

崇智大樓各點電磁場量測結果 重點說明

量測時間：民國 100 年 04 月 26 日 申請人：私立南山高級中學 申請人住址：新北市中和區廣福路 41 號 量測住址：新北市中和區廣福路 41 號			
參考文件： 1. 環保署於民國九十年元月十二日公告之「非游離輻射環境建議值」。 2. 環保署公告「環境中(架空高壓線路-變電所-落地型變壓器)電場與磁場檢測方法」。 3. International Commission on Non-Ionizing Radiation Protection, I.C.N.I.R.P. Guidelines. 4. 電場與磁場測試作業程序 WI-TESP-ED-005。			
備註： 1. 所有量測點離地面高度一公尺，離牆面以及任何永久性物體的水平間隔以大於一公尺為原則。 2. 量測點的最小取樣間隔應大於儀表安定時間，以連續十秒量測之最大場強為量測結果。			
測試點 T	量測位址	毫高斯 mG	量測結果
T1	體育組辦公室	2.453	60Hz 磁通量密度 建議值 833 mG <input checked="" type="checkbox"/> 符合 <input type="checkbox"/> 不符合
T2	體育組辦公室	3.416	
T3	普一和	2.124	
T4	普一和	1.445	
T5	3F 導師室	2.145	
T6	3F 導師室	3.185	
T7	4F 導師室	2.487	
T8	4F 導師室	3.545	
量測機構：台灣檢驗科技股份有限公司 量測人員：吳修宇			
工程師 		單位主管：林建興  技術經理	



本校崇智樓各點之最高值為 3.6 mg，遠遠低於國家規定之安全值 833 mg

※完整量測報告書如後附件

低頻 60Hz 電磁場之測試報告

私立南山高級中學
新北市中和區廣福路 41 號



發行日期：中華民國 100 年 04 月 26 日

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GENERAL CONDITIONS OF SERVICE

1. General

(a) Unless otherwise agreed in writing or except where they are at variance with (i) the regulations governing services performed on behalf of governments, government bodies or any other public entity or (ii) the mandatory provisions of local law, all offers or services and all resulting contractual relationship(s) between any of the affiliated companies of SGS SA or any of their agents (each a "Company") and Client (the "Contractual Relationship(s)") shall be governed by these general conditions of service (hereinafter the "General Conditions").

(b) The Company may perform services for persons or entities (private, public or governmental) issuing instructions (hereinafter, the "Client").

(c) Unless the Company receives prior written instructions to the contrary from Client, no other party is entitled to give instructions, particularly on the scope of the services or the delivery of reports or certificates resulting therefrom (the "Reports of Findings"). Client hereby irrevocably authorises the Company to deliver Reports of Findings to a third party where so instructed by Client or, at its discretion, where it implicitly follows from circumstances, trade custom, usage or practice.

2. Provision of Services

(a) The Company will provide services using reasonable care and skill and in accordance with Client's specific instructions as confirmed by the Company or, in the absence of such instructions:

- (1) the terms of any standard order form or standard specification sheet of the Company; and/or
- (2) any relevant trade custom, usage or practice; and/or
- (3) such methods as the Company shall consider appropriate on technical, operational and/or financial grounds.

(b) Information stated in Reports of Findings is derived from the results of inspection or testing procedures carried out in accordance with the instructions of Client, and/or our assessment of such results on the basis of any technical standards, trade custom or practice, or other circumstances which should in our professional opinion be taken into account.

(c) Reports of Findings issued further to the testing of samples contain the Company's opinion on those samples only and do not express any opinion upon the lot from which the samples were drawn.

(d) Should Client request that the Company witness any third party intervention, Client agrees that the Company's sole responsibility is to be present at the time of the third party's intervention and to forward the results, or confirm the occurrence, of the intervention. Client agrees that the Company is not responsible for the condition or calibration of apparatus, instruments and measuring devices used, the analysis methods applied, the qualifications, actions or omissions of third party personnel or the analysis results.

(e) Reports of Findings issued by the Company will reflect the facts as recorded by it at the time of its intervention only and within the limits of the instructions received or, in the absence of such instructions, within the limits of the alternative parameters applied as provided for in clause 2(a). The Company is under no obligation to refer to, or report upon, any facts or circumstances which are outside the specific instructions received or alternative parameters applied.

(f) The Company may delegate the performance of all or part of the services to an agent or subcontractor and Client authorises Company to disclose all information necessary for such performance to the agent or subcontractor.

(g) Should Company receive documents reflecting engagements contracted between Client and third parties or third party documents, such as copies of sale contracts, letters of credit, bills of lading, etc., they are considered to be for information only, and do not extend or restrict the scope of the services or the obligations accepted by the Company.

(h) Client acknowledges that the Company, by providing the services, neither takes the place of Client or any third party, nor releases them from any of their obligations, nor otherwise assumes, abridges, abrogates or undertakes to discharge any duty of Client to any third party or that of any third party to Client.

(i) All samples shall be retained for a maximum of 3 months or such other shorter time period as the nature of the sample permits and then returned to Client or otherwise disposed of at the Company's discretion after which time Company shall cease to have any responsibility for such samples. Storage of samples for more than 3 months shall incur a storage charge payable by Client. Client will be billed a handling and freight fee if samples are returned. Special disposal charges will be billed to Client if incurred.

3. Obligations of Client

The Client will:

(a) ensure that sufficient information, instructions and documents are given in due time (and, in any event not later than 48 hours prior to the desired intervention) to enable the required services to be performed;

(b) procure all necessary access for the Company's representatives to the premises where the services are to be performed and take all necessary steps to eliminate or remedy any obstacles to, or interruptions in, the performance of the services;

(c) supply, if required, any special equipment and personnel necessary for the performance of the services;

(d) ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of services and will not rely, in this respect, on the Company's advice whether required or not;

(e) inform Company in advance of any known hazards or dangers, actual or potential, associated with any order or samples or testing including, for example, presence or risk of radiation, toxic or noxious or explosive elements or materials, environmental pollution or poisons;

(f) fully exercise all its rights and discharge all its liabilities under any relevant sales or other contract with a third party and at law.

4. Fees and Payment

(a) Fees not established between the Company and Client at the time the order is placed or a contract is negotiated shall be at the Company's standard rates (which are subject to change) and all applicable taxes shall be payable by Client.

(b) Unless a shorter period is established in the invoice, Client will promptly pay not later than 30 days from the relevant invoice date or within such other period as may be established by the Company in the invoice (the "Due Date") all fees due to the Company failing which interest will become due at a rate of 1.5% per month (or such other rate as may be established in the invoice) from the Due Date up to and including the date payment is actually received.

(c) Client shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, counter claim or set off which it may allege against the Company.

(d) Company may elect to bring action for the collection of unpaid fees in any court having competent jurisdiction.

(e) Client shall pay all of the Company's collection costs, including attorney's fees and related costs.

(f) In the event any unforeseen problems or expenses arise in the course of carrying out the services the Company shall endeavour to inform Client and shall be entitled to charge additional fees to cover extra time and cost necessarily incurred to complete the services.

(g) If the Company is unable to perform all or part of the services for any cause whatsoever outside the Company's control including failure by Client to comply with any of its obligations provided for in clause 3 above the Company shall nevertheless be entitled to payment of:

- (1) the amount of all non-refundable expenses incurred by the Company; and
- (2) a proportion of the agreed fee equal to the proportion of the services actually carried out.

5. Suspension or Termination of Services

The Company shall be entitled to immediately and without liability either suspend or terminate provision of the services in the event of:

(a) failure by the Client to comply with any of its obligations hereunder and such failure is not remedied within 10 days that notice of such failure has been notified to Client; or

(b) any suspension of payment, arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business by Client.

6. Liability and Indemnification

(a) Limitation of Liability:

(1) The Company is neither an insurer nor a guarantor and disclaims all liability in such capacity. Clients seeking a guarantee against loss or damage should obtain appropriate insurance.

(2) Reports of Findings are issued on the basis of information, documents and/or samples provided by, or on behalf of, Client and solely for the benefit of Client who is responsible for acting as it sees fit on the basis of such Reports of Findings. Neither the Company nor any of its officers, employees, agents or subcontractors shall be liable to Client nor any third party for any actions taken or not taken on the basis of such Reports of Findings nor for any incorrect results arising from unclear, erroneous, incomplete, misleading or false information provided to the Company.

(3) The Company shall not be liable for any delayed, partial or total non-performance of the services arising directly or indirectly from any event outside the Company's control including failure by Client to comply with any of its obligations hereunder.

(4) The liability of the Company in respect of any claim for loss, damage or expense of any nature and howsoever arising shall in no circumstances exceed a total aggregate sum equal to 10 times the amount of the fee paid in respect of the specific service which gives rise to such claim or US\$20,000 (or its equivalent in local currency), whichever is the lesser.

(5) The Company shall have no liability for any indirect or consequential loss including without limitation loss of profits, loss of business, loss of opportunity, loss of goodwill and cost of product recall. It shall further have no liability for any loss, damage or expenses arising from the claims of any third party (including, without limitation, product liability claims) that may be incurred by the Client.

(6) In the event of any claim, Client must give written notice to the Company within 30 days of discovery of the facts alleged to justify such claim and, in any case, the Company shall be discharged from all liability for all claims for loss, damage or expense unless suit is brought within one year from:

- (i) the date of performance by the Company of the service which gives rise to the claim; or
- (ii) the date when the service should have been completed in the event of any alleged non-performance.

(b) Indemnification: Client shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against all claims (actual or threatened) by any third party for loss, damage or expense of whatsoever nature including all legal expenses and related costs and howsoever arising relating to the performance, purported performance or non-performance, of any services.

7. Miscellaneous

(a) If any one or more provisions of these General Conditions are found to be illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

(b) During the course of providing the services and for a period of one year thereafter Client shall not directly or indirectly entice, encourage or make any offer to Company's employees to leave their employment with the Company.

(c) Use of the Company's corporate name or registered marks for advertising purposes is not permitted without the Company's prior written authorisation.

8. Governing Law, Jurisdiction and Dispute Resolution

Unless specifically agreed otherwise, all disputes arising out of or in connection with Contractual Relationship(s) hereunder shall be governed by the substantive laws of Switzerland exclusive of any rules with respect to conflicts of laws and be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with the said rules. The arbitration shall take place in Paris (France) and be conducted in the English language.

低頻 60Hz 電磁場之量測結果

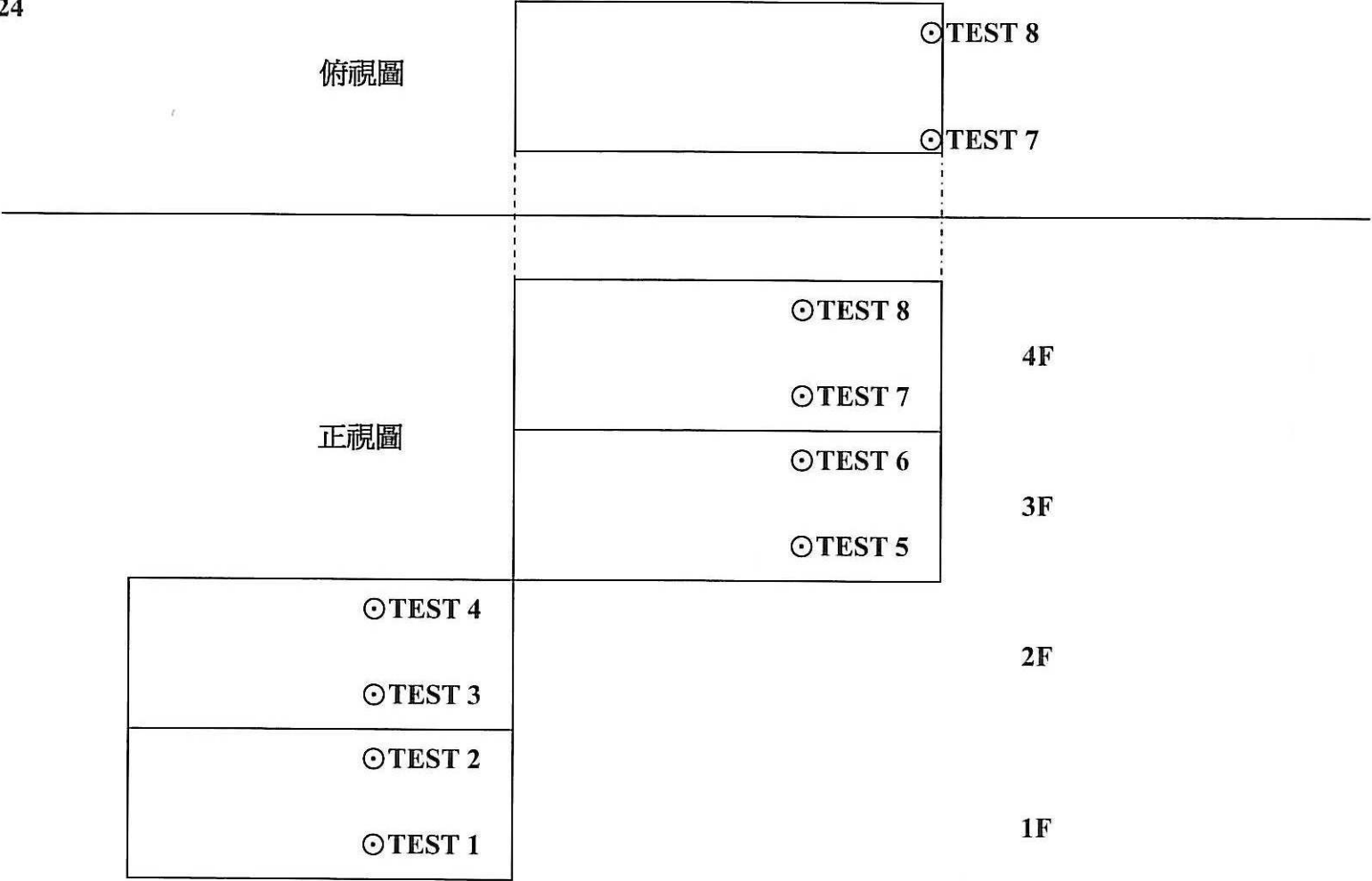
量測時間：民國 100 年 04 月 26 日			
申請人：私立南山高級中學			
申請人住址：新北市中和區廣福路 41 號			
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T7	4F 導師室	2.487	
T8	4F 導師室	3.545	
量測機構：台灣檢驗科技股份有限公司			
量測人員：吳修宇		單位主管：林建興	
			
工程師		技術經理	



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示意圖：



電磁波功率密度測試方法 及附件

附錄

一、使用儀器

Description	Manufacturer	Model No.	Serial No.	Date of Calibration
B-Field Analyzer	NARDA	2245/30	K-0009	APR 06,2009
E-Field Sensor	NARDA	2245/90.31	H-0005	APR 06,2009
B-Field Sensor	NARDA	2245/90.10	Y-0016 K-0009	APR 06,2009

二、先進國家對於電磁場之電磁輻射強度限制之推薦值

國家／單位	磁場(磁場密)限制值(mG)		電場限制值(V/m)		
	職場人員		一般民眾	職業人員	一般民眾
國際輻射保護協會	全天	5,000	1,000	10,000	5,000
	數小時	50,000	10,000	30,000	10,000
日本	連續暴露	50,000	2,000		
	短時間暴露	100,000	10,000		
蘇聯	八小時	18,000	—		
	一小時	75,000	—		
英國國家輻射保護局	13,300		5,300	10,000	10,000
美國政府工衛學者聯會	10,000		—		
德國	50,000		50,000		
澳洲	全天	5,000	1,000		
	數小時	50,000	10,000		

註：1. 本報告之評估標準採用「國際輻射保護協會」所公佈之標準。(最嚴格的標準)

1.1 一般民眾全天候磁場最大限制值是 1000 mG。

1.2 一般民眾全天候電場最大限制值是 5000 V/m。


Calibration Certificate


Narda Safety Test Solutions hereby certifies that the referenced equipment has been calibrated by qualified personnel to Narda's approved procedures. The calibration was carried out within a certified quality management system conforming to DIN EN ISO 9001:2000.

The metrological confirmation system for test equipment complies with ISO 10012-1.

Object	B-Field Probe 100 cm ² B-Field Meter EFA-300
Type	2245/90.10 2245/30
Serial Number	Y-0016 K-0009
Manufacturer	Narda Safety Test Solutions
Customer	
Date of Calibration	06-Apr-2009
Confirmation interval (recommended)	24 months
Ambient conditions	23°C ± 3°C (20 ... 60) % rel. humidity
Calibration procedure	2245-8711-00C

Pfullingen, 06-Apr-2009


Person in charge
M. Budim


Quality management representative
W. Kumbier



This certificate may only be published in full, unless permission for the publication of an approved extract has been obtained in writing from the Managing Director.

Certified by DQS against
DIN EN ISO 9001:2000
(Reg.-No. 99379-QM)


Calibration Certificate


Narda Safety Test Solutions hereby certifies that the referenced equipment has been calibrated by qualified personnel to Narda's approved procedures. The calibration was carried out within a certified quality management system conforming to DIN EN ISO 9001:2000.

The metrological confirmation system for test equipment complies with ISO 10012-1.

Object	B-Field Meter EFA-300
Type	2245/30
Serial Number	K-0009
Manufacturer	Narda Safety Test Solutions
Customer	
Date of Calibration	06-Apr-2009
Confirmation interval (recommended)	24 months
Ambient conditions	23 °C ± 3 °C (20 ... 60) % rel. humidity
Calibration procedure	2245-8710-00C

Pfullingen, 06-Apr-2009


Person in charge
M. Budim


Quality management representative
W. Kumbier



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The metrological confirmation system for test equipment complies with ISO 10012-1.

Object	E-Field Unit
Type	2245/90.31
Serial Number	H-0005
Manufacturer	Narda Safety Test Solutions
Customer	
Date of Calibration	06-Apr-2009
Confirmation interval (recommended)	24 months
Ambient conditions	23 °C ± 3 °C (20 ... 60) % rel. humidity
Calibration procedure	2245-8712-00A

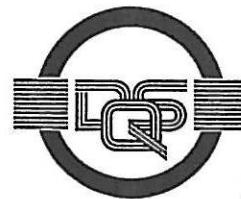
Pfullingen, 06-Apr-2009


.....
Person in charge
M. Budim


.....
Quality management representative
W. Kumbier

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MANAGEMENT
SYSTEM



Certified by DQS against
DIN EN ISO 9001:2000
(Reg.-No. 99379-QM)



證書編號：L0513-090505

財團法人全國認證基金會
Taiwan Accreditation Foundation

認證證書

茲證明

台灣檢驗科技股份有限公司

電子通訊實驗室

台北縣五股工業區五工路 134 號

為本會認證之實驗室

認證依據：ISO/IEC 17025：2005

認證編號：0513

初次認證日期：八十九年二月十五日

認證有效期間：九十八年六月十四日至一百零一年六月十三日止

認證範圍：測試領域，如續頁

特定服務計畫：商品檢驗指定試驗室認證服務計畫

電信設備測試實驗室認證服務計畫

經濟部標準檢驗局與國外相互承認協議實驗室認證服務計畫

董事長

陳介山

中華民國九十八年五月五日

環境中（架空高壓線路、變電所、落地型變壓器）

電場與磁場檢測方法

中華民國 92 年 4 月 4 日環署檢字第 0920024406 號公告

自中華民國 92 年 7 月 4 日起實施

NIEA P202.90C

一、方法概要

本方法主要參考 ANSI/IEEE Std 644-1994 標準。有關量測儀器的規範係完全依據 ANSI/IEEE Std 644-1994 標準。在量測程序方面則考量我國輸配電線路型態特性後，尤其是人口密集區域的線路特性，對 ANSI/IEEE Std 644-1994 標準的建議稍加修正。

二、適用範圍

本方法所述及之量測儀器與程序適用於架空高壓線路附近空曠地區的電場與磁場環境量測。其中量測儀器部份亦適用於沿建築物外側經過或由屋頂跨越等架空高壓線路、變電所、落地型變壓器等周遭的電場與磁場環境量測。

本方法的量測對象為 60 赫茲高壓輸配電線路附近任一定點及瞬間所產生的極低頻（ELF）電場與磁場的均方根場強。量測儀表若具定時自動取樣與資料儲存功能時，本方法亦可作為定點場強監測之用，但本方法並不涵蓋以隨身攜帶的磁場記錄儀器進行非定點的個人磁場曝露監測問題。

三、儀器及設備

電場量測儀器以自由導體型儀表（Free-body meter）為宜，並僅需具有單一方向的電場感測功能即可。

磁場量測儀器以具有可同時量測磁通量密度向量於三個正交軸向的分量及其合成值的三軸式等向性感測器為原則。

電場與磁場量測儀器皆應具有真均方根值（True rms value）量測功能。

電場與磁場量測儀器可選擇具有分離個別頻率的場強成份的窄頻（Narrowband）量測功能或頻譜分析功能；其個別頻率的量測結果可直接與安全曝露建議值比較，以判斷場強是否符合要求。

若所用儀表涵蓋一個或多個特定頻段時，於其任一涵蓋頻段內對強度相同，但頻率不同的場強的量測結果應在 $\pm 3\text{dB}$ 之內；此一要求可由於感測器輸出端加裝合適的頻率響應修正電路達成。場源頻率成份若僅含一個高準位的基頻成份及幾個低準位的諧波成份時（如空曠地區的高壓輸電線路）在諧波貢獻不致使整體量測不確定度超過 $\pm 10\%$ 的條件下，仍可使用此類寬頻（Broadband）儀器。在場源頻率成份複雜且未明的環境中（如配電變壓器的低壓側及相關的接戶線附近），則不宜使用此類寬頻儀器。

儀表讀值顯示可為類比或數位式。感測器與讀值顯示裝置之間的信號傳送應採用具抗電磁干擾之高電阻線或光纖。電場感測器應與量測人員保持 2 公尺以上的距離；感測器的支撐裝置或握把應使用絕緣性能良好、低漏電的材質。

工作溫度與濕度若會影響儀表準確度，製造廠商即需將相關資訊提供給客戶，以便使用者能依量測時的溫度與濕度對儀表讀值作適當的修正。

四、量測方法

在時間取樣方面，每一空間量測點的最小取樣間隔應大於儀表的安定時間，但以不超過 10 秒鐘為原則。每一空間量測點的量測時間長度、總共取樣點數、取樣數據的處理與報告方式，視量測目的、儀表是否具自動定時取樣與資料儲存和處理功能而定，在此並不予以硬性規定。