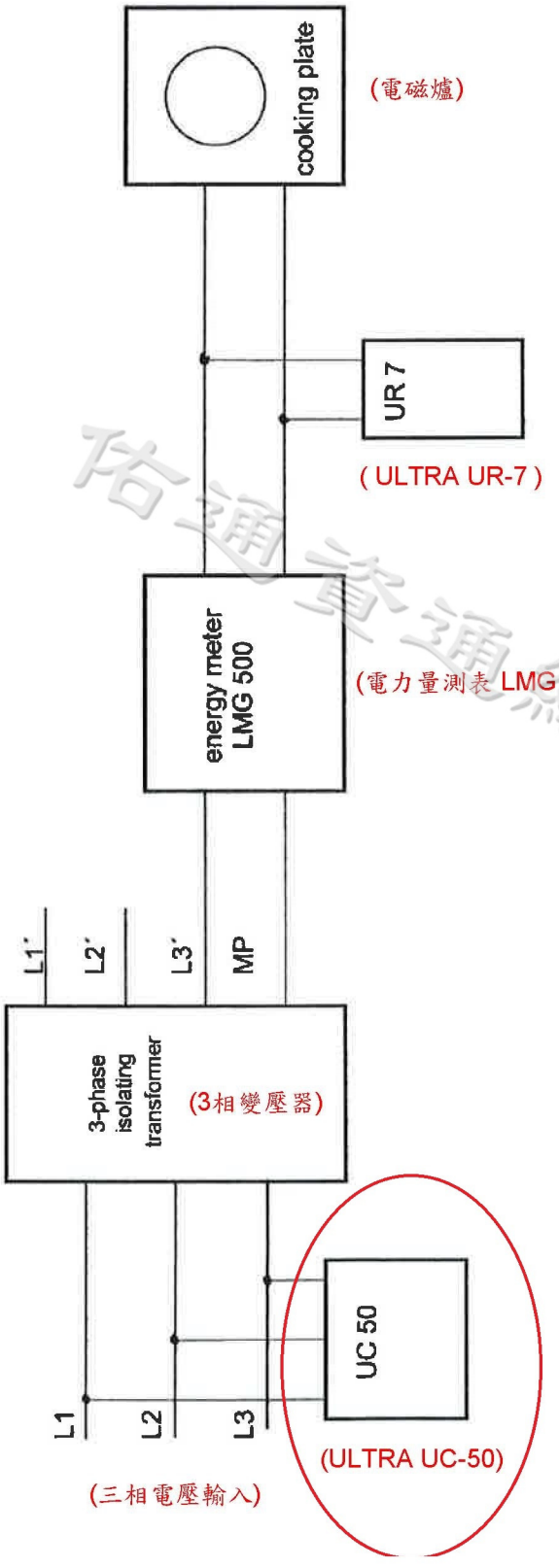
Power saving device UR-7 (節能設備UR-7)

Specification plate: (節能設備UR-7 銘牌)

Power saving device UC-50 (節能設備UC-50)

Specification plate: (節能設備UC-50 銘牌)

Test setup: (測試系統圖)



UC 50.....3-phase energy saving appliance (UC 50.....三相節能設備)
UR 7.....1-phase energy saving appliance (UR-7.....單相節能設備)
3-phase isolating transformer...400V//400V//230V//3500VA (三相 變壓器.....400/400/230V 3500VA.
energie meter.....LMG 500, Zimmer Electronic Systems (電力表.....LMG 500 Zimmer Electronic Systems)
cooking plate.....induction hob, CASO BASIC 2002, Mod. C20L (電磁爐.....CASO BASIC 2002, 型號C20L

Figure Induction hob: (電磁爐照片)

Specification plate of the induction hob: (電磁爐銘牌)

Carrying out the test: (測試步驟)

The power required for boiling 1 litre of water on a new induction hob was first measured without power saving devices.(首先在沒有節能裝置的情況下測量在新的電磁爐上煮沸1升水所需的功率。)
The induction hob was used several times for boiling 1 litre of water for 30 minutes respectively before recording the power consumption values. Before recording the first power consumption value, it was ensured that the induction hob was cold. That is, the last boiling operation took place 30 minutes before recording the value. (在記錄功率消耗值之前，將感應爐分別用於煮沸1升水30分鐘。在記錄第一個功耗值之前，為了確保電磁爐是冷的，最後的沸騰操作發生在記錄該值之前30分鐘。)
The second and third power consumption measurements were carried out 10 minutes after the previous boiling operation. The temperature on the induction hob was set to 100 ° C.
(第二次和第三次功耗測量是在上次沸騰操作之後10分鐘進行的。感應爐上的溫度設置為100℃。)
One boiling operation lasted for 30 minutes, the water temperature was 21.5 °C at the start of each boiling operation, the amount of water used was 1 litre, and the ambient temperature was 25 °C during the boiling operation. (一次煮沸操作持續了30分鐘，在每次煮沸操作開始時水溫為21.5℃，用水量為1公升，並且在煮沸過程中環境溫度為25℃)

1) Measuring the power consumption without power saving devices: (1) 不帶省電裝置測量功耗)

1. Boiling operation: Average value of the operating voltage during the boiling operation: (第一次煮沸: 沸騰過程中工作電壓的平均值：)	228.5V
Time required for the water to reach 90 °C: (水溫達到90度C時,所需的時間)	3 minutes 54.5 s
Power consumption for the water to reach 90 °C: (水溫達到90度C時,所需的功耗)	104.9 Wh
Power consumption for 30 minutes of boiling time: (煮沸30分鐘的耗電值) 100℃	680.0 Wh

⇩ 10分鐘後

2. Boiling operation: Average value of the operating voltage during the boiling operation: (第二次煮沸: 沸騰過程中工作電壓的平均值：)	228.5V
Time required for the water to reach 90 °C: (水溫達到90度C時,所需的時間)	3 minutes 49.5 s
Power consumption for the water to reach 90 °C: (水溫達到90度C時,所需的功耗)	104.08 Wh
Power consumption for 30 minutes of boiling time: (煮沸30分鐘的耗電值) 100℃	656.2 Wh

⇩ 10分鐘後

3. Boiling operation: Average value of the operating voltage during the boiling operation:(第三次煮沸: 沸騰過程中工作電壓的平均值：)	229.4V
Time required for the water to reach 90 °C: (水溫達到90度C時,所需的時間)	3 minutes 51.5 s
Power consumption for the water to reach 90 °C: (水溫達到90度C時,所需的功耗)	104.3 Wh
Power consumption for 30 minutes of boiling time: (煮沸30分鐘的耗電值) 100℃	641.85 Wh

Total power consumption for the 3 boiling operations each of 30 minutes without power saving devices: (無節能設備時,上列三次水煮沸30分鐘的耗電總合值)	**1978.05 Wh**

After measuring the power consumption without the power saving devices, the two power saving devices were installed in the test setup and an adaptation period of 2 days was followed during which the test setup was constantly connected to the mains power and several boiling operations were carried out with 1 litre of water each for 30 minutes. Before recording the first power consumption value, it was ensured that the induction hob was cold. That is, the last boiling operation took place 30 minutes before recording the value.
The second and third power consumption measurement with power saving devices were carried out 10 minutes after the previous boiling operation. The temperature on the induction hob was set to 100 ° C.

One boiling operation lasted for 30 minutes, the water temperature was 21.5 °C at the start of each boiling operation, the amount of water used was 1 litre, and the ambient temperature was 25 °C during the boiling operation.
(在沒有節能裝置的情況下測量功率消耗之後，將兩個節能裝置安裝在測試裝置中（並且遵循2天的適應期）其中測試裝置不斷地連接到主電源並且進行了幾次煮沸操作 每1公升水煮沸30分鐘。
在記錄第一個功耗值之前，必須確保了電磁爐是冷的。 也就是說，最後的沸騰操作發生在記錄該值之前30分鐘。
在第二次和第三次使用省電裝置的功耗測量是在上次煮沸操作之後10分鐘進行的。電磁爐上的溫度設定為100℃
一次煮沸操作持續了30分鐘，在每次煮沸操作開始時水溫為21.5℃，水的用量為1公升，沸騰操作過程中的環境溫度為25℃。)

2) Measuring the power consumption with power saving devices: (2) 帶省電裝置測量功耗)

1. Boiling operation: Average value of the operating voltage during the boiling operation: (第一次煮沸: 沸騰過程中工作電壓的平均值：)	230.1V
Time required for the water to reach 90 °C: (水溫達到90度C時,所需的時間)	3 minutes 54.0 s
Power consumption for the water to reach 90 °C: (水溫達到90度C時,所需的功耗)	104.9 Wh
Power consumption for 30 minutes of boiling time: (煮沸30分鐘的耗電值) 100℃	635.6 Wh

⇩ 10分鐘後

2. Boiling operation: Average value of the operating voltage during the boiling operation: (第二次煮沸: 沸騰過程中工作電壓的平均值：)	229.6V
Time required for the water to reach 90 °C: (水溫達到90度C時,所需的時間)	3 minutes 51.5 s
Power consumption for the water to reach 90 °C: (水溫達到90度C時,所需的功耗)	104.08 Wh
Power consumption for 30 minutes of boiling time: (煮沸30分鐘的耗電值) 100℃	614.0 Wh

⇩ 10分鐘後

3. Boiling operation: Average value of the operating voltage during the boiling operation: (第三次煮沸: 沸騰過程中工作電壓的平均值：)	229.0V
Time required for the water to reach 90 °C: (水溫達到90度C時,所需的時間)	3 minutes 48.5 s
Power consumption for the water to reach 90 °C: (水溫達到90度C時,所需的功耗)	104.3 Wh
Power consumption for 30 minutes of boiling time: (煮沸30分鐘的耗電值) 100℃	630.2 Wh

Total power consumption for the 3 boiling operations each of 30 minutes with power saving devices: (有節能設備時,上列三次水煮沸30分鐘的耗電總合值)	**1879.80 Wh**

Percentage difference between the power consumption for 3 boiling operations with and without power saving devices: 1879.80 Wh / 1978.05 Wh = 0.95 ⇒ Saving: 5.0%
(在有和沒有節能設備的情況下，3次煮沸操作的功耗之間的百分比差異：
1879.80 Wh / 1978Wh = 0.95 ==> 節能：5.0%)

TÜV AUSTRIA

Test result: (測試結果)

The comparative measurement of the power consumption of an induction hob with and without power saving devices UC-50 and UR-7 manufactured by KESECO CO., LTD. showed a saving of 5.0% of power consumption under the same conditions, without the rate of heating decreasing.
(KESECO有限公司生產的省電裝置UC-50和UR-7的電磁爐功率消耗的對比測量。 在相同的條件下節能5.0%，沒有溫度下降。)

The measurement inaccuracy of the energy meter LMG 500 used is ± 0.5Wh.
The measurement inaccuracy of the temperature measuring device used (data logger HIOKI 8430-20 with thermocouples) is ± 0.50 °C.
(所使用的能量計LMG 500的測量不准確度為±0.5Wh。
所使用的溫度測量裝置（具有熱電偶的數據記錄儀HIOKI 8430-20）的測量不准確度為±0.50度C)

We hope this information is of use to you.

省電率5%

TÜV AUSTRIA SERVICES GMBH

Engr. Johann Lipp
Senior expert Product Safety - Electrical (資深專家–電氣產品安全)

Engr. Zoltan Frakas
Technical expert - Electrical
(技術專家 - 電氣)

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Date of issue: 2010-10-20
This report enfolded 8 pages.

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Elektrotechnik und Elektronik

FEDERAL INSTITUTE OF TECHNOLOGY
ELECTRICAL AND
ELECTRONIC ENGINEERING

電磁爐節電測試
空調節電測試
空調制冷效率測試

MEASURING - REPORT

TGM – VA EE 33407A

Power measurement on
energy saving systems
Manufacturer: Keseco
Type: Ultra

佑通資通綠能

Technologisches Gewerbe-Museum · Wien · Höh. Techn. Bundes-Lehr- und Versuchsanstalt

Commissioned by:	...hartner GmbH & CoKG
Address:	...erstrasse 6... / ...g., Industriestraße 19
Order reached:	2...
Sign of order:	Hr. S. Nestler
Receiving of test sample(s):	3317 / 2010-06-15
Test period:	KW 24-26/2010
TGM-number:	515/10

Date of issue: 2010-10-20
This report enfolded 8 pages.

澳地利

國家研究所
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Elektrotechnik und Elektronik

FEDERAL INSTITUTE OF TECHNOLOGY
ELECTRICAL AND
ELECTRONIC ENGINEERING

MEASURING - REPORT

TGM – VA EE 33407A

陌通資通綠能

Power measurement on
energy saving systems
Manufacturer: Keseco
Type: Ultra

Commissioned by:	Dodeka Ltd. / Elektro Schartner GmbH & CoKG
Address:	A-8045 Graz, Satteggerstrasse 60 / A-5600 St. Johann i. Pg., Industriestraße 19
Order reached:	2010-09-22
Sign of order:	Hr. S. Nestler
Receiving of test sample(s):	3317 / 2010-06-15
Test period:	KW 24-26/2010
TGM-number:	515/10

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1 Test order

As ordered we carried out the power consumption and the performance of the energy saving system "Keseco Ultra" by measuring sample applications. The measurements were carried out on the same sample applications with- and without the energy saving system "Keseco Ultra".

2 Test item

Energy saving system: Keseco Ultra

U-803測試電磁爐節電

Manufacturer: Keseco
8F, Namyoung Bldg., 284-49 Sung Su-Dong 2Ga, Sung Dong-Gu, Seoul, Korea

Type: U-803; U-804

Number of test samples: one per type

Ratings: U-803: nominal voltage: 100-600 V, 50/60 Hz
nominal power: 5 kVA
supply line length: 102 cm
serial number: H51004201K 107 N
dimensions: (140x90,3x40,6) mm
U-804: nominal voltage: 100-6000 V, 50/60 Hz
nominal power: 1 kVA
supply line length: 20 cm
serial number: M11006081K 049 N
dimensions: (111x80,5x32,5) mm

3 Test procedure

無論是否使用節能係統"Ultra"每個測量都是在相同條件下進行的

Every measurement was carried out under the same conditions with and without the energy saving system "Keseco Ultra" to compare the power consumption with and without the energy saving system. The energy saving system was activated with load cycles according to the manufacturers specifications (application time) before the measurement with the saving system was done.

Application 1: induction cooker – temperature controlled mode

Test assembly: the power supply (AC 230 V, 50 Hz) was connected to a voltage stabiliser and an isolating transformer. The measurement was carried out with a digital multimeter. During the measurement with the energy saving system, the energy saving system U-803 was installed parallel to the induction cooker. The test procedure and the switching cycles during the tests were specified by the manufacturer. 節能係統U-803與電磁爐平行並接安裝

Load: induction cooker, manufacturer: CASO, type: Basic 2002, Art.Nr.: 2005

During every test the induction cooker was operated in the temperature control mode (reference value 120 °C). 在每次測試中，電磁爐都在溫度控制模式下運行（參考值120° C）

Measurement 1: switching cycles: 4
On- / Off time: 10 min / 5 min 開10分鐘,關5分鐘,量測4次

Measurement 2: switching cycles: 3
On- / Off time: 15 min / 5 min 開15分鐘,關5分鐘,量測3次

Measurement 3: switching cycles: 3
On- / Off time: 30 min / 5 min 開30分鐘,關5分鐘,量測3次

Measurement 1-3 was carried out without an interrupt. The water in the pot was changed after each switching cycle.

Ambient air temperature: 23±2 °C; amount of water: 2l （環境空氣溫度：23±2° C；水量：2L 。）

Application time: Ultra U-803: 7 h Ultra-U-803 適應時間：7小時

Application 2.1: air conditioner– temperature controlled mode 空調－溫度控制模式

Test assembly: the power supply (AC 230 V, 50 Hz) was connected to a voltage stabiliser and an isolating transformer. The measurement was carried out with a digital multimeter. During the measurement with the energy saving system, the energy saving system U-804 was installed parallel to the air conditioner. The test procedure and the switching cycles during the tests were specified by the manufacturer. U-804與空調並接安裝，

Load: air conditioner, manufacturer: ARTEL, type: HP09RL14R (module: indoor, outdoor)

During each test the air conditioner was operated in the temperature control mode (reference value 16 °C). The temperature in the test camber during the whole test was constant 35 °C.

測試室的溫度恆定為35° C，
空調溫度設定在16° C下運行

Measurement 1:	switching cycles: 3 On- / Off time: 5 min / 5 min	開5分鐘，關5分鐘，量測3次
Measurement 2:	switching cycles: 3 On- / Off time: 8 min / 8 min	開8分鐘，關8分鐘，量測8次
Measurement 3:	switching cycles: 4 On- / Off time: 10 min / 5 min	開10分鐘，關5分鐘，量測4次

Application time: Ultra U-804: 5 h Ultra-U-804 適應時間：5小時

U-804測試空調節電

Application 2.2: air conditioner– cooling efficiency 22：空調冷卻效率

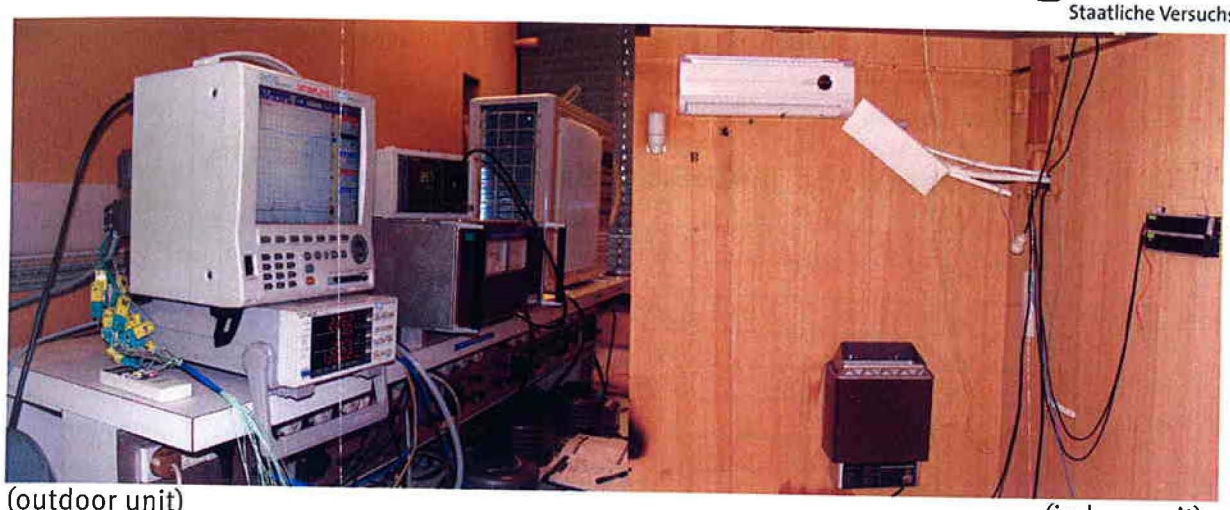
Test assembly: the power supply (AC 230 V, 50 Hz) was connected to a voltage stabiliser and an isolating transformer. The measurement was carried out with a digital multimeter. During the measurement with the energy saving system, the energy saving system U-804 was installed parallel to the air conditioner. The test procedure and the switching cycles during the tests were specified by the manufacturer. 節能係統U-804與空調並行安裝

Load: air conditioner, manufacturer: ARTEL, type: HP09RL14R (module: indoor, outdoor) 組件：室內機，室外機

During each test the air conditioner was operated in the temperature control mode (reference value 16 °C). The temperature in the test camber at the beginning of the test was 35 °C, the test room was not heated during the test.

Measurement : Operating time until the temperature of the test camber reached 16,8 °C.
Dimensions of the test room: (3850x2500x2100) mm

試驗開始時測試室的溫度為35° C，試驗期間試驗室未被加熱，空調溫度設定在16° C下運行
測量： 直到測試室的溫度達到16.8℃的操作時間



(outdoor unit) (indoor unit)

Test equipment:

designation	manufacturer	type	TGM-VA EE ID
stop watch	Quantum	440 9798	SW.00.633Ü
wattmeter	Yokogawa	WT 200	IL.11.024Ü IL.11.026Ü
recorder	Yokogawa	MV 210	IL.11.027Ü IL.11.025Ü
isolating transformer	Ben. & Jäger	W 32/13	HG.00.289H SW.00.606H
voltage stabiliser	Philips	PE 1611/00	IL.00.064H IL.11.023H
climate measuring instrument	Testo	635-2	SW.00.639Ü

節能資源綠能

4. Test result

Application 1: induction cooker – temperature controlled mode

Measurement without energy saving system:

安裝Ultra前測量電磁爐耗電

measurement	cycle	energy consumption [Wh]	accumulated energy consumption [Wh]
1 開10分鐘， 關5分鐘	1	225,8	225,8
	2	214,7	440,5
	3	223,4	663,9
	4	225,7	889,6
2 開15分鐘， 關5分鐘	1	284,1	1173,7
	2	288,2	1461,9
	3	280,2	1742,1
3 開 30 分鐘， 關5分鐘	1	493,0	2235,1
	2	471,7	2706,8
	3	487,2	3194,0

Measurement with energy saving system Ultra, U-803: 安裝Ultra後,測量電磁爐耗電

measurement	cycle	energy consumption [Wh]	accumulated energy consumption [Wh]
1 開10分鐘，關5分鐘	1	234,6	234,6
	2	224,3	458,9
	3	224,3	683,2
	4	219,7	902,9
2 開15分鐘，關5分鐘	1	289,5	1192,4
	2	281,6	1474,0
	3	276,2	1750,2
3 開30分鐘，關5分鐘	1	450,9	2201,1
	2	468,3	2669,4
	3	450,2	3119,6

Comparison:

measurement	energy consumption [Wh] without Ultra U-803	energy consumption [Wh] with Ultra U-803	comparison ΔE [Wh]	[%]
1	889,6	902,9	13,3	1,50
2	852,5	847,1	-5,4	-0,63
3	1451,9	1369,4	-82,5	-5,68

Application 2.1: air conditioner– temperature controlled mode

Measurement without energy saving system: 安裝Ultra前測量空調耗電

measurement	cycle	energy consumption [Wh]	accumulated energy consumption [Wh]
1 開5分鐘，關5分鐘	1	26,73	26,73
	2	26,82	53,55
	3	27,02	80,57
2 開8分鐘，關8分鐘	1	66,87	147,44
	2	66,47	213,91
	3	66,10	280,00
3 開10分鐘，關5分鐘	1	91,60	371,60
	2	91,93	463,53
	3	91,53	555,06
	4	91,43	646,49

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Measurement with energy saving system Ultra, U-804: 安裝Ultra後,測量空調耗電

measurement	cycle	energy consumption [Wh]	accumulated energy consumption [Wh]
1 開5分鐘，關5分鐘	1	25,70	25,70
	2	25,64	51,34
	3	25,28	76,62
2 開8分鐘，關8分鐘	1	61,40	138,02
	2	61,35	199,37
	3	61,78	261,15
3 開10分鐘，關5分鐘	1	85,39	346,54
	2	86,02	432,56
	3	86,40	518,96
	4	88,35	607,31

Comparison:

measurement	energy consumption [Wh] without Ultra U-804	energy consumption [Wh] with Ultra U-804	comparison ΔE 空調省電率 [Wh]	[%]
1	80,57	76,62	-3,95	-4,90
2	199,43	184,53	-14,9	-7,47
3	366,49	346,16	-20,33	-5,55

Application 2.2: air conditioner– cooling efficiency

Measurement without energy saving system: 安裝Ultra前，測量空調制冷效率

operating time [min]	ambient temperature indoor – modul [°C] 室內環境溫度	ambient temperature outdoor – modul [°C] 室外環境溫度	energy consumption energy consumption time interval [Wh]	accumulated energy consumption [Wh]
0	35,1	26,7	0	0
30	26,7	26,7	361	361
60	21,7	27,1	387	748
75	19,8	27,4	190	938
90	18,6	27,7	199	1137
105	17,8	27,6	163	1300
120	17,2	27,8	158	1458
135	17,1	27,6	123	1581
150	16,8	27,5	132	1713

達到16.8℃耗時　　累計用電

Measurement with energy saving system Ultra, U-804: 安裝Ultra後，測量空調制冷效率

operating time [min]	ambient temperature indoor – modul [°C] 室內環境溫度	ambient temperature outdoor – modul [°C] 室外環境溫度	energy consumption	
			energy consumption time interval [Wh]	accumulated energy consumption [Wh]
0	35,2	25,6	0	0
30	27,0	26,4	348	348
60	21,8	27,1	389	737
75	19,8	26,8	192	929
90	18,7	27,0	192	1121
105 達到16.8℃耗時	17,5	27,5	193	1314
120	16,8	27,2	154	1468 累計用電
135	16,8	27,1	125	1593
150	16,4	27,2	129	1722

Comparison: 比較：目標溫度（16.8° C），有裝節能係統U-804，提前30分鐘達到。
The target temperature (16,8 °C) was reached 30 min earlier with the energy saving system U-804. The ambient temperature of the test camber after the whole operating time (150 min) was 16,4 °C. During the whole operating time the accumulated energy consumption with the energy saving system U-804 was 9 Wh (= 0,53%) higher.
整個運行時間（150分鐘）後，測試室的環境溫度為16.4℃。
在整個運行期間，累積的能耗高9W h（= 0.53%）。）

5 Summary

Assuming the conditions described in clause 3 of this report, the following peak values of saved energy were measured:

- Application 1: induction cooker – temperature controlled mode:
  Peak value of saved energy at measurement 3 with Ultra U-803: 5,68%
- Application 2.1: air conditioner– temperature controlled mode
  Peak value of saved energy at measurement 2 with Ultra U-804: 7,47%
- Application 2.2: air conditioner– cooling efficiency:
  Target temperature was reached 30 min (20%) earlier, with a slightly higher energy consumption of 9 Wh (+0,53%).

The measured values are not applicable for interpretation of other load situations.

結論：
應用1：電磁爐－溫度控制模式：使用Ultra U-803測量3時節省的能量峰值：5.68%）
應用2.1：空調－溫度控制模式使用Ultra U-804測量2時節省的能量峰值：7.47%
應用2.2：空調冷卻效率：目標溫度較早達到30分鐘（20%），
功耗略高9 W h（+ 0.53%）

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The present report

is including 8 Pages
0 Appendix(es) (with 0 pages)

Offical in charge: Ing. Dominic Litzka

Vienna, 2010-10-20

Rund-siegel

Prof. Dipl.-Ing. Dr. Wolfgang Nitsche
Head of Department

Dipl.-Ing. Karl Reischer
Principal

1. The test results recorded in this document refer exclusively to the test item described.
2. The documentation and material returned to the client have been marked when necessary by the Testing Institute as far as this is possible.
3. A third party will only be notified of the content of this document at the written agreement of the client.
4. The reproduction of excerpts from this document shall require the permission of the Testing Institute.

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CNAS L1592

编号：2008140

电力工业电力设备及仪表质量检验测试中心

试 验 报 告

（低压质检站）检字 2008 第 140 号

样(试)品名称：ULTKA

样(试)品型号：U-303

生 产 单 位：KESECO Co.,Ltd

委 托 单 位：KESECO Co.,Ltd

试 验 类 别：单项交接试验

2008 年 7 月 30 日

检验单位地址：中国 北京 朝阳 小营东路 22 号
检验单位邮编：100192
检验单位电话：010 62931468
检验单位传真：010-62913139
检验单位网址：http://www.epri.ac.cn

CNAS

Serial number:2008140

The eletrical engineering equipment & meter mesurement experiment Center

電氣工程設備&儀表測量實驗中心

Experiment report

Transformer experiment(Experiment number 2008.140)

實驗報告

佑通資通綠能

Sample name:ULTRA
Sample type:U-303
Manufacturer:KESECO CO.,LTD
Consignment organization:KESECO CO., LTD
Experiment classification: Experiment consignment

July 30th. 2008

The address of research organization: 22 Soyeongdongru Cheongha Beijing China
The zip code of research orgnization: 100192
The telephone number of research organization: 010-6293-1468
The fax number of research organization : 010-6291-3139
The website of research organization: http://www.epri.ac.cn
研究機構網站：中国电力科学研究院

The eletrical engineering equipment & meter measuring experiment CENTER

Experiment Report

Report serial number2008140

Product name	UTRA	Serial number	KEU~I30806032k008N
Model name	U-303	Manufaturer address	8F Namyoung Bldg Sungsudong-2ga Sungdong-Gu,Seoul, Korea
Agent name	KESECO CO., LTD		
Test serial number	08-012-017	Receiving method	
Quantity for sample	1	Arrival date of sample	June 17th 2008
Manufaturer	KESECO CO., LTD	Study date	From July 24th 2008 to July 28th 2008
Study list	1 page	Experiment conditions	Level transformation:AC380V Level capacity:50kVA
Manufatured date	June 10th 2008		
Study standard	Technical condition of products		
Research conclusion	根據產品的技術條件，我們做了一個實驗U－303， 節能器由K eseco公司製造。 實驗結論如下。 Based on technical condition of products, we made an experiment U-303, energy saver manufatured by Keseco co LTD. Experiment conclusion is as follows.		

台通節能綠能

The eletrical engineering equipment & meter measuring experiment CENTER

Experiment Report

Report serial number:2008140

Experiment list & Experiment conclusion

Order	Experiment term	Conclusion	Page number	Order	Experiment term	Conclusion	Page number
1	Performance measure experiment of energy saver	Results are as follows	3				
2	Experiment Picture	/	4				
3	Below filled with blanks						

The equipment of main experiment tester

The name of equipment tester	The name of size model	Serial number
Precise current electri tester	HL23-2	8459. 8460.8461
Connection device	PDJC-2 type	104070702

格通高通绿能

The measurement experiment of energy saving performance

Experiment report

Report serial number: 2008140

環境溫度

Experiment Serial number	08-012-017	Environment temperature©	30.2 ~31.0	Relative temperature	64.3 相對溫度

1.Measurement experiment condition & results 測量實驗條件和結果

Electricity record of voltage, current in manufaturing process of catapults after setting an energy saver 節電器安裝後，電壓及電流記錄

Results for measurement test 測量測試結果

1.Electricity before installing power saver 安裝節電器之前的電力

Starting time for measure experiment			Ending time for measurement experiment 結束時間			Statistic figure			平均電力消耗 Average of electricity consumption	
測量開始時間 Time	Measurement size	Out put	Time	Measurement size	Out put	Time	Measurement size	Out put	Conduction	Average of electricity consumption
21:29	425.51	131	7:28	434.76	1013	10	185	882	18.5	0.2098

2.Electricity consumption After installing a power saver 安裝節電器後耗電量

Starting time for measure experiment			Ending time for measurement experiment			Statistic figure			Average of electricity consumption	
Time	Measurement size	Out put	Time	Measurement size	Out put	Time	Measurement size	Out put	Conduction	Average of electricity consumption
20:45	465.41	6	7:52	476.16	12143	11	215	1237	19.5	0.1738

Descriptiion	1.Catapult used in measuring electric loads in study 2.Study place:Hyejusunyo electricity Ltd 3.24hour works of a catapult,workers shifting working time by 12 hours(shift 8:00am, 8:00pm) 4.Production outputs vary under the under the same time. 5.Product: Speaker case 6.Comparison for necessary electricity consumption making a product
3.Result	結果
Energy saving rate 節能率	Calculating Formula for energy saving rate 17.16% =(Measurement electricity consumption before installing the power saver-Measurement electricity consumption after installing the power save)/Measurement electricity consumption before installing the power saverX100% 計算節能率的公式 17.16%=（測量安裝節電器之前的耗電量－測量之後的耗電量安裝省電） /安裝節電器之前的測量耗電量X 100%
Experiment date	:From July 24th 2008 to July 28th

台灣節電綠能

Experiment picture	The 4th page out of 4
	Report serial number:2008140

空調安裝ULTRA(Air condition filter)前後，電流變化及制冷效率

Report of Reliability Assessment

Test No. : R - 1004008

Client Name : KESECO Co., Ltd.

Test Sample : Air Conditioner Filter (ULTRA)

佑通資通綠能

The above is to test result of the specimen provided by the applicant.

2010. 04. 20.

Korea Institute of Lighting Technology

The result shown in this test report refer only to the sample tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

Daewoo Technopark A-403, #187-7 Dodang-dong, Wonmi-gu, Bucheon-City, Gyeonggido, Korea
Tel : 032-670-8888 Fax : 032-670-8889
www.kilt.re.kr (www.kiltreliability.re.kr)

1. Summary 總結

Electrical and Temperature Tests of Air Conditioner Filter

ULTRA安裝前後,空調的電氣和溫度測試

2. Client and Test Sample

2.1 Name

KESECOM Co., Ltd.

2.2 Test Sample

Air Conditioner Filter (ULTRA)

2.3 Purpose of product

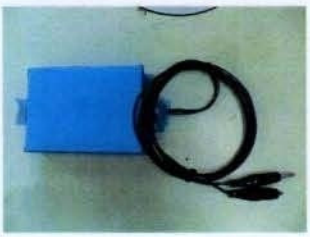
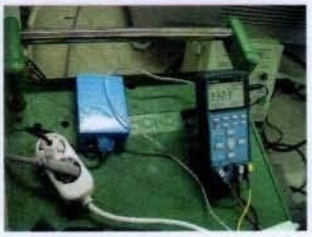
Air Conditioner

3. Specification

3.1 Specification of product

- U-804
- 220 Vac, 60Hz

3.2 Product and Test

Product and Test		
		

4. Date of Test : 2010. 04. 19 ~ 2010. 04. 20

5. Quantities : 1 EA

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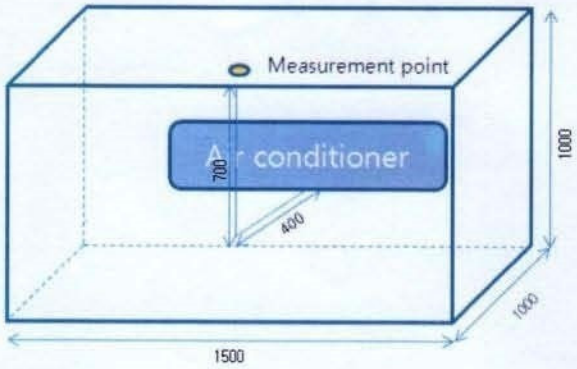
6. Test Method and Result

6.1 Test Conditions



空調安裝在室內，空氣處理單元安裝在室外。 室溫穩定在（40±2）°C後，測量輸入電流，每次工作時間為60 s / 90 s / 300 s。 反複測量客戶端提交的ULTRA(Air condition filter)。

6.2 On-off test

Air Conditioner is installed inside the chamber and Air Handling Unit is installed outside the chamber. After the chamber temperature is stable at (40±2) ℃, it is measured input current with operating on and off each for 60 s/90 s/300 s. It is measured repeatedly that Air Conditioner Filter which submitted by client is installed.

Test Condition	Unit	Test Result(Input current)		Remark
		no filter	with filter	
60 s ON/OFF	A	1.89	1.80	average after operating 30s
		1.91	1.81	
		1.88	1.80	
		1.84	1.80	
		1.86	1.82	
		1.86	1.81	
		1.86	1.79	
		1.88	1.81	
		1.88	1.80	
		1.86	1.80	
		1.86	1.79	
		1.88	1.79	
		1.88	1.80	
		1.87	1.79	
		1.88	1.80	

安裝ULTRA前 安裝ULTRA後

安裝ULTRA前 安裝ULTRA後

Test Condition	Unit	Test Result(Input current)		Remark
		no filter	with filter	
90 s ON/OFF	A	1.92	1.80	average after operating 30s
		1.92	1.80	
		1.91	1.81	
		1.90	1.80	
		1.90	1.80	
		1.91	1.81	
		1.89	1.80	
		1.87	1.80	
		1.87	1.79	
		1.87	1.81	
300 s ON/OFF	A	1.92	1.82	average after operating 60s
		1.94	1.83	
		1.94	1.83	

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6.3 Temperature Tests

Air Conditioner is installed inside the chamber and Air Handling Unit is installed outside the chamber. After the chamber temperature is stable at (40±2) ℃, the chamber is stopped and Air Conditioner is operated(set-up temperature 18 ℃). It is measured temperature and time at Air Conditioner auto stop. It is measured repeatedly that Air Conditioner Filter which submitted by client is installed.

Test items	Test Result(Input current)		Remark
	no filter	with filter	
Air Conditioner stop time	830 s	817 s	空調到達14.8℃耗費時間
Temperature	14.8 ℃	14.8 ℃	

空調安裝在室內，空氣處理單元安裝在室外。 室內溫度穩定在（40±2）°C後，室內停止運行，空調運行（設定溫度18°C）。 在空調自動停止時測量溫度和時間。 反複測量客戶端提交的ULTRA(Air condition filter)