

# 中華民國國家標準

## C N S

### 電力計量設備 (AC) —特別要求— 第 21 部：靜態有效電力計 (等級 1 及 2)

Electricity metering equipment (a.c.) –  
Particular requirements –Part 21: Static  
meters for active energy (classes 1 and 2)

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## 目錄

節次	頁次
前言 .....	2
1. 適用範圍 .....	3
2. 引用標準 .....	3
3. 用語及定義 .....	<del>43</del>
4. 標準電氣值 .....	<del>43</del>
5. 機械性能要求 .....	<del>43</del>
6. 氣候條件 .....	<del>53</del>
7. 電氣性能要求 .....	<del>54</del>
7.1 功率消耗 .....	<del>54</del>
7.2 短時過電流的影響 .....	<del>85</del>
7.3 自熱的影響 .....	<del>95</del>
7.4 交流電壓試驗 .....	<del>106</del>
8. 準確度要求 .....	<del>106</del>
8.1 由於電流變化引起的誤差限制值 .....	<del>106</del>
8.2 由影響量引起的誤差限制值 .....	<del>127</del>
8.3 啟動及無負載狀態的試驗 .....	<del>179</del>
8.4 靜態瓦時計常數 .....	<del>1910</del>
8.5 精度試驗條件 .....	<del>1910</del>
附錄 A (規定)直流、偶次諧波、奇次諧波和次諧波的試驗電路圖 .....	<del>2513</del>
附錄 B (規定)用於測試外部產生的磁場影響的電磁鐵 .....	<del>3415</del>
參考標準 .....	<del>3616</del>

## 前言

本標準係依據 2016 年發行之第 1.1 版 ISO/IEC 62053-21，不變更技術內容，修訂成為中華民國國家標準者。

本標準係依標準法之規定，經國家標準審查委員會審定，由主管機關公布之中華民國國家標準。

依標準法第四條之規定，國家標準採自願性方式實施。但經各該目的事業主管機關引用全部或部分內容為法規者，從其規定。

本標準並未建議所有安全事項，使用本標準前應適當建立相關維護安全與健康作業，並且遵守相關法規之規定。

本標準之部分內容，可能涉及專利權、商標權與著作權，主管機關及標準專責機關不負責任何或所有此類專利權、商標權與著作權之鑑別。

## 1. 適用範圍

本標準僅適用於精度等級為 1 及 2 新製造的靜態瓦時計，用於測量 50 Hz 或 60Hz 電路中的交流電有效電力，並且僅適用於其型式試驗。

### 1 Scope

This part of IEC 62053 applies only to newly manufactured static watt-hour meters of accuracy classes 1 and 2, for the measurement of alternating current electrical active energy in 50 Hz or 60 Hz networks and it applies to their type tests only.

本標準僅適用於室內及室外使用的靜態瓦時計，包括安裝在靜態瓦時計外殼中的測量元件和紀錄器。亦適用於操作指示器和測試輸出。如果靜態瓦時計具有多種形式電能的測量元件(多電能靜態瓦時計)，或者當其他功能元件諸如最大需量指示器、電子資費紀錄器、時間開關、漣波控制接收器、數據通信介面等被安裝在靜態瓦時計外殼中，則此等元件之相關標準亦適用。

It applies only to static watt-hour meters for indoor and outdoor application consisting of a measuring element and register(s) enclosed together in a meter case. It also applies to operation indicator(s) and test output(s). If the meter has a measuring element for more than one type of energy (multi-energy meters), or when other functional elements, like maximum demand indicators, electronic tariff registers, time switches, ripple control receivers, data communication interfaces, etc. are enclosed in the meter case, then the relevant standards for these elements also apply.

本標準不適用於：

- 瓦時計之連接端子兩端的電壓超過 600 V (多相系統用瓦時計之線對線電壓)；
- 可攜式瓦時計；
- 靜態瓦時計紀錄器之數據介面；
- 基準靜態瓦時計。

安全性規定參見 IEC 62052-31:2015

關於驗收試驗參見 IEC 62058-11:2008 及 IEC 62058-31:2008

可靠性規定參見 IEC 62059 系列的標準。

It does not apply to:

- watt-hour meters where the voltage across the connection terminals exceeds 600 V (line-to-line voltage for meters for polyphase systems);
- portable meters;
- data interfaces to the register of the meter;
- reference meters.

The safety aspect is covered by IEC 62052-31:2015.

Regarding acceptance tests, ~~a basic guideline is given in IEC 61358~~ see IEC 62058-11:2008 and IEC 62058-31:2008.

The dependability aspect is covered by the standards of the IEC 62059 series.

## 2. 引用標準

下列標準因本標準所引用，成為本標準之一部分。有加註年分者，適用該年分之版次，不適用於其後之修訂版(包括補充增修)。無加註年分者，適用該最新版(包括補充增修)。

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62052-11:2003 Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 11 : Metering equipment

Amendment 1 (2016)

IEC 62052-31:2015 Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 31. Product safety requirements and tests

IEC 62053-61:1998 Electricity metering equipment (a.c.) – Particular requirements – Part 61: Power consumption and voltage requirements

IEC 62052-11:2003, *Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 11: Metering equipment Amendment 1 (2016)*

IEC 62052-31:2015, *Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 31: Product safety requirements and tests*

IEC 62053-61:1998, *Electricity metering equipment (a.c.) – Particular requirements – Part 61: Power consumption and voltage requirements*

## 3. 用語及定義

IEC 62052-11 之用語及定義適用於本標準。

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62052-11 apply.

## 4. 標準電氣值

IEC 62052-11 所示的值適用。

### 4 Standard electrical values

The values given in IEC 62052-11 apply.

## 5. 機械性能要求

IEC 62052-11 之要求適用。

### 5 Mechanical requirements

The requirements of IEC 62052-11 apply.

6. 氣候條件

IEC 62052-11 所示之條件適用。

<p><b>6 Climatic conditions</b></p> <p>The conditions given in IEC 62052-11 apply.</p>
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7. 電氣性能要求

除 IEC 62052-11 中之電氣要求外，靜態瓦時計應符合下列要求。

<p><b>7 Electrical requirements</b></p> <p>In addition to the electrical requirements in IEC 62052-11, meters shall fulfil the following requirements.</p>
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7.1 功率消耗

電壓電路及電流電路中的功率消耗應依 8.5 所示的參考條件下之任何合適的方法測定。功率消耗測量的總體最大誤差不應超過 5 %。

<p><b>7.1 Power consumption</b></p> <p>The power consumption in the voltage and current circuit shall be determined at reference conditions given in 8.5 by any suitable method. The overall maximum error of the measurement of the power consumption shall not exceed 5 %.</p>
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7.1.1 電壓電路

在參考電壓、參考溫度及參考頻率下，靜態瓦時計每個電壓電路的有效及視在功率消耗不應超過表 1 所示的值。

<p><b>7.1.1 Voltage circuits</b></p> <p>The active and apparent power consumption in each voltage circuit of a meter at reference voltage, reference temperature and reference frequency shall not exceed the values shown in Table 1.</p>
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表 1 單相及多相靜態瓦時計之電壓電路的功率消耗及電源

靜態瓦時計	連接到電壓電路之電源	未連接到電壓電路之電源
電壓電路	2W 及 10 VA	0.5 VA
輔助電源	—	10 VA

備考 1. 為了使電壓互感器(比壓器)與靜態瓦時計相匹配，靜態瓦時計製造商應說明負載是電感性或是電容性(僅適用於變壓器操作之靜態瓦時計)

備考 2. 上述數值為平均值。允許切換功率峰值超過這些規定值的電源，但應確保相關電壓互感器有足夠的額定值。

備考 3. 對於多功能靜態瓦時計，參見 IEC 62053-61。

**Table 1 – Power consumption in voltage circuits for single-phase and polyphase meters including the power supply**

Meters	Power supply connected to the voltage circuits	Power supply not connected to the voltage circuits
Voltage circuit	2 W and 10 VA	0.5 VA
Auxiliary power supply	–	10 VA

NOTE 1 In order to match voltage transformers to meters, the meter manufacturer should state whether the burden is inductive or capacitive (for transformer operated meters only).

NOTE 2 The above figures are mean values. Switching power supplies with peak power values in excess of these specified values are permitted, but it should be ensured that the rating of associated voltage transformers is adequate.

NOTE 3 For multifunctional meters see IEC 62053-61.

**7.1.2 電流電路**

在基本電流、基準頻率和基準溫度下，直接連接靜態瓦時計的每個電流電路所測得的視在功率不應超過表 2 中所示的值。

**7.1.2 Current circuits**

The apparent power taken by each current circuit of a direct connected meter at basic current, reference frequency and reference temperature shall not exceed the values shown in Table 2.

靜態瓦時計在基準溫度和基準頻率下，其電流值等於相應變壓器的額定二次電流時，經由電流互感器(比流器)連接靜態瓦時計的每個電流電路測得的視在功率不應超過表 2 所示的值。

The apparent power taken by each current circuit of a meter connected through a current transformer shall not exceed the value shown in Table 2 at a current value that equals the rated secondary current of the corresponding transformer at reference temperature and reference frequency of the meter.

表 2 電流電路之功率消耗

靜態瓦時計	靜態瓦時計等級	
	1	2
單相及多相	4.0 VA	2.5 VA

備考 1. 額定二次電流是電流互感器上顯示的二次電流值，變壓器的性能基於此值。最大二次電流的標準值是額定二次電流的 120 %、150 % 及 200 %。

備考 2. 為了使電流互感器與靜態瓦時計相匹配，靜態瓦時計製造商應指明負載是電感性還是電容性(僅對於變壓器操作的靜態瓦時計)。



Table 2 – Power consumption in current circuits

Meters	Class of meter	
	1	2
Single-phase and polyphase	4,0 VA	2,5 VA
NOTE 1 The rated secondary current is the value of the secondary current indicated on the current transformer, on which the performance of the transformer is based. Standard values of maximum secondary current are 120 %, 150 % and 200 % of the rated secondary current.		
NOTE 2 In order to match current transformers to meters, the meter manufacturer should state whether the burden is inductive or capacitive (for transformer operated meters only).		

7.2 短時過電流的影響

短時過電流不應損壞靜態瓦時計。靜態瓦時計在恢復到初始工作狀態時應能正常工作，且誤差的變化不應超過表 3 所示的值。

**7.2 Influence of short-time overcurrents**

Short-time overcurrents shall not damage the meter. The meter shall perform correctly when back to its initial working condition and the variation of error shall not exceed the values shown in Table 3.

試驗電路實際上應為非電感性電路，並且對多相靜態瓦時計應逐相進行試驗。

在施加短時過電流並保持在端子處的電壓之後，在電壓電路通電中(約 1 小時)，應允許靜態瓦時計返回初始溫度。

The test circuit shall be practically non-inductive and the test shall be performed for polyphase meters phase-by-phase.

After the application of the short-time overcurrent with the voltage maintained at the terminals, the meter shall be allowed to return to the initial temperature with the voltage circuit(s) energized (about 1 h).

(a) 直接連接的靜態瓦時計

在額定頻率下，靜態瓦時計應能承受  $30 I_{max}$  最大短時過流半個週期，相對容許差為 +0 % 至 -10 %。

a) Meter for direct connection

The meter shall be able to carry a short-time overcurrent of  $30 I_{max}$  with a relative tolerance of +0 % to -10 % for one half-cycle at rated frequency.

(b) 經由電流互感器(比流器)連接的靜態瓦時計

靜態瓦時計應能夠承載等於  $20 I_{max}$  的電流 0.5 S，相對容許差為 +0 % 至 -10 %。

b) Meter for connection through current transformer

The meter shall be able to carry for 0,5 s a current equal to  $20 I_{max}$  with a relative tolerance of +0 % to -10 %.

備考：此要求不適用於在電流電路中具有接觸器的靜態瓦時計。對於此種情況，請參閱適當的標準。

NOTE This requirement does not apply to meters having a contact in the current circuits. For this case, see appropriate standards.

表 3 由於短時過電流引起的變化

靜態瓦時計用於	電流值	功率因數	靜態瓦時計等級的百分比誤差變化的限制值	
			1	2
直接連接	$I_b$	1	1.5	1.5
經由電流互感器 (比流器)連接	$I_n$	1	0.5	1.0

**Table 3 – Variations due to short-time overcurrents**

Meters for	Value of current	Power factor	Limits of variations in percentage error for meters of class	
			1	2
Direct connection	$I_b$	1	1,5	1,5
Connection through current transformers	$I_n$	1	0,5	1,0

除了涵蓋計量方面的現有要求和試驗外，IEC 62052-31:2015, 6.9.8 中規定的安全相關要求以及 6.10.5 和 6.10.6 中規定的試驗也適用。

In addition to the existing requirements and tests covering the metrology aspect, safety related requirements specified in IEC 62052-31:2015, 6.9.8 and tests specified in 6.10.5 and 6.10.6 apply.

### 7.3 自熱的影響

由於自熱引起的誤差變化不應超過表 4 中所示的值。

**7.3 Influence of self-heating**

The variation of error due to self-heating shall not exceed the values given in Table 4.

表 4 由於自熱而變化

電流值	功率因數	靜態瓦時計等級的百分比誤差變化的限制值	
		1	2
$I_{max}$	1	0.7	1.0
	0.5 電感性	1.0	1.5

**Table 4 – Variations due to self-heating**

Value of current	Power factor	Limits of variations in percentage error for meters of class	
		1	2
$I_{max}$	1	0,7	1,0
	0,5 inductive	1,0	1,5

試驗應依如下方式進行：電壓電路在基準電壓下且電流電路中沒有任何電流對 1 級通電至少 2 小時及對 2 級通電至少 1 小時後，應於電流電路施加最大電流。靜態瓦時計誤差應在施加電流後立即以單位功率因數測量，然後以足夠短的時間間隔測量，以便能夠正確繪製作為時間函數的誤差變化曲線。試驗應至少進行 1 小時，並且無論如何直到 20 分鐘內誤差的變化不超過 0.2 %。

The test shall be carried out as follows: after the voltage circuits have been energized at reference voltage for at least 2 h for class 1 and 1 h for class 2, without any current in the current circuits, the maximum current shall be applied to the current circuits. The meter error shall be measured at unity power factor immediately after the current is applied and then at intervals short enough to allow a correct drawing to be made of the curve of error variation as a function of time. The test shall be carried out for at least 1 h, and in any event until the variation of error during 20 min does not exceed 0,2 %.

然後應在 0.5 (電感性)功率因數下進行相同的試驗。

The same test shall then be carried out at 0,5 (inductive) power factor.

試驗電纜應符合 IEC 62052-31:2015,4.3.2.11 之規定。

Test cables shall be as specified in IEC 62052-31:2015, 4.3.2.11.

#### 7.4 交流電壓試驗

IEC 62052-31:2015, 6.10.4.3.4 適用。

#### 7.4 AC voltage test

IEC 62052-31:2015, 6.10.4.3.4 applies.

#### 8. 準確度要求

IEC 62052-11 規定的試驗及試驗條件適用。

#### 8 Accuracy requirements

Tests and test conditions given in IEC 62052-11 apply.

#### 8.1 由於電流變化引起的誤差限制值

當靜態瓦時計在 8.5 中規定的基準條件時。百分比誤差不得超過表 6 和表 7 中所示的相關準確度等級的限制值。

#### 8.1 Limits of error due to variation of the current

When the meter is under the reference conditions given in 8.5, the percentage errors shall not exceed the limits for the relevant accuracy class given in Tables 6 and 7.

如果靜態瓦時計設計用於雙向電能測量。表 6 和表 7 中的值適用於每個方向。

If the meter is designed for the measurement of energy in both directions, the values in Table 6 and Table 7 shall apply for each direction.

表 6 百分比誤差限制值

(單相靜態瓦時計和具有平衡負載的多相靜態瓦時計)

電流值		功率因數	靜態瓦時計等級之百分比誤差的限制值	
用於直接連接之靜態瓦時計	用於變壓器操作之靜態瓦時計		1	2
$0.05 I_b \leq I < 0.1 I_b$	$0.02 I_n \leq I < 0.05 I_n$	1	±1.5	±2.5

$0.1 I_b \leq I \leq I_{max}$	$0.05 I_n \leq I \leq I_{max}$	1	$\pm 1.0$	$\pm 2.0$
$0.1 I_b \leq I < 0.2 I_b$	$0.05 I_n \leq I < 0.1 I_n$	0.5 電感性	$\pm 1.5$	$\pm 2.5$
		0.8 電容性	$\pm 1.5$	—
$0.2 I_b \leq I \leq I_{max}$	$0.1 I_n \leq I \leq I_{max}$	0.5 電感性 0.8 電容性	$\pm 1.0$ $\pm 1.0$	$\pm 2.0$
當用戶特別要求時： 從		0.25 電感性 0.5 電容性	$\pm 3.5$ $\pm 2.5$	— —
$0.2 I_b \leq I \leq I_b$	$0.1 I_n \leq I \leq I_n$			

**Table 6 – Percentage error limits  
(single-phase meters and polyphase meters with balanced loads)**

Value of current		Power factor	Percentage error limits for meters of class	
for direct connected meters	for transformer operated meters		1	2
$0,05 I_b \leq I < 0,1 I_b$	$0,02 I_n \leq I < 0,05 I_n$	1	$\pm 1,5$	$\pm 2,5$
$0,1 I_b \leq I \leq I_{max}$	$0,05 I_n \leq I \leq I_{max}$	1	$\pm 1,0$	$\pm 2,0$
$0,1 I_b \leq I < 0,2 I_b$	$0,05 I_n \leq I < 0,1 I_n$	0,5 inductive	$\pm 1,5$	$\pm 2,5$
		0,8 capacitive	$\pm 1,5$	-
$0,2 I_b \leq I \leq I_{max}$	$0,1 I_n \leq I \leq I_{max}$	0,5 inductive	$\pm 1,0$	$\pm 2,0$
		0,8 capacitive	$\pm 1,0$	-
When specially requested by the user:		0,25 inductive 0,5 capacitive	$\pm 3,5$ $\pm 2,5$	- -
From $0,2 I_b \leq I \leq I_b$	$0,1 I_n \leq I \leq I_n$			

表 7 百分比誤差限制值

(多相靜態瓦時計承載單相負載，但具有施加於電壓電路的平衡多相電壓)

電流值		功率因數	靜態瓦時計等級之百分比誤差的限制值	
用於直接連接之靜態瓦時計	用於變壓器操作之靜態瓦時計		1	2
$0.1 I_b \leq I \leq I_{max}$	$0.05 I_n \leq I \leq I_{max}$	1	±2.0	±3.0
$0.2 I_b \leq I \leq I_{max}$	$0.1 I_n \leq I \leq I_{max}$	0.5 電感性	±2.0	±3.0

**Table 7 – Percentage error limits  
(polyphase meters carrying a single-phase load,  
but with balanced polyphase voltages applied to voltage circuits)**

Value of current		Power factor	Percentage error limits for meters of class	
for direct connected meters	for transformer operated meters		1	2
$0,1 I_b \leq I \leq I_{max}$	$0,05 I_n \leq I \leq I_{max}$	1	± 2,0	± 3,0
$0,2 I_b \leq I \leq I_{max}$	$0,1 I_n \leq I \leq I_{max}$	0,5 inductive	± 2,0	± 3,0

當靜態瓦時計承載單相負載與平衡多相負載，對於直接連接靜態瓦時計在基本電流  $I_b$  及單位功率因數時、另對於變壓器操作靜態瓦時計在額定電流  $I_n$  和單位功率因數時，其 1 級和 2 級的靜態瓦時計之百分比誤差的差值分別不超過 1.5 % 和 2.5 %。

The difference between the percentage error when the meter is carrying a single-phase load and a balanced polyphase load at basic current  $I_b$  and unity power factor for direct connected meters, respectively at rated current  $I_n$  and unity power factor for transformer operated meters, shall not exceed 1,5 % and 2,5 % for meters of classes 1 and 2 respectively.

備考：在測試是否符合表 7 時，應按順序將試驗電流施加於每個測量元件。

NOTE When testing for compliance with Table 7, the test current should be applied to each measuring element in sequence.

**8.2 由影響量引起的誤差限制值**

如 8.5 中所示的影響量相對於基準條件的變化引起的額外百分比誤差不應超過表 8 中所示的相關精度等級的限制值。

**8.2 Limits of error due to influence quantities**

The additional percentage error due to the change of influence quantities with respect to reference conditions, as given in 8.5, shall not exceed the limits for the relevant accuracy class given in Table 8.

表 8 影響量

影響量	電流值(平衡的，除非另有規定)		功率因數	靜態瓦時計等級之平均溫度係數%/K	
	用於直接連接的靜態瓦時計	用於變壓器操作的靜態瓦時計		1	2

周圍溫度變化 <sup>(9)</sup>	$0.1 I_b \leq I \leq I_{max}$ $0.2 I_b \leq I \leq I_{max}$	$0.05 I_n \leq I \leq I_{max}$	1 0.5 電感性	0.05 0.07	0.10 0.15
	$0.2 I_b \leq I \leq I_{max}$	$0.1 I_n \leq I \leq I_{max}$	0.5 電感性	0.07	0.15
				靜態瓦時計等級的百分比誤差變化的限制值	
				1	2
電壓變化 $\pm 10\%$ <sup>(1)(8)</sup>	$0.05 I_b \leq I \leq I_{max}$ $0.1 I_b \leq I \leq I_{max}$	$0.02 I_n \leq I \leq I_{max}$ $0.05 I_n \leq I \leq I_{max}$	1 0.5 電感性	0.7 1.0	1.0 1.5
	$0.05 I_b \leq I \leq I_{max}$ $0.1 I_b \leq I \leq I_{max}$	$0.02 I_n \leq I \leq I_{max}$ $0.05 I_n \leq I \leq I_{max}$	1 0.5 電感性	0.5 0.7	0.8 1.0
反相序列	$0.1 I_b$	$0.1 I_n$	1	1.5	1.5
電壓不平衡 <sup>(3)</sup>	$I_b$	$I_n$	1	2.0	4.0
電流及電壓電路中的諧波分量 <sup>(5)</sup>	$0.5 I_{max}$	$0.5 I_{max}$	1	0.8	1.0

Table 8 – Influence quantities

Influence quantity	Value of current (balanced unless otherwise stated)		Power factor	Mean temperature coefficient %/K for meters of class	
	for direct connected meters	for transformer-operated meters		1	2
Ambient temperature variation <sup>9)</sup>	$0,1 I_b \leq I \leq I_{max}$	$0,05 I_n \leq I \leq I_{max}$	1	0,05	0,10
	$0,2 I_b \leq I \leq I_{max}$	$0,1 I_n \leq I \leq I_{max}$	0,5 inductive	0,07	0,15
				Limits of variation in percentage error for meters of class	
				1	2
Voltage variation $\pm 10\%$ <sup>(1)(8)</sup>	$0,05 I_b \leq I \leq I_{max}$ $0,1 I_b \leq I \leq I_{max}$	$0,02 I_n \leq I \leq I_{max}$ $0,05 I_n \leq I \leq I_{max}$	1 0,5 inductive	0,7 1,0	1,0 1,5
	$0,05 I_b \leq I \leq I_{max}$ $0,1 I_b \leq I \leq I_{max}$	$0,02 I_n \leq I \leq I_{max}$ $0,05 I_n \leq I \leq I_{max}$	1 0,5 inductive	0,5 0,7	0,8 1,0
Reversed phase sequence	$0,1 I_b$	$0,1 I_n$	1	1,5	1,5
Voltage unbalance <sup>3)</sup>	$I_b$	$I_n$	1	2,0	4,0
Harmonic components in the current and voltage circuits <sup>5)</sup>	$0,5 I_{max}$	$0,5 I_{max}$	1	0,8	1,0
DC and even harmonics in the a.c. current circuit <sup>4)</sup>	$\frac{I_{max}}{\sqrt{2}}$ <sup>2)</sup>	–	1	3,0	6,0
Odd harmonics in the a.c. current circuit <sup>5)</sup>	$0,5 I_b$ <sup>2)</sup>	$0,5 I_n$ <sup>2)</sup>	1	3,0	6,0

表 8 影響量(續)

影響量	電流值(平衡的, 除非另有規定)		功率因數	靜態瓦時計等級的百分比誤差變化的限制值靜態瓦時計等級之平均溫度係數 %/K	
	用於直接連接的靜態瓦時計	用於變壓器操作的靜態瓦時計		1	2
交流電流電路中的直流和偶次諧波 <sup>(4)</sup>	$\frac{I_{max}}{\sqrt{2}}$ <sup>(2)</sup>	—	1	3.0	6.0
交流電流電路中的奇次諧波 <sup>(5)</sup>	0.5 I <sub>b</sub> <sup>(2)</sup>	0.5 I <sub>n</sub> <sup>(2)</sup>	1	3.0	6.0
交流電流電路中的次諧波 <sup>(5)</sup>	0.5 I <sub>b</sub> <sup>(2)</sup>	0.5 I <sub>n</sub> <sup>(2)</sup>	1	3.0	6.0
外部原點的連續磁感應 <sup>(5)</sup>	I <sub>b</sub>	I <sub>n</sub>	1	2.0	3.0
外部原點磁感應 0.5 mT <sup>(6)</sup>	I <sub>b</sub>	I <sub>n</sub>	1	2.0	3.0
電磁射頻場	I <sub>b</sub>	I <sub>n</sub>	1	2.0	3.0
配件的操作 <sup>(7)</sup>	0.05 I <sub>b</sub>	0.05 I <sub>n</sub>	1	0.5	1.0
由射頻場引起的傳導干擾	I <sub>b</sub>	I <sub>n</sub>	1	2.0	3.0
快速瞬態叢發(burst)	I <sub>b</sub>	I <sub>n</sub>	1	4.0	6.0
阻尼振盪波抗擾性 <sup>(10)</sup> (immunity)	—	I <sub>n</sub>	1	2.0	3.0

(1) 對於-20 %至-10 %及+10 %至+15 %的電壓範圍, 百分比誤差的變化限制值是表中所示值的 3 倍。低於 0.8 U<sub>n</sub> 時, 靜態瓦時計的誤差可能在+10 %及-100 %之間變化。

1) For the voltage ranges from -20 % to -10 % and +10 % to +15 % the limits of variation in percentage errors are three times the values given in this table.  
Below 0,8 U<sub>n</sub> the error of the meter may vary between +10 % and -100 %.

(2) 電壓的失真因數應小於 1 %。試驗條件見 8.2.2 及 8.2.3。

2) The distortion factor of the voltage shall be less than 1 %. For test condition see 8.2.2 and 8.2.3.

(3) 具有三個測量元件的多相靜態瓦時計應在本表所示百分比誤差變化限制值內測量和記錄下列相位是否中斷:

- 在三相四線電路中的一相或兩相;
  - 在三相三線電路中(如果靜態瓦時計是為此服務設計的)三相中的一相。
- 僅包括相位中斷, 不包括例如變壓器熔絲失效等情況。

3) Polyphase meters with three measuring elements shall measure and register, within the limits of variation in percentage error shown in this table, if the following phases are interrupted:  
— in a three-phase, four wire network one or two phases;  
— in a three-phase, three-wire network (if the meter is designed for this service) one of the three phases.  
This only covers phase interruptions and does not cover events such as transformer fuse failures.

(4) 此試驗不適用於變壓器操作靜態瓦時計。試驗條件在 A.1 中規定。

(5) 試驗條件在 8.2.1 至 8.2.4 中規定。

4) This test does not apply to transformer-operated meters. The test conditions are specified in Clause A.1.

5) The test conditions are specified in 8.2.1 to 8.2.4.

(6) 由與施加到靜態瓦時計的電壓頻率相同的電流產生的 0.5 mT 的外部磁感應, 並且在最不利的相位和方



向條件下，不應導致靜態瓦時計百分比誤差的變化超過本表中所示的值。  
將靜態瓦時計置於圓形線圈的中心來獲得磁感應。圓形線圈平均直徑為 1 m，為方形截面和相對於直徑的徑向厚度小，並且具有 400 At。

A magnetic induction of external origin of 0,5 mT produced by a current of the same frequency as that of the voltage applied to the meter and under the most unfavourable conditions of phase and direction shall not cause a variation in the percentage error of the meter exceeding the values shown in this table.

The magnetic induction shall be obtained by placing the meter in the centre of a circular coil, 1 m in mean diameter, of square section and of small radial thickness relative to the diameter, and having 400 At.

(7) 當此種配件封閉在靜態瓦時計箱體中時，間歇地通電，例如多費率紀錄器的電磁鐵。  
與輔助設備的連接宜加以標示正確的連接方法。若此種連接是以插頭和插座施行，則其應為不可逆的。然而，若無這些標記或不可逆連接，如果靜態瓦時計以最不利的狀態連接加以試驗，則誤差的變化不應超過本表中所示的誤差。

Such an accessory, when enclosed in the meter case, is energized intermittently, for example the electromagnet of a multi-rate register.

It is preferable that the connection to the auxiliary device(s) is marked to indicate the correct method of connection. If these connections are made by means of plugs and sockets, they should be irreversible.

However, in the absence of those markings or irreversible connections, the variations of errors shall not exceed those indicated in this table if the meter is tested with the connections giving the most unfavourable condition.

(8) 電壓變化和頻率變化的推薦測試點，在直接連接靜態瓦時計為  $I_b$ ，在變壓器操作靜態瓦時計為  $I_n$ 。

8) The recommended test point for voltage variation and frequency variation is  $I_b$  for direct connected meters and  $I_n$  for transformer-operated meters.

(9) 平均溫度係數應對整個操作範圍測定。操作溫度範圍應細分割為 20 K 廣範圍(wide range)。然後，應於此範圍測定平均溫度係數，於該範圍中間值之 10 K 以上和 10 K 以下測量。在試驗期間，溫度不得超出規定的操作溫度範圍。

9) The mean temperature coefficient shall be determined for the whole operating range. The operating temperature range shall be divided into 20 K wide ranges. The mean temperature coefficient shall then be determined for these ranges, by taking measurements 10 K above and 10 K below the middle of the range. During the test, the temperature shall be in no case outside the specified operating temperature range.

(10) 本試驗僅適用於變壓器操作的靜態瓦時計。

10) This test only applies to transformer-operated meters.

Table 8 (continued)

Influence quantity	Value of current (balanced unless otherwise stated)		Power factor	Limits of variation in percentage error for meters of class	
	for direct connected meters	for transformer-operated meters		1	2
Sub-harmonics in the a.c. current circuit <sup>5)</sup>	0,5 $I_b$ <sup>2)</sup>	0,5 $I_n$ <sup>2)</sup>	1	3,0	6,0
Continuous magnetic induction of external origin <sup>5)</sup>	$I_b$	$I_n$	1	2,0	3,0
Magnetic induction of external origin 0,5 mT <sup>6)</sup>	$I_b$	$I_n$	1	2,0	3,0
Electromagnetic RF fields	$I_b$	$I_n$	1	2,0	3,0
Operation of accessories <sup>7)</sup>	0,05 $I_b$	0,05 $I_n$	1	0,5	1,0
Conducted disturbances, induced by radio-frequency fields	$I_b$	$I_n$	1	2,0	3,0
Fast transient burst	$I_b$	$I_n$	1	4,0	6,0
Damped oscillatory waves immunity <sup>10)</sup>	—	$I_n$	1	2,0	3,0

由影響量引起的變異試驗應在其基準條件下之所有其他影響量獨立施行(見表 11)。

Tests for variation caused by influence quantities should be performed independently with all other influence quantities at their reference conditions (see Table 11).

### 8.2.1 存在諧波時的精度試驗

試驗條件：

#### 8.2.1 Accuracy test in the presence of harmonics

Test conditions:

- 基頻電流： $I_1 = 0.5 I_{max}$
- 基頻電壓： $U_1 = U_n$
- 基頻功率因數：1
- 第 5 次諧波電壓的含量： $U_5 = 10 \% U_n$
- 第 5 次諧波電流的含量： $I_5 =$ 基波電流的 40 %
- 諧波功率因數：1
- 在正過零點時，基波和諧波電壓同相。

- fundamental frequency current:  $I_1 = 0,5 I_{max}$
- fundamental frequency voltage:  $U_1 = U_n$
- fundamental frequency power factor: 1
- content of 5<sup>th</sup> harmonic voltage:  $U_5 = 10 \% \text{ of } U_n$
- content of 5<sup>th</sup> harmonic current:  $I_5 = 40 \% \text{ of fundamental current}$
- harmonic power factor: 1
- fundamental and harmonic voltages are in phase, at positive zero crossing.

由於第 5 次諧波產生的諧波功率為  $P_5 = 0.1 U_1 \times 0.4 I_1 = 0.04 P_1$  或總有效功率 =  $1.04 P_1$  (基波+諧波)。

Resulting harmonic power due to the 5<sup>th</sup> harmonic is  $P_5 = 0,1 U_1 \times 0,4 I_1 = 0,04 P_1$  or total active power =  $1,04 P_1$  (fundamental + harmonics).

### 8.2.2 奇次諧波和次諧波之影響的試驗

奇次諧波和次諧波影響的試驗應使用圖 A.4 所示的電路或其他能夠產生所需波形的設備，以及如圖 A.5 和圖 A.7 所示的電流波形。

#### 8.2.2 Tests of the influence of odd harmonics and sub-harmonics

The tests of the influence of odd harmonics and sub-harmonics shall be made with the circuit shown in Figure A.4 or with other equipment able to generate the required waveforms, and the current waveforms as shown Figure A.5 and Figure A.7 respectively.

當靜態瓦時計承受圖 A.5 和圖 A.7 中所示的試驗波形時以及當其承受基準波形時，百分比誤差的變化不應超過表 8 中所示的變化極限值。

The variation in percentage error when the meter is subjected to the test waveform given in Figure A.5 and Figure A.7 and when it is subjected to the reference waveform shall not exceed the limits of variation given in Table 8.

備考：圖中所示僅為 50 Hz 的值。對於其他頻率，該值必須相應調整。

NOTE The values given in the figures are for 50 Hz only. For other frequencies, the values have to be adapted accordingly.

### 8.2.3 直流及偶次諧波之影響的試驗

#### 8.2.3 Tests of the influence of d.c. and even harmonics

直流及偶次諧波影響的試驗應使用圖 A.1 所示的電路或其他能夠產生所需波形的設備進行，電流波形如圖 A.2 所示。

The tests of the influence of direct current and even harmonics shall be made with the circuit shown in Figure A.1 or with other equipment able to generate the required waveforms, and the current waveforms as shown in Figure A.2.

當靜態瓦時計承受圖 A.2 所示的試驗波形及承受基準波形時，百分比誤差的變化不應超過表 8 所示的變化極限值。

The variation in percentage error when the meter is subjected to the test waveform given in Figure A.2 and when it is subjected to the reference waveform shall not exceed the limits of variation given in Table 8.

備考：圖中所示僅為 50 Hz 的值。對於其他頻率，該值必須相應調整。

NOTE The values given in the figures are for 50 Hz only. For other frequencies the values have to be adapted accordingly.

### 8.2.4 外部原點的連續磁感應

連續磁感應可由使用依據附錄 B 的電磁鐵獲得，以直流電流激磁。當安裝如正常使用時，該磁場應施加於靜態瓦時計的所有可觸及表面上。施加的電動勢值應為 1,000 At (安培—轉)。

#### 8.2.4 Continuous magnetic induction of external origin

The continuous magnetic induction may be obtained by using the electromagnet according to annex B, energized with a d.c. current. This magnetic field shall be applied to all accessible surfaces of the meter when it is mounted as for normal use. The value of the magneto-motive force applied shall be 1 000 At (ampere-turns).

### 8.3 啟動及無負載狀態的試驗

對於此種試驗，影響量的條件及數值應如 8.5 所示，但下列規定的任何改變除外。

#### 8.3 Test of starting and no-load condition

For these tests, the conditions and the values of the influence quantities shall be as stated in 8.5 except for any changes specified below.

#### 8.3.1 靜態瓦時計的初始啟動

將基準電壓施加於靜態瓦時計端子後，靜態瓦時計應在 5 s 內動作。

##### 8.3.1 Initial start-up of the meter

The meter shall be functional within 5 s after the reference voltage is applied to the meter terminals.

### 8.3.2 無負載狀態之試驗

當在電流電路中無電流流動的情況下施加電壓時，靜態瓦時計的試驗輸出不應產生多於一個脈衝。

#### 8.3.2 Test of no-load condition

When the voltage is applied with no current flowing in the current circuit, the test output of the meter shall not produce more than one pulse.

對於本試驗，電流電路應為開路，並且應將 115 % 的基準電壓施加於電壓電路。

For this test, the current circuit shall be open-circuit and a voltage of 115 % of the reference voltage shall be applied to the voltage circuits.

最小試驗週期  $\Delta t$  應為

The minimum test period  $\Delta t$  shall be

$$\Delta t \geq \frac{600 \times 10^6}{k m U_n I_{max}} \text{ [min] 對於 1 級靜態瓦時計}$$

$$\Delta t \geq \frac{480 \times 10^6}{k m U_n I_{max}} \text{ [min] 對於 2 級靜態瓦時計}$$

$$\Delta t \geq \frac{600 \times 10^6}{k m U_n I_{max}} \text{ [min] for meters of class 1}$$

$$\Delta t \geq \frac{480 \times 10^6}{k m U_n I_{max}} \text{ [min] for meters of class 2}$$

其中，  $k$  : 每千瓦時靜態瓦時計輸出設備發出的脈衝數 (imp/kW.h) ;

$M$  : 是測量元件的數量 ;

$U_n$  : 是以 V 為單位的基準電壓 ;

$I_{max}$  : 是以 A 為單位的最大電流。

where

$k$  is the number of pulses emitted by the output device of the meter per kilowatthour (imp/kW.h);

$m$  is the number of measuring elements;

$U_n$  is the reference voltage in volts;

$I_{max}$  is the maximum current in amperes.

對於具有主級(primary)或半級(half-primary)紀錄器的變壓器操作靜態瓦時計，常數  $k$  應對應於次級值(電壓及電流)。

For transformer-operated meters with primary or half-primary registers, the constant  $k$  shall correspond to the secondary values (voltage and currents).

### 8.3.3 啟動

靜態瓦時計應以啟動電流值啟動並繼續記錄(若為多相靜態瓦時計，則負載平衡)，如表 9 所示。

**8.3.3 Starting**

The meter shall start and continue to register at the starting current values (and in case of polyphase meters, with balanced load) shown in Table 9.

如果靜態瓦時計設計用於雙向的電能量測，則本試驗應在每個方向施加流動的電能。

If the meter is designed for the measurement of energy in both directions, then this test shall be applied with energy flowing in each direction.

表 9 啟動電流

靜態瓦時計用於	靜態瓦時計等級		功率因數
	1	2	
直接連接	0.004 $I_b$	0.005 $I_b$	1
經由比流器連接	0.002 $I_n$	0.003 $I_n$	1

Table 9 – Starting current

Meters for	Class of meter		Power factor
	1	2	
Direct connection	0,004 $I_b$	0,005 $I_b$	1
Connection through current transformers	0,002 $I_n$	0,003 $I_n$	1

**8.4 靜態瓦時計常數**

試驗輸出與顯示器中的顯示值之間的關係應符合銘牌上的標示。

**8.4 Meter constant**

The relation between the test output and the indication in the display shall comply with the marking on the name-plate.

**8.5 精度試驗條件**

為了測試精度要求，應保持下列試驗條件：

**8.5 Accuracy test conditions**

To test the accuracy requirements, the following test conditions shall be maintained:

- (a) 靜態瓦時計應在蓋子就位的情況下進行試驗；所有需接地的部件應接地；
- (b) 在進行任何試驗之前，電路應通電足夠的時間以達到熱穩定性；
- (c) 此外，對於多相靜態瓦時計：
  - 相序應如連接圖所示；
  - 電壓和電流應基本平衡(見表 10)。

- a) the meter shall be tested in its case with the cover in position; all parts intended to be earthed shall be earthed;
- b) before any test is made, the circuits shall have been energized for a time sufficient to reach thermal stability;
- c) in addition, for polyphase meters:
  - the phase sequence shall be as marked on the diagram of connections;
  - the voltages and currents shall be substantially balanced (see Table 10).

表 10 電壓和電流平衡

多相靜態瓦時計	靜態瓦時計等級	
	1	2
相與中性極之間以及任何兩相之間的每個電壓不應與平均相應電壓相差大於	± 1 %	± 1 %
導體中的每個電流與平均電流相差不大於	± 2 %	± 2 %
無論相位角為何，此等電流中每個電流的相位移與相應的相 (phase)對中性極電壓相比，相互之間的相位差不應超過	2°	2°

Polyphase meters	Class of meter	
	1	2
Each of the voltages between phase and neutral and between any two phases shall not differ from the average corresponding voltage by more than	±1 %	±1 %
Each of the currents in the conductors shall not differ from the average current by more than	±2 %	±2 %
The phase displacements of each of these currents from the corresponding phase-to-neutral voltage, irrespective of the phase angle, shall not differ from each other by more than	2°	2°

(d) 基準條件見表 11；

(e) 有關試驗站的要求，參見 IEC 60736。

- d) the reference conditions are given in Table 11;  
e) for requirements regarding test stations, see IEC 60736.

表 11 基準條件

影響量	基準值	靜態瓦時計等級的允許公差	
		1	2
周圍溫度	基準溫度，或在無基準溫度的情況下，23 °C <sup>(1)</sup>	±2 °C	±2 °C
電壓	基準電壓	±1.0 %	±1.0 %
頻率	基準頻率	±0.3 %	±0.5 %
相序	L1 – L2 – L3	—	—
電壓不平衡	所有相(phases)連接	—	—
波形 (直流及偶次諧波、奇次諧波及次諧波)	正弦電壓及電流	失真因數小於：	
		2 %	3 %
外部原點的連續磁感應	等於零	—	—
在基準頻率下對外部原點的磁感應	磁感應等於零	感應值所導致誤差變化不大於：	
		± 0.2 %	± 0.3 %
		但在任何情況下都應小於 0.05 mT <sup>(2)</sup>	
電磁射頻場，30 kHz to 2 GHz	等於零	<1 V/m	<1 V/m
配件的操作	無配件的操作	-	-

由射頻場引起的傳導干擾，150 kHz 至 80 MHz	等於零	<1 V	<1 V
<p>註<sup>(1)</sup> 如果試驗是在基準溫度以外的溫度下進行，包括允許公差，應使用適當的靜態瓦時計溫度係數來校正結果。</p> <p>1) If the tests are made at a temperature other than the reference temperature, including permissible tolerances, the results shall be corrected by applying the appropriate temperature coefficient of the meter.</p>			
<p>(2) 試驗包括：</p> <p>(a) 對於單相靜態瓦時計，首先將通常連接到電源的靜態瓦時計測定誤差，然後轉換連接到電流電路以及電壓電路之後測定誤差。兩個誤差間差異的一半是誤差的變化值。由於外部場地的未知相位，試驗應分別在 0.1 I<sub>b</sub> 及 0.05 I<sub>n</sub> 處於單位功率因數和分別在 0.2 I<sub>b</sub> 及 0.1 I<sub>n</sub> 處於 0.5 功率因數施行；</p> <p>2) The test consists of:</p> <p>a) for a single-phase meter, determining the errors first with the meter normally connected to the mains and then after inverting the connections to the current circuits as well as to the voltage circuits. Half of the difference between the two errors is the value of the variation of error. Because of the unknown phase of the external field, the test should be made at 0,1 I<sub>b</sub> resp. 0,05 I<sub>n</sub> at unity power factor and 0,2 I<sub>b</sub> resp. 0,1 I<sub>n</sub> at 0,5 power factor;</p> <p>(b) 對於三相靜態瓦時計，分別在 0.1 I<sub>b</sub> 及 0.05 I<sub>n</sub> 處於單位功率因數施行三次量測，在每次測量之後，與電流電路及電壓電路的連接改變超過 120° 而相序不改變。每個由此測定的誤差與平均值之間的最大差異是誤差變化值。</p>			

Table 11 – Reference conditions

Influence quantity	Reference value	Permissible tolerances for meters of class	
		1	2
Ambient temperature	Reference temperature or, in its absence, 23 °C <sup>1)</sup>	±2 °C	±2 °C
Voltage	Reference voltage	±1,0 %	±1,0 %
Frequency	Reference frequency	±0,3 %	±0,5 %
Phase sequence	L1 – L2 – L3	–	–
Voltage unbalance	All phases connected	–	–
Wave-form (d.c. and even harmonics, odd and sub-harmonics)	Sinusoidal voltages and currents	Distortion factor less than: 2 %                      3 %	
Continuous magnetic induction of external origin	Equal to zero	–	–



Table 11 (continued)

Influence quantity	Reference value	Permissible tolerances for meters of class	
		1	2
Magnetic induction of external origin at the reference frequency	Magnetic induction equal to zero	Induction value which causes a variation of error not greater than:	
		±0,2 %	±0,3 %
		but should in any case be smaller than 0,05 mT <sup>2)</sup>	
Electromagnetic RF fields, 30 kHz to 2 GHz	Equal to zero	<1 V/m	<1 V/m
Operation of accessories	No operation of accessories	–	–
Conducted disturbances, induced by radiofrequency fields, 150 kHz to 80 MHz	Equal to zero	<1 V	<1 V
<p>1) If the tests are made at a temperature other than the reference temperature, including permissible tolerances, the results shall be corrected by applying the appropriate temperature coefficient of the meter.</p> <p>2) The test consists of:</p> <p>a) for a single-phase meter, determining the errors first with the meter normally connected to the mains and then after inverting the connections to the current circuits as well as to the voltage circuits. Half of the difference between the two errors is the value of the variation of error. Because of the unknown phase of the external field, the test should be made at <math>0,1 I_B</math> resp. <math>0,05 I_N</math> at unity power factor and <math>0,2 I_B</math> resp. <math>0,1 I_N</math> at 0,5 power factor;</p> <p>b) for a three-phase meter, making three measurements at <math>0,1 I_B</math> resp. <math>0,05 I_N</math> at unity power factor, after each of which the connection to the current circuits and to the voltage circuits are changed over <math>120^\circ</math> while the phase sequence is not altered. The greatest difference between each of the errors so determined and their average value is the value of the variation of error.</p>			

### 8.6 試驗結果說明

由於測量的不確定性及能夠影響測量的其他參數，某些測試結果可能超出表 6 和表 7 中所示的限制值。然而，如果零線的一個位移與其自身平行不超過表 12 中所示的限制值，所有測試結果都在表 6 和表 7 所示的範圍內，則應認定該靜態瓦時計的型式(type)是可接受的。

#### 8.6 Interpretation of test results

Certain test results may fall outside the limits indicated in Tables 6 and 7, owing to uncertainties of measurements and other parameters capable of influencing the measurements. However, if by one displacement of the zero line parallel to itself by no more than the limits indicated in Table 12, all the test results are brought within the limits indicated in Tables 6 and 7, the meter type shall be considered acceptable.

表 12 試驗結果的說明

	靜態瓦時計之等級	
	1	2
允許的零線位移(%)	0.5	1.0

Table 12 – Interpretation of test results

	Class of meter	
	1	2
Permissible displacement of the zero line (%)	0,5	1,0

附錄 A

(規定)

直流、偶次諧波、奇次諧波和次諧波的試驗電路圖

**Annex A**  
(normative)

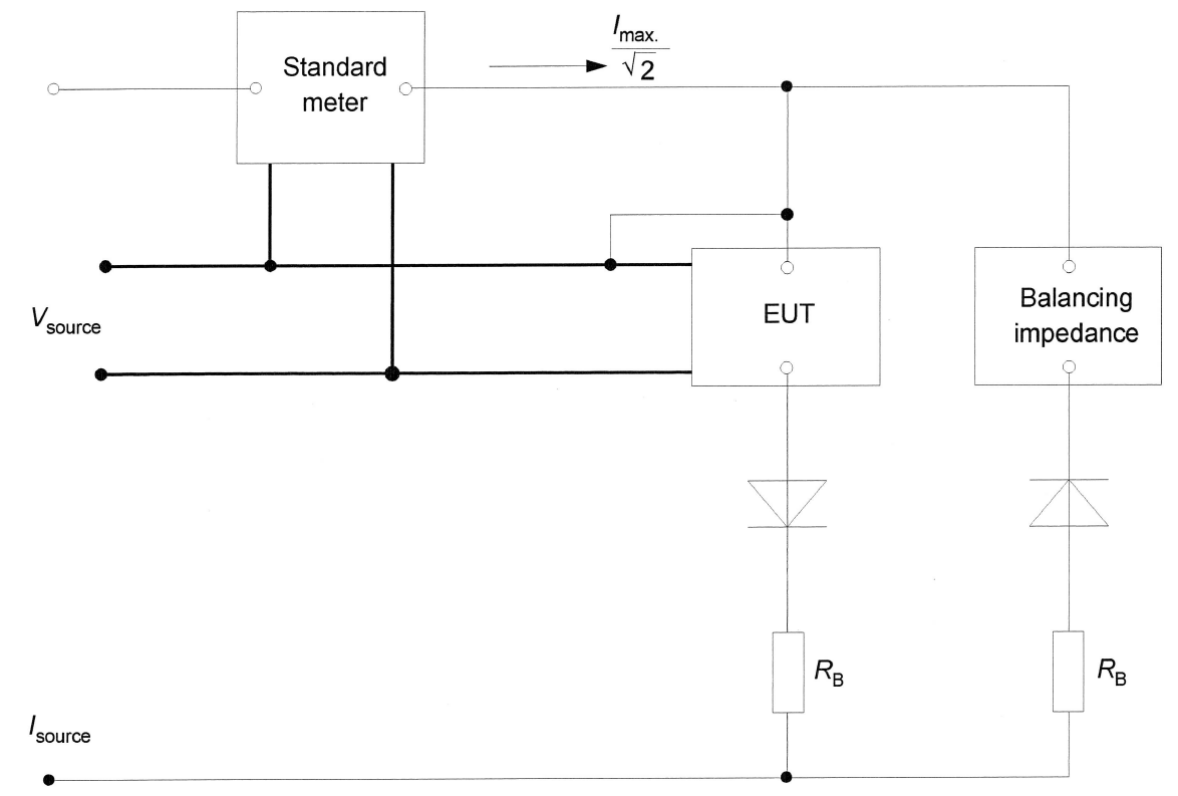
**Test circuit diagram for d.c., even harmonics, odd harmonics and sub-harmonics**

備考：圖 A.2，A.3 及 A.5 至 A.8 中所示的值僅適用於 50 Hz。對於其他頻率，該值必須相應調整。

NOTE The values given in the Figures A.2, A.3 and A.5 to A.8 are for 50 Hz only. For other frequencies the values have to be adapted accordingly.

A.1 半波整流(直流和偶次諧波)

**A.1 Half-wave rectification (d.c. and even harmonics)**



貼圖 A.1

備考 1.平衡阻抗應等於被測設備(EUT)的阻抗，以確保測量精度。

NOTE 1 The balancing impedance shall be equal to the impedance of the equipment under test (EUT) to ensure the measurement accuracy.

備考 2.平衡阻抗最方便地是與 EUT 相同型式的靜態瓦時計。

NOTE 2 The balancing impedance could most conveniently be a meter of the same type as the EUT.

備考 3.整流二極體可以是相同類型的。

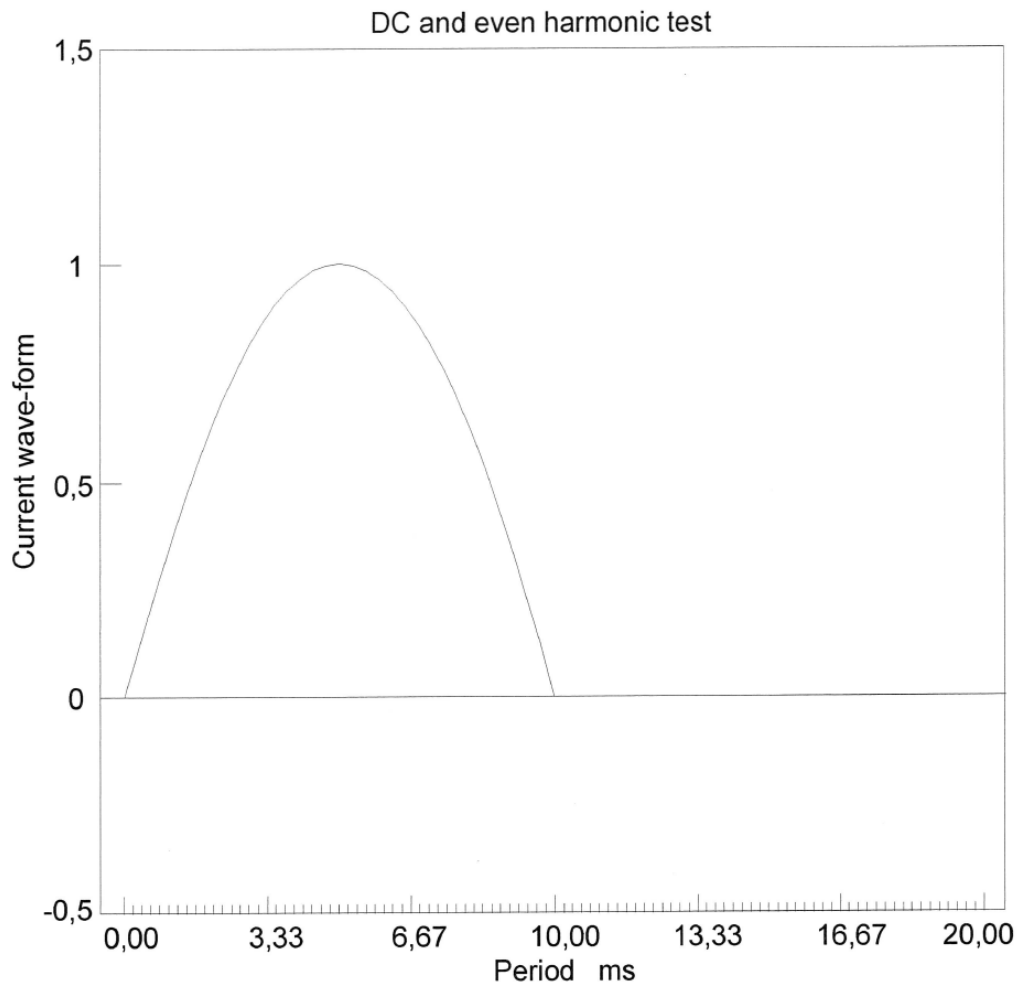
NOTE 3 The rectifier diodes shall be of the same type.

備考 4.為了改善平衡條件，可以在兩線路中導入附加的電阻器  $R_B$ 。其電阻值應為 EUT 值的大約 10 倍。

NOTE 4 To improve the balancing condition, an additional resistor  $R_B$  can be introduced in both paths. Its value should be approximately 10 times the value of the EUT.

圖 A.1 半波整流的試驗電路圖

Figure A.1 – Test circuit diagram for half-wave rectification

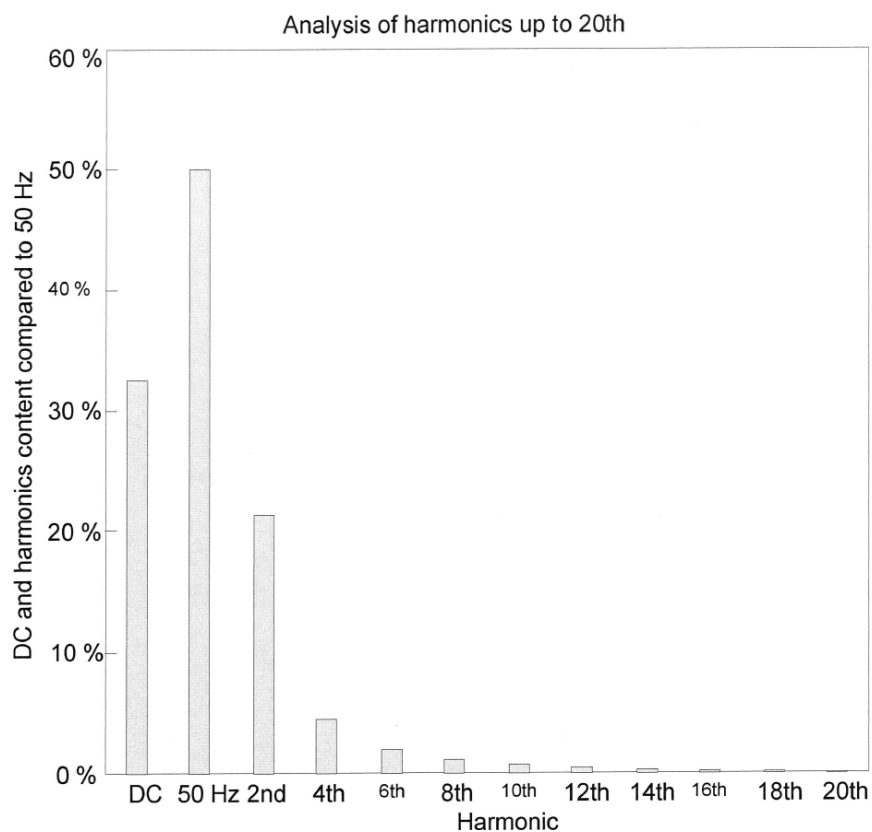


貼

圖 A.2

圖 A.2 半波整流波形

Figure A.2 – Half-wave rectified waveform



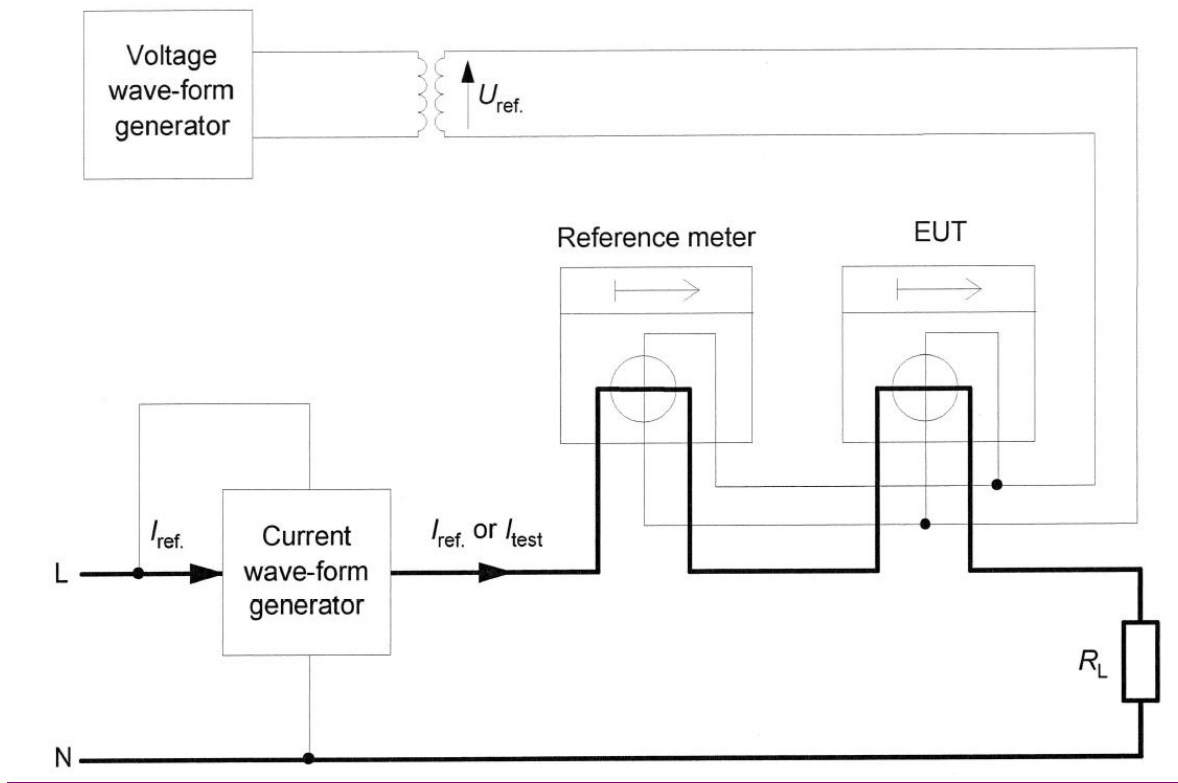
貼圖 A.3

圖 A.3 半波諧波含量的參考分布(傅里葉分析未完成)

**Figure A.3 – Informative distribution of half-wave harmonic content (the Fourier analysis is not complete)**

A.2 相位發射控制(奇次諧波)

**A.2 Phase fired control (odd harmonics)**



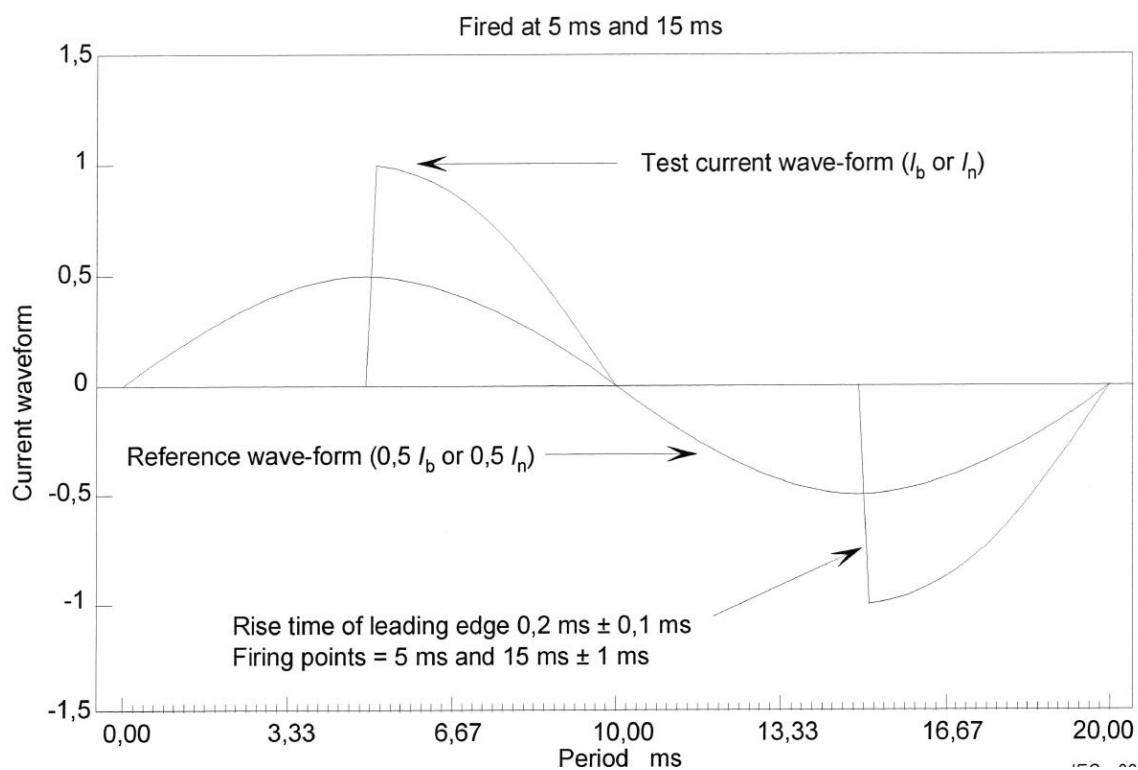
貼圖 A.4

備考：基準靜態瓦時計應測量存在諧波時的總有效電能(基波+諧波)

NOTE The reference meter shall measure the total active energy (fundamental + harmonics) in the presence of harmonics.

圖 A.4 試驗電路圖(參考)

Figure A.4 – Test circuit diagram (informative)

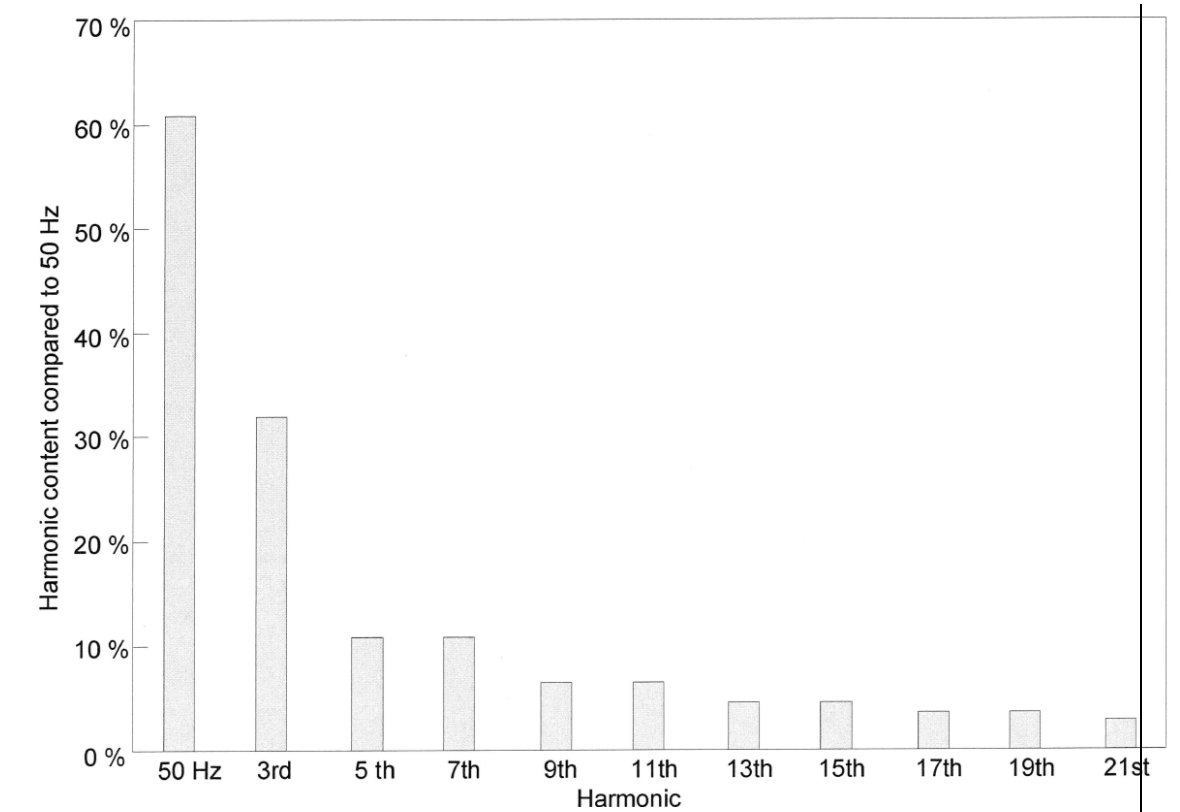


貼圖 A.5

圖 A.5 相位發射波形

Figure A.5 – Phase fired waveform





貼圖 A.6

圖 A.6 相位發射波形的諧波含量的參考分布(傅里葉分析未完成)

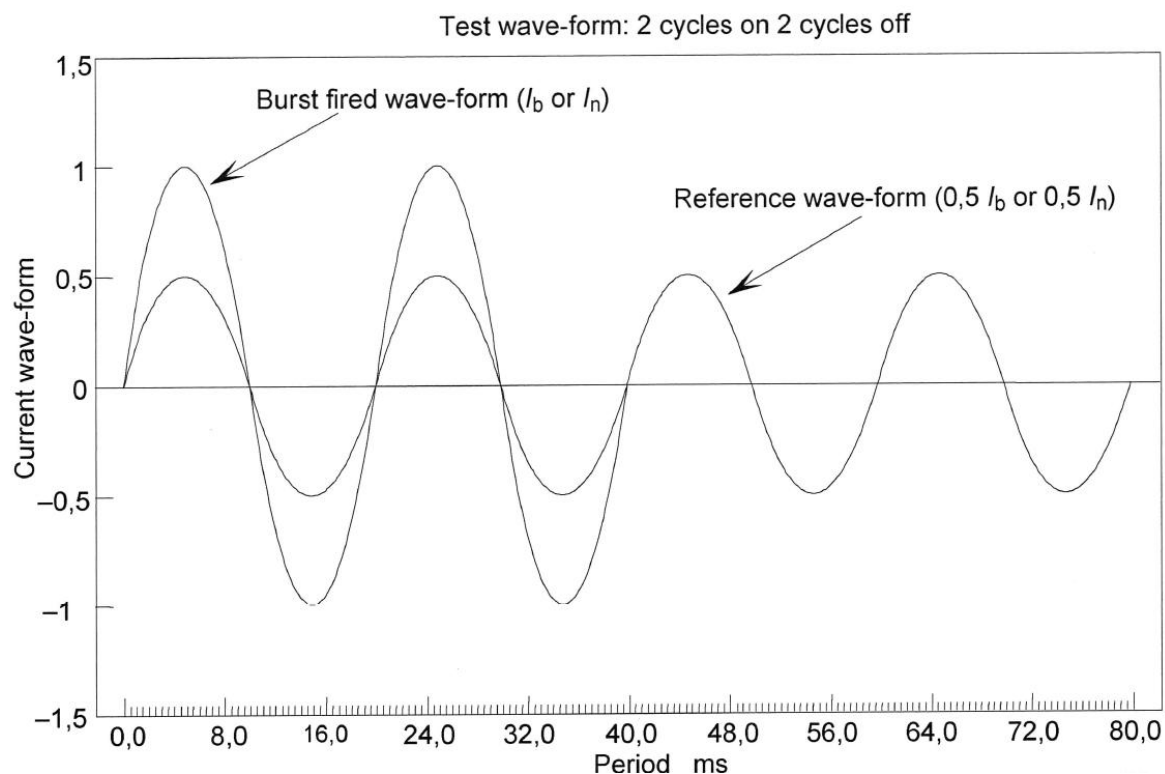
**Figure A.6 – Informative distribution of harmonic content of phase fired waveform (the Fourier analysis is not complete)**

### A.3 叢發控制(Burst control)(次諧波)

試驗電路圖，見圖 A.4。

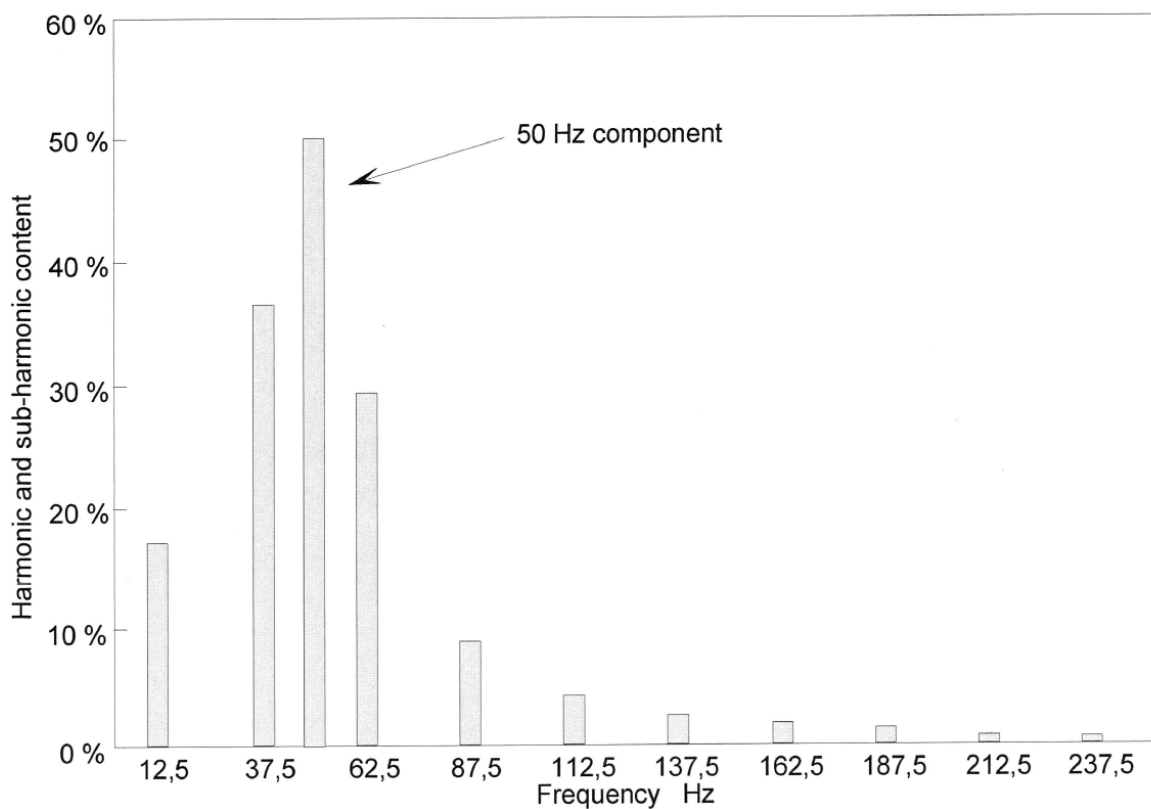
Test circuit diagram, see Figure A.4.

測試波形：2 個週期 0ff 的 2 個週期



貼圖 A.7

圖 A.7 叢發發射波形



貼圖 A.8

圖 A.8 諧波的參考分布(傅里葉分析未完成)

附錄 B  
(規定)

用於測試外部產生的磁場影響的電磁鐵

比例 1:1 (所有尺寸均以 mm 為單位)

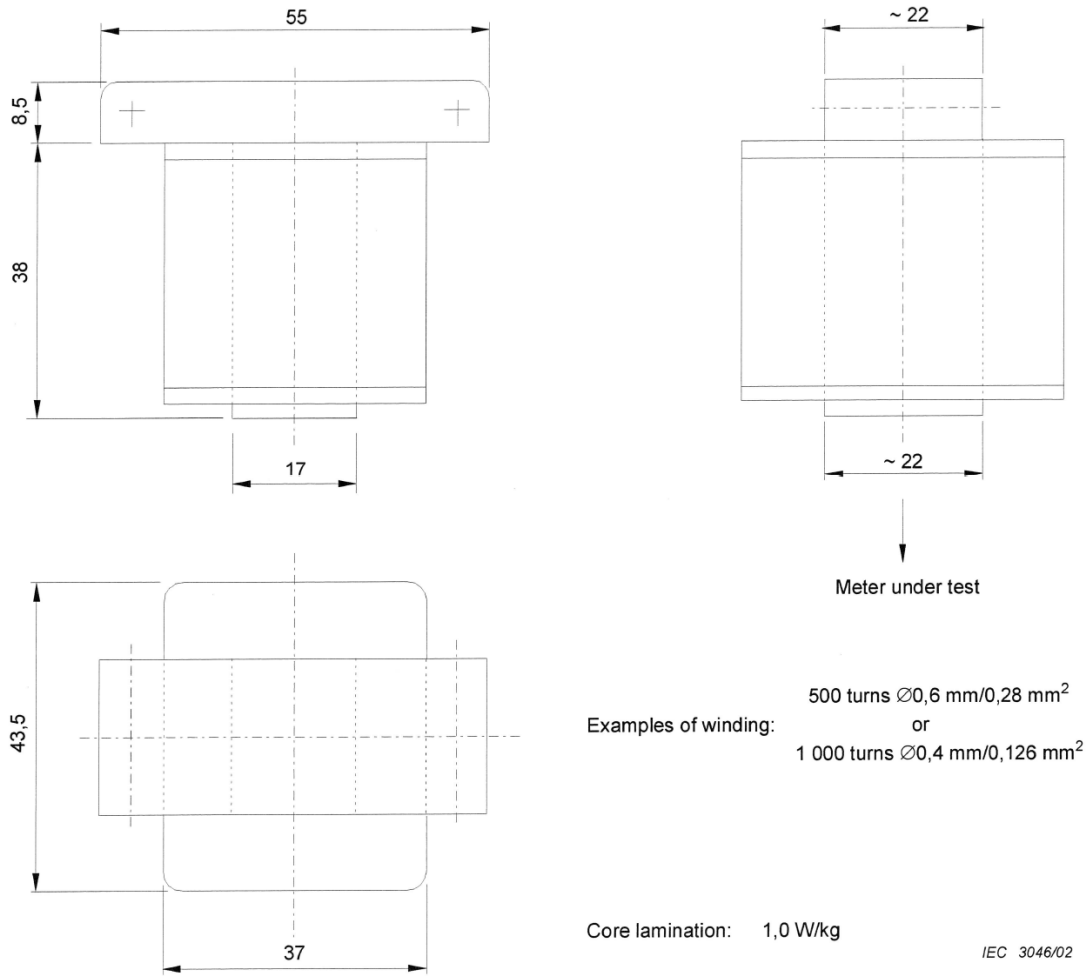


Figure B.1 – Electromagnet for testing the influence of externally produced magnetic fields

~~貼圖 B.1~~

繞阻範例：500 匝  $\varnothing 0.6 \text{ mm}/0.28 \text{ mm}^2$

或

1 000 匝  $\varnothing 0,4 \text{ mm}/0.126 \text{ mm}^2$

鐵心疊片：1.0 W/kg

圖 B.1 用於測試外部產生的磁場影響的電磁鐵

參考標準

- [1] IEC 62058-11:2008, Electricity metering equipment (AC) – Acceptance inspection – Part 11:
- [2] General acceptance inspection method
- [3] IEC 62058-31:2008, Electricity metering equipment (AC) – Acceptance inspection – Part 31 .
- [4] Particular requirements for static meters for active energy (classes 0,2 S, 0,5 S, 1 and 2)