

欧洲进口法规及电源适配器 安规要求

主讲人：喻平武
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Intertek Testing Services
ETL SEMKO

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Making the World Your Marketplace



Intertek Testing Services ETL SEMKO

ITS Intertek Testing Services

Making the World Your Marketplace

COMPANY BACKGROUND

公司背景

- Early predecessor, ETL (Electrical Testing Laboratories) was founded in the United States in 1896, by Tomas Edison.
爱迪生于1896年在美国创立的ETL实验室是ITS最早的机构。
- ITS previously known as Incape Testing Services.
ITS的前身是英之杰检验测试集团
- Sold to Charterhouse in 1996 and renamed as Intertek Testing Services in 1997.
1996年被Charterhouse 收购后改名为ITS
- Charterhouse is an investment company based in London.
Charterhouse 是伦敦的投资公司

ITS Intertek Testing Services

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ITS MISSION

ITS 的使命

- To be the clear leader in independent testing, inspection and certification services worldwide.
成为全球第三方检验测试认证行业的卓越领袖
- To be the first choice of customers who demand the highest standards of quality and service.
成为对质量和服务要求最高的客户的首选
- To be the most skilled and innovative team of professionals in our industry.
成为认证领域最富经验和最具创意的专业队伍

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GLOBAL MARKET LEADER

全球认证行业的领袖

- The world's oldest and largest certification and testing company.
ITS是全球历史最悠久,规模最大的测试认证机构。
- Network spans 236 laboratories and 471 offices in 99 countries.
ITS在全球107个国家共设有236个实验室和471个分公司
- More than 2 million annual inspections, certifications and tests worldwide.
每年签署200多万份的检测报告
- Over 9,000 full-time specialists worldwide.
共有9,000多个全职的专家

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ITS BUSINESS STREAMS

ITS 的业务分支

ITS

Foreign Trade Standards (FTS)
国际贸易监查

- Inspection
- Monitoring
- Verification
- Valuation

Caleb Brett
Commodities

海事监查

- Testing
- Inspection
- Sampling
- Certification
- Marine Surveying
- Loss Adjusting

Labtest 消费品检验

- Testing
- Inspection
- Compliance
- Performance
- Auditing
- Product Evaluation

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电器产品国际认证及
体系认证

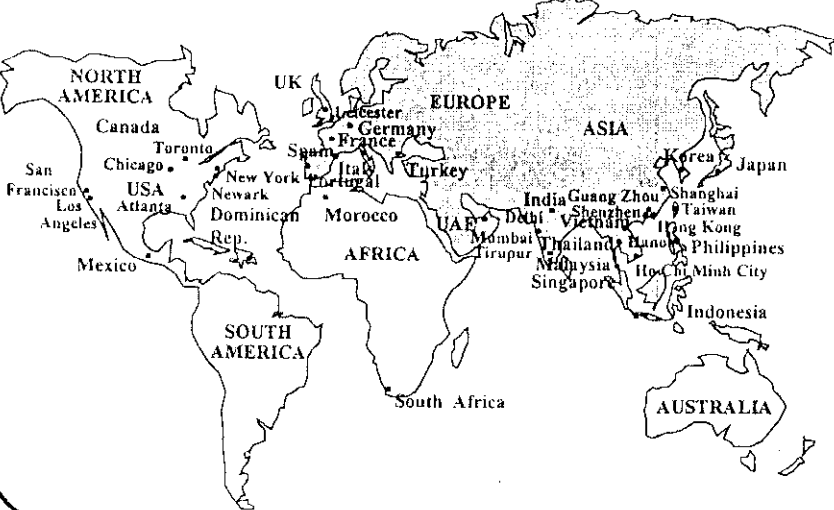
- Product Certification
- Systems Certification
- Testing
- Calibration

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ITS Global Network

ITS 的全球服务网络



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全球EMC认证标志
用于电子产品



欧共体法定标志
用于各种消费品及工业产品



美国/加拿大认证标志
用于建材, 防火材料



美国/加拿大安全认证标志
用于电子产品



德国安全认证标志
用于各种消费品及工业产品



北欧安全认证标志
用于电子产品, 元器件



ITS MARKS

ITS 的认证标志

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ITS Intertek Testing Services

- ETL Testing Laboratories, Inc. 美国加拿大 ETL 认证机构
 - SEMKO AB 瑞典 SEMKO 认证机构
 - ITS Testing & Certification GmbH 德国 ITS 认证机构
 - Warnock Hersey 加拿大 WH 认证机构
 - ERA's Radio Communication Unit - UK 英国的 ERA 通讯测试部分
- ITS 拥有的主要认证机构**

Making the World Your Marketplace

Making the World Your Marketplace

A Complete Line of Testing, Inspection and Certification Services

完整配套的服务

- * Product Safety 产品的安全性
- * EMC 电磁兼容性
- * Regulatory Compliance 其他法规要求的测试
- * ISO 9000 Quality System ISO 9000 质量体系认证
- * Factory Evaluation 工厂评估
- * Product Inspection 产品出货检验

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OUR EU CAPABILITIES

在欧洲的测试认证范围

- Toy Safety Directive (88/378/EEC)
玩具安全指令
- Low Voltage Directive (73/23/EEC)
低电压指令
- EMC Directive (89/336/EEC)
EMC 指令
- Machinery Directive (89/392/EEC)
机械指令
- Medical Device Directive (93/42/EEC)
医疗器械指令

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OUR EU CAPABILITIES

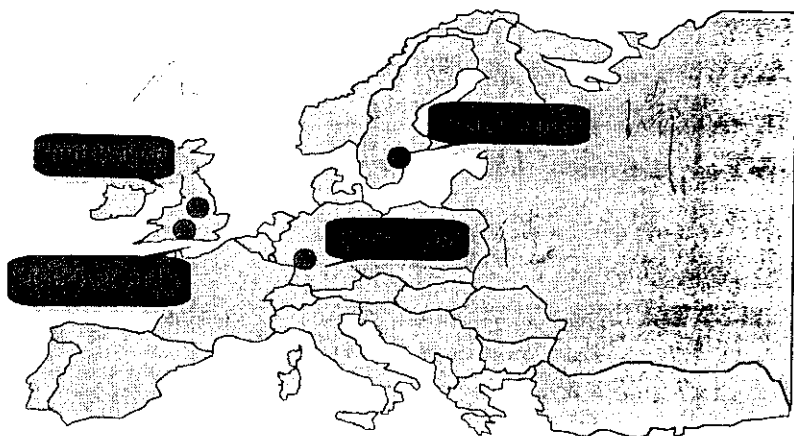
在欧洲的测试认证范围

- Simple Pressure Vessel Directive (87/404/EEC)
简单压力容器指令
- Pressure Equipment Directive (Draft)
压力设备指令
- Gas Appliances Directive (90/396/EEC)
燃气器具指令
- Telecommunications Terminal Directive
(91/263/EEC)
通信终端设备指令
- VDU (Visual Display Equipment) (87/391/EEC)
显示设备指令

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ITS NOTIFIED BODIES FOR CE MARKING



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Product Lines 主要产品线

In Guangzhou 广州

- ◆ Household Appliance 家用电器
- ◆ Adapters 稳压电源
- ◆ Luminaries 照明电器
- ◆ Telecom 通讯设备

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Making the World Your Marketplace

Product Lines 主要产品线

In Shanghai 上海

- ◆ Household Appliance 家用电器
- ◆ Power Tools 电动工具
- ◆ Luminaries 照明电器
- ◆ Accessories 附件

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欧洲入口规则
European Electrical Products Compliance Regulation
与
产品认证
Product Certification

天祥检验集团

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产品进入欧洲市场
Products Importing to European Market

- 制造商将受益于满足市场的实际要求，比如取得第三方认证标志
Manufactures will benefit from the third party Certification Body
-

产品进入欧洲市场
Products Importing to European Market

- ◆ 一定要满足欧洲法规，如欧共体指令
Mandatory regulatory requirements like European Directives
 - ◆ 而且亦经常需要满足来自零售商及消费者的要求
Also, need to fulfill the requirement from importers, retailers and endures.
-

CE标志



- ◆ CE标志表明制造商对有关权威作出的关于其产品符合欧
共同体指令的要求的保证
CE Mark showed product compliance with relevant directives
- ◆ 所有产品均需CE标志
All electrical products need CE Mark on them
- ◆ 额外的自愿认证标志将被视为第三者资讯,有助于产品进入市场
CE Marking is a self-certification process while Third Party Certification Marking always include tests followed with yearly follow-up surveillance.

欧共体新方法指令

European "New Approach" Directives

- ◆ 低电压指令 Low Voltage Directive(LVD)
 - ◆ 电磁兼容性指令EMC Directive(EMCD)
 - ◆ 机械指令Machinery Directive(MD)
- ◆ 三个指令均从1997年1月1日起必须履行
- ◆ Effective since 1 January 1997

低电压指令 (LVD)

- ◆ 有效于所有工作电压在以下范围的电子电 器产品
Product Scope falling in the directive
- ◆ 交流50-1000V
AC 50-1000V
- ◆ 直流75-1500V
DC 75-1500V

UN60335-1 家用 2-XX
UN61118-1 电源变压器 家用 2-XX

CISPR 13 灯具
 CISPR 13 音响设备
 CISPR 14 家电
 CISPR 15 无线电
 CISPR 18 干扰
 CISPR 22 抗干扰

电磁兼容性指令 (EMCD)

- 所有电子电器产品均需符合
 All electrical & electronic products need to comply with EMC.
- 目的在于保障一个可以接受的电磁环境
 Objective: to ensure the electromagnetic interference being controlled at an acceptable level.
- 要求产品的电磁干扰性在一定限度以下
 Products are required to generate interference below certain limit.
- 要求产品能在一个有其它装置发生电磁干扰的环境中正常运行
 Products are required to resist certain level of interference to ensure it can function properly under such environment.

CISPR 22 抗干扰
 CISPR 24 抗干扰
 CISPR 25 抗干扰
 CISPR 26 抗干扰
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 CISPR 100 抗干扰

电磁兼容性指令 (EMCD)

- 简单之器件，如电阻、开关、连接器，无需EMC 测试。
 Components like resistors, switches, connectors have no EMC requirement.
- 具有功能之器件，如电脑插入式功能卡、开关电源等则需EMC测试
 Components with direct function like computer card and switching mode power supply need to fulfill EMC requirement.

CE标志的执行程序

CE Marking Process

- 由第三方检定所根据相应指令下的标准测试，出具报告
 Tests based on standards by laboratories.
- 制造商准备产品技术档案 *操作手册及基本技术资料 User Manual, Circuit Diagram, Product Technical file
 *操作手册及基本技术资料 User Manual, Circuit Diagram, Product Description & Component Certificates
- 内部生产控制
 Production Control Procedure
- 制造商或销售商签署合格声明 (DOC)
 Manufacturer's signature on Declaration of conformity (DOC)

*第三方检定所的测试报告 Test Reports

合格声明(DOC)样张

EC DECLARATION OF CONFORMITY

	<u>Manufacturer</u>	<u>Importer</u>
Name :	Good Quality Ltd.	ABC Co. Ltd.
Address :	1/F, New Bldg. 9999 Nathan Rd. Hong Kong	2/F., England Ctr. M11 2NE Uk
Brand name :	ABC	
Model Number :	H999	
Product Description :	Hairdryer	
Year of First Application of CE mark :	1996	
Standard used for checking compliance :		

<u>Directive</u>	<u>EMC Directive</u>	<u>Low Voltage</u>
	EN55014 : 1993	BS EN60335-2-23 : 1991
	EN61000-3-2 : 1995	(in conjunction with
	EN61000-3-3 : 1995	BS3456:Part 201 : 1990)
	EN55104 : 1995	

This is to certify that the above product will at all time be manufactured so as to comply with EC directive:

	73/23/EEC	(Low Voltage Directive)
	89/336/EEC	(EMC Directive)
	93/68/EEC	(CE Marking Directive)

Person Empowered by ABC Co. Ltd.

Name

Position

Signature

Date

合格声明(DOC)样张

EC DECLARATION OF CONFORMITY

	Manufacturer	Importer
· Name :	Good Quality Ltd.	ABC Co. Ltd.
· Address :	1/F, New Bldg.	2/F., England Ctr.
·	9999 Nathan Rd.	M11 2NE
·	Hong Kong	Uk
· Brand name :	ABC	
· Model Number :	H999	
· Product Description :	Hairdryer	
· Year of First Application of CE mark :	1996	
· Standard used for checking compliance :		

	EMC Directive	Low Voltage
· <u>Directive</u>	EN55014 : 1993	BS EN60335-2-23 :1991
·	EN61000-3-2 : 1995	(in conjunction with
·	EN61000-3-3 : 1995	BS3456:Part 201 : 1990)
·	EN55104 : 1995	

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·	89/336/EEC	(EMC Directive)
·	93/68/EEC	(CE Marking Directive)
· Person Empowered by ABC Co. Ltd.		

Name

Position

Signature

Date

欧洲认证标志之趋势 European Certification Mark

- 标志着与标准的符合
Ensure products compliance with required standard
 - 标志着产品经过公正测试
Ensure products having been tested correctly and accurately
 - 为CE标志提供基本数据
Ensure the testing data is enough for CE Marking
 - 消费者对产品的安全性提高信心
Enhance the end-users' confidence in the product
 - 在出现产品责任纠纷时，制造商或进口商将处于更有利地位
Provide additional protection for manufacturers and importers when the product is under surveillance
-

CB Scheme CB计划

The CB (Certification Body) Scheme:

- A formal international agreement among testing laboratories and certification bodies
国际上实验室及认证机构之间的正式协议
- Established by IEC (International Electro-technical Commission)
由国际电工委员会建立
- To facilitate trade in electrical and electronic equipment of the residential and commercial types
目的是使电气与电子产品的国际贸易更方便

NCB: National Certification Body 国家认证机构

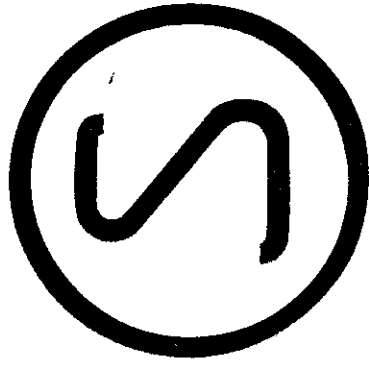
CB test certificate/report: To benefit manufacturer 使生产商受益

CB测试证书/报告 Based on IEC standards 基于IEC标准

ITS与CB计划 ITS & CB Scheme

- CB计划是一个非常重要的认证体系，受全球广泛重视，尤其是工业出口国
CB Scheme is a formal international agreement among certification bodies
- 在分布于31个国家的40个成员机构中，ITS/SEMKO是最大的CB认证机构
There are 40 members and ITS/SEMKO is the biggest CB NCB.

ITS所提供的欧洲认证标志 Certification Mark Offered by ITS



S-标志

S-Mark from

SEMKO in Sweden

GS-标志

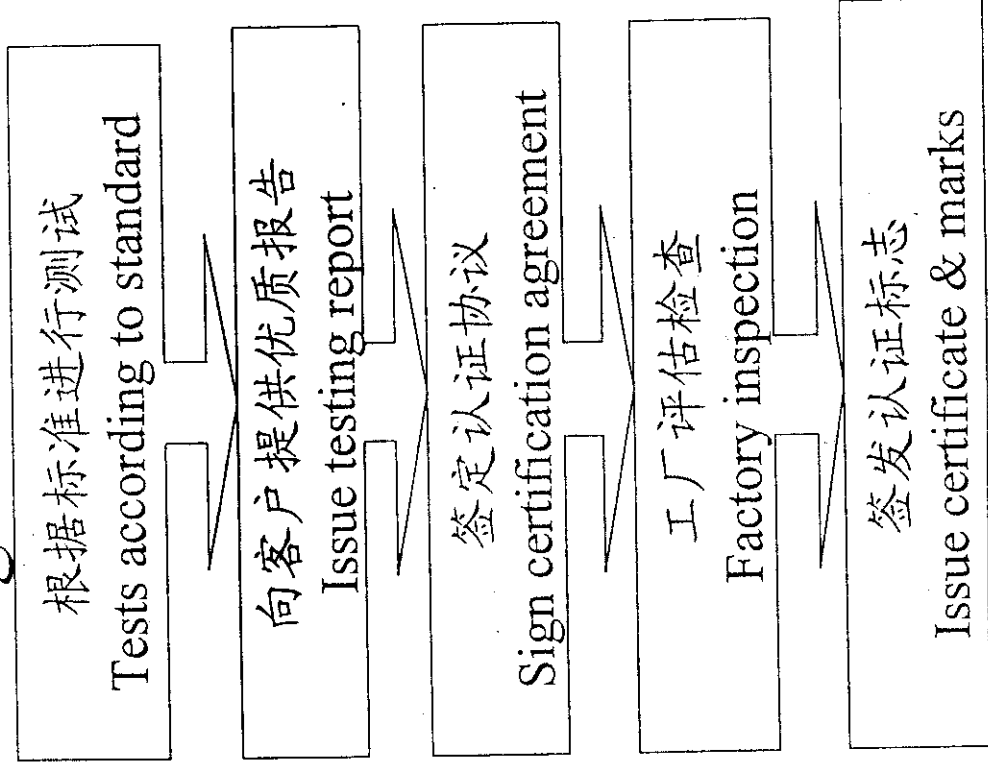
GS-Mark for

German Market

ETL 美国及加拿大安全认证标志
ETL Mark: Safety Certification Mark for U.S. & Canada



测试与认证程序 Testing & Certification Process



Adapter 安规测试重点

主讲人：戴月群

ITS ETL SEMKO Guangzhou

ITS Intertek Testing Services
ETL SEMKO



内容大纲

- 一、法规标准介绍
- 二、标示 (Label & Marking)
- 三、结构设计要求
- 四、电气测试项目
- 五、结构性能测试
- 六、申请上注意事项

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一、法规、标准介绍

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国际法规介绍

- **ANSI/UL: 美国标准。**使用于美国认证, 所有的NRTL都采用UL或ANSI/UL标准(UL, ETL)
- **CSA: 加拿大标准。**使用于加拿大认证, SCC认可实验室都采用CSA标准 (CSA, ETLc, ULc)
- **EN: 欧洲标准。**使用于所EU/EEA/CENELEC 国家 (CE, SEMKO, VDE, TUV) CE marking 采用之标准
- **IEC: 国际标准。**国际间所制定的基本标准, 为全世界各国所采用, UL、CSA亦普遍采用的IEC为基本的新标准

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用于Adapter, Power Supply 之标准

- 一般用途的Adapter(General purpose use):

适用的标准是IEC/EN 60742 或IEC/EN 61558

IEC/EN 60742是, 已于2000-08旧标准-01不再使用, 强迫改用EN 61558. IEC/EN 61558是新标准, 适用范围大, 包含Linear 及 Switching 的Adapter都适用

- ① 61558-1: 通用部分
- ② 61558-2-6: 适用于安全隔离变压器
- ③ 61558-2-17: 针对电子变压器 (开关变压器)

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- 一般用途的Charger Adapter: 适用的标准是 IEC/EN 60335-2-29,

此标准认证的充电器是指供给一般的商用电池或汽车电池使用, 不论Linear 或Switching 均适用。

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• 资讯产品专用的Adapter: IEC/EN60950, 如果以此标准认证的Adapter, 只能专供资讯产品使用, 不论是Linear 或是 Switching均适用。

• 音响视讯产品(Audio /Video)专用的Adapter: IEC/EN 60065, 如果以此标准认证的Adapter, 只能专供音响产品使用, 不论是Linear 或是 Switching均适用。

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• 医疗仪器专用Adapter: IEC/EN 60601, 如果以此标准认证的Adapter, 只能专供医疗器材产品使用, 不论是Linear 或是 Switching均适用。

• 量测仪器专用的Adapter: IEC/EN 61010, 如果以此标准认证的 Adapter, 只能专供量测仪器产品使用, 不论是Linear 或是 Switching 均适用。

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二、标示 (Label & Marking)

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• Adapter 之主要内容

- 制造厂名(Manufacture Name) 或商标 (Trade Name)
- 型号 (Model designation)
- 输入电压 (Input voltage or voltage range)
- 额定频率 (Rated frequency)
- 直流符号 (DC symbol)

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- 交流符号 (AC symbol)
- 输出电压 (Output voltage)
- 输出电流 (Output current)
- 输出功率 (Output power)
- II 类产品符号 (Class II equipment)
- 变压器输出保护型式符号=> Only for 60742 & 61558
- For indoor use only => Only for 61558
- IPXX (if not IP 20/ordinary transformer)

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• 其它标示

- 安全接地符号
- 保险丝更换警语(CAUTION – For continued protection against risk of electric, replace only with same type and rating of fuse)
- 保险丝规格： F (快熔), T (慢熔), L (低熔断容量), H (高熔断容量), 电流(A), 电压(V)
- **Example =>T2A L 250V**
- 开关标示
- 外接电源线端子的标示： L, N
- 直流电输出极性： +, -
- 属于充电器 (Battery charger, 60335-2-29) 的特殊警语

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三、结构设计要求

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- 插墙式(Direct plug-in)的 Linear Adapter插座扭力应小于0.25Nm, EI-48型以上尤其注意
- 间距要求: 初级元件与铁芯/地(BI), 初级元件与次级元件(RI), 次级元件与铁芯(SI), 均应保持适当距离, 元件还须在受力状况下
- 间距要求: 保险丝(Thermal fuse or current fuse)之两端(本体 or PCB)应保持适当距离(BI/OI)
- 线材要求: 初级侧线材, 若其一端脱落可以碰触次级元件时, 考虑用双绝缘线, 或
- 以双机械式固定加绑线或套管

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- Linear transformer: 如果次级绕组与铁芯不能保持(SI)距离要求, 此时铁芯当成次级元件, 初级应与铁芯保持(RI)距离要求, Bobbin 厚度要求尤为重要(0.4mm for 60950 & 60065; 1.0mm for 61558 & 60335-2-29)
- 使用60335-2-29认证充电器时, 其距离要求为4.0mm for BI/SI; 8mm for RI

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- 固定式电源线
 - 长度应2-4m (only for 61558)
 - 通过拉力与扭力测试 (All standards)
 - 选用 type X, Y, Z Attachment 方式固定 (Not for 60950 & 60065)

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- Type Y attachment:
 - 以特殊螺丝锁外壳

- Type Z attachment
 - 以一次螺丝锁外壳
 - 以超音波封外壳

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- 塑料外壳应

- 通过钢球撞击测试(桌上型产品)(only for 60950)
- 通过落下试验(插墙式产品) (All standards)
- 通过冲击锤测试(非60950)
- 通过热应力试验(only for 60950)
- 通过V-1燃烧测试 (only for 60950)
- 通过650°C 的灼热试验(非60950&60065)
- 通过70/75°C球压试验(only for 61558/60335)

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四、电气测试项目

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- 输入测试

- $U=U_n$, $F=F_n$, Sec. Full load

- $\Rightarrow \pm 10\%$ deviation of I_n

- 输出电压测试 (only for 61558)

- $U=U_n$, $F=F_n$, Sec. Load is rated impedance until temperature stable

- V out shall not differ : 5-15% of rating

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- 输出电流测试(only for 60335-2-29)
 - $U=U_n$, $F=F_n$, Sec, Load is adjusted to get rated output voltage until temperature stable
 - I_{out} shall not differ $> 10\%$ of rating

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- 无载输出电压测试

- $U=U_n$, $F=F_n$
- Output voltage shall
 - ≤ 42.4 V dc (60335-2-29)
 - ≤ 42.4 V peak, ≤ 60 V dc (60950)
 - ≤ 50 Vrms ac, ≤ 120 V dc (61558-2-6)

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- 额定输出电压与无载电压比值(only for 61558)

- $(V_{\text{no-load}} - V_{\text{load}}) / V_{\text{load}} \times 100\%$

- 0-10 VA => 100%

- 10-25 VA => 50%

- 25-63 VA => 20%

- 63-250 VA => 15%

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- 插头电容放电测试 (plug discharge test)

- 当电源两端接的X-Capacitor 值大于 $0.1 \mu F$ 时，应测试其放电速度

- 于轻载下放电时间与电压值之要求为：

- 1S, 37% original value (60950)

- 2S, 34 V peak (60065)

- 1S, 34 V peak (60335)

- No requirement (61558)

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• 温升测试

- Sec. Load = rated output current;
 $V=1.06 U_n$ or $1.1 U_n$
- Winding by ΔR method; other components by thermal couples
- Winding requirement(temperature rise)
Class A => 75K, Class E => 90K,
Class B => 95K, Class F => 115K,
Class H => 140K

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• 接地测试

- 25A current, measure the voltage
- Earthed metal parts
- Y- capacitor with basic insulation only
- => Impedance shall $\leq 0.1 \Omega$

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- 漏电流测试

- $U=1.06 V_n$ or $1.1 V_n$; $F=F_n$ (higher)
- Measured between Pri & earth; Pri & Sec.; Pri. & User Accessible parts
- Class II equipment $\Rightarrow \leq 0.25\text{mA}$
- Class I equipment $\Rightarrow \leq 0.75\text{mA}$ (60335-2-29)
- Class I equipment $\Rightarrow \leq 3.5\text{mA}$ (60950)

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- 耐电压测试(60950/61558/60335/60065)
 - (RI) Pri & Sec.: 3000Vac/3750Vac/4242Vdc
 - (BI) Pri & Earth: 1500Vac/1250Vac/2121Vdc
 - (BI) Pri & Core: 1500Vac/1250Vac/2121Vdc
 - (SI) Sec. & Core: 1500Vac*/2500Vac/2121Vdc
 - (RI) Pri & User accessible:
3000Vac/3750Vac/4242Vdc

- Note: Test voltage is according to working voltage

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• 限功率源测试 (Limited Power source)

- 60950 所特有的测试
- 有无通过均不影响认证
- 若有通过则使用此电源供应器的产品可以用较差等级的外壳(HB)

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• 绝缘阻抗测试(Only for 60065 & 61558)

- 500 V dc, 1min,
- Measured between:
 - (RI) Pri. & Sec.: $\geq 5M\Omega$ (61558), $4M\Omega$ (60065)
 - (BI) Pri. & Earth.: $\geq 2M\Omega$
 - (BI) Pri. & Core: $\geq 2M\Omega$
 - (SI) Sec. & Core.: $\geq 2M\Omega$
 - (RI) Pri & User accessible: $\geq 7M\Omega$ (61558), $4M\Omega$ (61558)

Note: No this test for 60950.
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• 短路与过载试验(Short-circuit & overload test)

(Only for 61558, non-inherently short-circuit proof transformer)

- 变压器之保护元件短路
- 若是由IEC127current fuse 来保护时, 变压器的二次侧加负载, 使流过的电流是2.1倍的Fuse额定值, 时间 30min, $U=0.9U_n$, $F=F_n$
- 若是由 thermal fuse 来保护时, 变压器的二次侧加负载, 使流过的电流是0.95倍的thermal fuse动作值, 测试到温度稳定, $U=1.06U_n$, $F=F_n$
- 在此测试中不得有火焰的窜出, 熔化金属或大量有毒气体产生

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• 短路与过载试验(Short-circuit & overload test)

(Only for 61558, fail-safe transformer)

- 变压器保护元件短路
- 共测试3个样品
- $U=1.06U_n$, $F=F_n$, 样品置于黑色夹板上
- 二次侧的线圈加负载到额定电流之1.5倍, 做到温度稳定或变压器坏掉
- 若变压器没坏掉, 须把二次侧线圈短路, 直到变压器坏掉为止
- 在测试过程中, transformer 外壳温度应 $\leq 175^{\circ}\text{C}$, 夹板 $\leq 125^{\circ}\text{C}$, 亦不得有火焰窜出, 滴落或熔化金属
- 在测试后耐压测试亦应符合

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• 异常测试

- 电子元件的短路与开路
- 距离不足处短路
- 线圈短路
- 二次侧输出短路与过载
- 马达风扇堵住

• Note:

- 一次只做一个异常
- 损坏机器不算Fail
- 若有疑问则做到温度稳定
- 不得有起火燃烧绝缘过热，绝缘崩溃，熔化金属溢出

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五、结构性能测试

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- 手指测试 (Finger test)

- 手指探棒不能接触到
 - 危险电压
 - 只有基本绝缘的元件
 - 锐边
 - 转动元件
- 手指可以施力30N

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- 探针测试 (Pin test)

- 探针在不施力的情况下不得接触到危险电压

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• 电源线固定测试(Stain relief test)

- 拉力测试: 25次 每次拉1S
- 扭力测试: 1 min
- 拉力扭力大小为:
 - $EUT \leq 1 \text{ kg} \Rightarrow 30\text{N}, 0.1\text{Nm}$
 - $1 < EUT \leq 4 \text{ kg} \Rightarrow 60\text{N}, 0.25\text{Nm}$
 - $EUT > 4 \text{ kg} \Rightarrow 100\text{N}, 0.35\text{Nm}$
- 做完测试后电源线不得有 $> 2\text{mm}$ 位移
- 不得有端子被拉动现象

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• 稳定测试 (Stability test)

- 待测物放置于一平台当此平台任意倾斜 10° 角时, 此待测物仍应保持平衡不得
倾倒

• 静力测试 (Steady force test) (only for 60950)

- 待测物以外力250N向内推外壳后, 此待测物
不得造成距离的不足

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- 钢球测试 (Steel Ball impact test)

(Only for 61950)

- 一钢球500g, 50mm直径, 自1.3m高落下, 撞击产品外壳之水平面与垂直面
- 撞击后不得造成违反安全之情形, 特别是距离不足与绝缘之破损

- Note: 此测试不适用于插墙式产品

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- 冲击锤测试 (Impact hammer test)

(not for 60950)

- 以标准冲击锤施加弹力于外壳
- 每一面做三次
- 冲击力为
 - 0.5Nm (61558, 60065)
 - 1.0Nm (60335-2-29)
- 测试完后, 不应有违反安全之情形, 特别是外壳破裂造成距离不足与绝缘之破损

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- 落下试验(Drop test)

- 待测物由1M高自由落下三次，地板为硬木地板

- 落下后不得造成违反安全之情形，特别是距离不足与绝缘之破损

- Note: 此测试不适用于桌上型产品

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- 湿度测试 (Humidity test)

- 整体待测物放入恒温恒湿槽内

- 48 h, 28-30°C, 91-95% RH, for normal EUT

- 5 d, 38-42°C, 90-95% RH, for EUT for tropical countries (Singapore) (Only for 60065)

- 在完成此项测试后应马上执行耐电压测试与绝缘阻抗测量

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• 耐热应力测试(Mold stress relief test)
(only for 60950)

- 塑料外壳材质应通过此测试
- 整体待测物放置于烤箱中7 h
- 温度一般为70°C 或比外壳温度高10°C
- 待冷却后不得造成违反安全之情形特别是距离不足与绝缘之破损

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• 球压试验(Ball pressure test)

- 针对塑胶材质的测试
- ✓ 球压试验器，20N重，透过5mm直径的销压在试验片上放置于烤箱中1h
- ✓ 烤箱温度为125°C =>支持高电压元件
- 烤箱温度为70°C/75°C =>外壳(Only for 60335 & 60335)
- ✓ 冷却试片后球压痕之直径应 ≤ 2 mm

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• 炽热丝试验 (Glow wire test) (Only for 61558 & 60335)

- 针对塑胶材质的燃烧测试
- 炽热丝加热到指定温度持续30s
- 外壳材质: 550°C 或650°C
- 直接支撑危险电位之材质: 850°C
- Plug 绝缘材质: 750°C

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• 螺丝试验 (Only not for 60950)

- 锁外壳的螺丝应通过此测试
- 螺丝完全锁入再完全退出
- 10次(非金属螺纹): 5次(金属螺纹)
- 2.8-3.0mm => 0.5Nm; 3.0-3.2mm => 0.6Nm
- 3.2-3.6mm => 0.8Nm; 3.6-4.1mm => 1.2Nm
- 螺丝不得滑牙

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- 插头试验

- 德国插头 (EN50075)

- Pin 转动测试: 0.4Nm, 1min
 - Pin 拉力测试: 75°C , 40N
 - Pin sleeve 球压测试: 125°C , 1h
 - Pin sleeve 炽热丝试验: 750°C , 30s
 - Pin sleeve 耐磨试验: 20 000次

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六、申请上注意事项

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Q & A



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谢 谢 光 临!

ITS ETL SEMKO (Guangzhou)

期待很快能与您相见!

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• 系列性产品之认定

- 相同铁芯大小与材质
- 同样的制作技术 (绕线与组装)
- 相同保护方式 (Thermal fuse or current fuse)
- 一次侧相同绕线
- 同为AC/AC or AC/DC, 有或无 Regulator
- 同为插墙式或桌上型
- 测试的样品: 至少Max.V, Max. A, Max. VA各须做完整测试; 如三个代表无法包含全部时, 仍须追加其它样品

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• SEMKO, GS, CB证书之列名法则:

- OEM Certificate (单独证书): 可以是申请者之名或 Buyer当Applicant
- Multiple Listing (同一张证书, 多家列名): 可以列多家 Brand 与 Model No. 但申请者列名永远是同一家
- CB: 一张证书只能有一型号, 若欲列不同Brand及 Model No.时应以Multiple Listing or OEM Certificate 原则处理
- CB Report: 同一份可以列多型号及多个Brand
- 型号: 尽可能用ADI-48-*****来代表一系列产品

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