



Electrical/Electronics

Nouvelles parutions en français

C22.2 n° 99-1954 (C1999), 1^{re} édition
Construction et mise à l'essai des machines à repasser pour usage domestique 35 \$

Cette norme vise les machines à repasser portatives et fixes pour usage domestique, avec ou sans commande thermique automatique, conçues pour fonctionner sous une tension d'au plus 250 V et pour être utilisées conformément au *Code canadien de l'électricité, Première partie*.

Proposed New Projects

For more information about the proposed development of the following new editions, contact Brian Haydon at 416-747-4006 or brian.haydon@csa.ca:

- **C22.2 No. 0.3, 6th edition**
Test Methods for Electrical Wires and Cables
- **C22.2 No. 38, 8th edition**
Thermoset Insulated Wires and Cables
- **C22.2 No. 188, 2nd edition**
Splicing Wire Connectors

For more information about the following proposed new standards, contact Tim Pope at 416-747-2572 or tim.pope@csa.ca:

- **C22.2 No. 253, 1st edition**
Controllers, 1501-7200 Volts
- **C22.2 No. 254, 1st edition**
Motor Control Centres
- **C22.2 No. 257, 1st edition**
General Rules for Low Voltage Distribution Equipment
- **C22.2 No. 258, 1st edition**
Magnetic Controllers
- **C22.2 No. 259, 1st edition**
Pilot Devices

For more information about the proposed development of the following new edition, contact Denis Vaz at 416-747-2519 or denis.vaz@csa.ca:

- **C22.2 No. 210.2, 3rd edition**
Appliance Wiring Material Products

For more information about the proposed development of the following new edition, contact John O'Neill at 416-747-4042 or john.oneill@csa.ca:

- **C9, 4th edition**
Dry-Type Transformers

Drafts

Please note: Public comments about the following proposed amendments are due by September 7, 2001. To receive copies, or to offer comments, contact Annie Pereira at 416-747-4094 or annie.pereira@csa.ca:

- **C22.2 No. 38-95, Proposed amendment**
Thermoset Insulated Wires and Cables
Proposed revision of Clauses 4.6.4 and 6.4.16.
- **CAN/CSA-C22.2 No. 61-M89, Proposed amendment**
Household Cooking Ranges
Proposed revision of Clauses 6.3.1.6 and 6.3.2.13.

Proposed Adoption of Standards

For more information about the proposed adoption of the following IEC standards, contact David Hulford at 416-747-2740 or david.hulford@csa.ca:

- **IEC 60079-2 (2001)**
Electrical Apparatus for Explosive Gas Atmospheres—Part 2: Electrical Apparatus—Type of Protection "p"
- **IEC 60079-15 (2001)**
— *Part 15: Electrical Apparatus with Type of Protection "n"*
- **IEC 60335-1 (2001)**
Safety of Household and Similar Electrical Appliances—Part 1: General Requirements
- **IEC 60598-1 (1999)**
Luminaires—Part 1: General Requirements and Tests
- **IEC 60825-1 (1998)**
Safety of Laser Products—Part 1: Equipment Classification, Requirements and User's Guide
- **IEC 60974-1: am1 (2000)**
Arc Welding Equipment—Part 1: Welding Power Sources



Proposed Adoptions (cont'd)

- IEC 60974-7 (2000)
Arc Welding Equipment—Part 7: Torches
- IEC 61558-1 (1998)
Safety of Power Transformers, Power Supply Units and Similar—Part 1: General Requirements and Tests
- IEC 61558-2-1 (1997)
Safety of Power Transformers, Power Supply Units and Similar—Part 2: Particular Requirements for Separating Transformers for General Use
- IEC 61558-2-2 (1997)
— *Control Transformers*
- IEC 61558-2-4 (1997)
— *Isolating Transformers for General Use*
- IEC 61558-2-6 (1997)
— *Safety Isolating Transformers for General Use*
- IEC 61558-2-17 (1997)
— *Transformers for Switchmode Power Supplies*

For more information about the proposed adoption of the following IEC standards, contact John O'Neill at 416-747-4042 or john.oneill@csa.ca:

- IEC 60104 (1987)
Aluminum-Magnesium-Silicon Alloy Wire for Overhead Line Conductors
- IEC 60888 (1987)
Zinc-coated Steel Wires for Stranded Conductors
- IEC 60889 (1987)
Hard-drawn Aluminum Wire for Overhead Line Conductors
- IEC 61089 (1991)
Round Wire Concentric Lay Overhead Electrical Stranded Conductors
- IEC 61232 (1993)
Aluminum-clad Steel Wires for Electrical Purposes

For more information about the proposed adoption of the following standards, contact John O'Neill at 416-747-4042 or john.oneill@csa.ca:

- CISPR 22
Information Technology Equipment—Radio Disturbance Characteristics—Limits and Methods of Measurement
- IEC 61000-4-8 (2001)
Electromagnetic Compatibility (EMC)—Part 4-8: Testing and Measurement Techniques—Power Frequency Magnetic Field Immunity Test

- IEC 61000-4-9 (2001)
— *Part 4-9: Pulse Magnetic Field Immunity Test*
- IEC 61000-4-16 (1998)
— *Part 4-16: Test for Immunity to Conducted, Common Mode Disturbances in the Frequency Range 0 Hz to 150 kHz*
- IEC 61000-4-17 (1999)
— *Part 4-17: Ripple on d.c. Input Power Port Immunity Test*

Proposed Endorsement of Standards

For more information about the proposed endorsement of the following IEC standards, contact John O'Neill at 416-747-4042 or john.oneill@csa.ca:

- IEC 60243-1 (1998)
Electric Strength of Insulating Materials—Test Methods—Part 1: Tests at Power Frequencies
- IEC 60243-2 (2001)
— *Part 2: Additional Requirements for Tests Using Direct Voltage*
- IEC 60454-3-1 (1998)
Pressure-sensitive Adhesive Tapes for Electrical Purposes—Part 3: Specifications for Individual Materials—Sheet 1: PVC Film Tapes with Pressure Sensitive Adhesive
- IEC 60454-3-2 (1998)
— *Sheet 2: Polyester Film Tapes with Rubber Thermosetting or Acrylic Crosslinked Adhesives*
- IEC 60454-3-3 (1998)
— *Sheet 3: Polyester Film Tapes with Rubber Thermoplastic Adhesive*
- IEC 60454-3-4 (1998)
— *Sheet 4: Cellulosic Paper, Creped, with Rubber Thermosetting Adhesive*
- IEC 60454-3-5 (1998)
— *Sheet 5: Cellulosic Paper, Non-creped, with Rubber Thermosetting Adhesive*
- IEC 60454-3-6 (1998)
— *Sheet 6: Polycarbonate Film Tapes with Acrylic Thermoplastic Adhesive*
- IEC 60454-3-7 (1998)
— *Sheet 7: Polyimide Film Tapes with Pressure-sensitive Adhesive*



Proposed Endorsements (cont'd)

- IEC 60454-3-8 (1998)
— *Sheet 8: Glass Fabric with Pressure-sensitive Adhesive*
- IEC 60455-1 (1998)
Resin Based Reactive Compounds Used for Electrical Insulation—Part 1: Definitions and General Requirements
- IEC 60455-2 (1998)
— *Part 2: Methods of Test*
- IEC 60464-1 (1998)
Varnishes Used for Electrical Insulation—Part 1: Definitions and General Requirements
- IEC 60626-3 (1996)
Combined Flexible Materials for Electrical Insulation—Part 3: Specifications for Individual Materials
- IEC 60672-2 (1999)
Ceramic and Glass Insulating Materials—Part 2: Methods of Test
- IEC 60672-3 (1997)
— *Part 3: Specifications for Individual Materials*
- IEC 60684-2 (1997)
Flexible Insulating Sleeving—Part 2: Methods of Test
- IEC 60707 (1999)
Flammability of Solid Non-metallic Materials When Exposed to Flame Sources—List of Test Methods

Reaffirmed Standards

- CAN/CSA-C22.2 No. 242-92 (R2001)
IEEE Standard Test Procedures and Requirements for High-Voltage Alternating-Current Cable Terminations
- CAN/CSA-CEI/IEC 1000-1-97 (R2001)
EMC—Part 1: General—Section 1: Application and Interpretation of Fundamental Definitions and Terms
- CAN/CSA-CEI/IEC 1000-2-1-97 (R2001)
EMC—Part 2: Environment—Section 1: Description of the Environment—Electromagnetic Environment for Low-frequency Conducted Disturbances and Signalling in Public Power Supply Systems
- CAN/CSA-CEI/IEC E1000-2-2-97 (R2001)
EMC—Part 2: Environment—Section 2: Compatibility Levels for Low-frequency Conducted Disturbances and Signalling in Public Low-voltage Power Supply Systems

Note: IEC has re-numbered the 1000 series as 61000.

CSA has reaffirmed its endorsement of the following IEEE and IEC standards:

- ANSI/IEEE 1-1986 (R2001)
General Principles for Temperature Limits in the Rating of Electrical Equipment and for the Evaluation of Electrical Insulation
- IEC 60085 (1984) (R2001)
Thermal Evaluation and Classification of Electrical Insulation
- IEC 60093 (1980) (R2001)
Methods of Test for Volume Resistivity and Surface Resistivity of Solid Electrical Insulating Materials
- IEC 60112 (1979) (R2001)
Method for Determining the Comparative and the Proof Tracking Indices of Solid Materials Under Moist Conditions
- IEC 60167 (1964) (R2001)
Methods of Test for the Determination of the Insulation Resistance of Solid Insulating Materials
- IEC 60212 (1971) (R2001)
Standard Conditions for Use Prior to and During the Testing of Solid Electrical Insulating Materials
- IEC 60216-1 (1990) (R2001)
Guide for the Determination of Thermal Endurance Properties of Electrical Insulating Materials—Part 1: General Guidelines for Ageing Procedures and Evaluation Test Results
- IEC 60216-2 (1990) (R2001)
— *Part 2: Choice of Test Criteria*
- IEC 60216-3-1 (1990) (R2001)
— *Part 3: Instructions for Calculating Thermal Endurance Characteristics. Section 1—Calculation Using Mean Values of Normally Distributed Complete Data*
- IEC 60216-4-1 (1990) (R2001)
— *Part 4: Ageing Ovens. Section 1: Single-chamber Ovens*
- IEC 60216-5 (1990) (R2001)
— *Part 5: Guidelines for the Application of Thermal Endurance Characteristics*
- IEC 60250 (1969) (R2001)
Recommended Methods for the Determination of the Permittivity and Dielectric Dissipation Factor of Electrical Insulating Materials at Power, Audio and Radio Frequencies Including Metric Wavelengths



- **IEC 60345 (1971) (R2001)**
Method of Test for Electrical Resistance and Resistivity of Insulating Materials at Elevated Temperatures
- **IEC 60371-1 (1980) (R2001)**
Specification for Insulating Materials Based on Mica—Part 1: Definitions and General Requirements
- **IEC 60371-2 (1987) (R2001)**
— *Part 2: Methods of Test*
- **IEC 60371-3-1 (1984) (R2001)**
— *Part 3: Specifications for Individual Materials—Sheet 1: Commutator Separators and Materials*
- **IEC 60371-3-3 (1983) (R2001)**
— *Part 3: Specifications for Individual Materials—Sheet 3: Specification for Rigid Mica Materials for Heating Equipment*
- **IEC 60377-1 (1973) (R2001)**
Methods for the Determination of Dielectric Properties of Insulating Materials at Frequencies above 300 MHz—Part 1: General
- **IEC 60377-2 (1977) (R2001)**
— *Part 2: Resonance Methods*
- **IEC 60394-1 (1972) (R2001)**
Varnished Fabrics for Electrical Purposes—Part 1: Definitions and General Requirements
- **IEC 60394-2 (1972) (R2001)**
— *Part 2: Methods of Test*
- **IEC 60394-3-1 (1976) (R2001)**
— *Part 3: Specifications for Individual Materials—Sheet 1: Oleoresinous Varnish-cotton Base, OR/C*
- **IEC 60394-3-2 (1988) (R2001)**
— *Part 3: Specifications for Individual Materials—Sheet 2: Glass-fabric Based Varnished Fabrics with Epoxy, Polyurethane, Silicone, Polyester, Bituminous or Oleoresinous Varnish*
- **IEC 60426 (1973) (R2001)**
Test Methods for Determining Electrolytic Corrosion with Insulating Materials
- **IEC 60450 (1974) (R2001)**
Measurement of the Average Viscometric Degree of Polymerization of New and Aged Electrical Papers
- **IEC 60455-1A (1980) (R2001)**
Specification for Solventless Polymerisable Resinous Compounds Used for Electrical Insulation—Part 1: Definitions and General Requirements—First Supplement: Basis for Classification of Polymerisable Resinous Compounds
- **IEC 60455-2-2 (1984) (R2001)**
Specification for Solventless Polymerisable Resinous Compounds Used for Electrical Insulation—Part 2: Methods of Test—Sheet 2: Test Methods for Coating Powders for Electrical Purposes
- **IEC 60455-3-1 (1981) (R2001)**
Specification for Solventless Polymerisable Resinous Compounds Used for Electrical Insulation—Part 3: Specification for Individual Materials—Sheet 1: Unfilled Epoxy Resinous Compounds
- **IEC 60455-3-2 (1987) (R2001)**
— *Sheet 2: Quartz Filled Epoxy Resinous Compounds*
- **IEC 60455-3-3 (1984) (R2001)**
— *Sheet 3: Unfilled Polyurethane Compounds*
- **IEC 60455-3-4 (1984) (R2001)**
— *Sheet 4: Filled Polyurethane Compounds*
- **IEC 60455-3-5 (1989) (R2001)**
— *Sheet 5: Unsaturated Polyester Impregnating Resins*
- **IEC 60455-3-11 (1988) (R2001)**
— *Sheet 11: Epoxy Resin-based Coating Powders*
- **IEC 60464-2 (1974) (R2001)**
Specification for Insulating Varnishes Containing Solvent—Part 2: Test Methods
- **IEC 60464-3-1 (1986) (R2001)**
Specification for Insulating Varnishes Containing Solvent—Part 3: Specifications for Individual Materials—Sheet 1: Requirements for Cold Curing Finishing Varnishes
- **IEC 60464-3-2 (1989) (R2001)**
— *Sheet 2: Requirements for Hot Curing Impregnating Varnishes*
- **IEC 60493-1 (1974) (R2001)**
Guide for the Statistical Analysis of Ageing Test Data—Part 1: Methods Based on Mean Values of Normally Distributed Test Results
- **IEC 60544-4 (1985) (R2001)**
Guide for Determining the Effects of Ionizing Radiation on Insulating Materials—Part 4: Classification System for Service in Radiation Environments
- **IEC 60554-1 (1977) (R2001)**
Specification for Cellulosic Papers for Electrical Purposes—Part 1: Definitions and General Requirements



Reaffirmed Standards (cont'd)

- IEC 60554-2 (1977) (R2001)
Specification for Cellulosic Papers for Electrical Purposes—Part 2: Methods of Test
- IEC 60554-3-1 (1979) (R2001)
Specification for Cellulosic Papers for Electrical Purposes—Part 3: Specifications for Individual Materials—Sheet 1: General Purpose Electrical Paper
- IEC 60554-3-2 (1983) (R2001)
— *Sheet 2: Capacitor Paper*
- IEC 60554-3-3 (1980) (R2001)
— *Sheet 3: Crepe Paper*
- IEC 60554-3-4 (1979) (R2001)
— *Sheet 4: Electrolytic Capacitor Paper*
- IEC 60554-3-5 (1984) (R2001)
— *Sheet 5: Special Papers*
- IEC 60587 (1984) (R2001)
Test Methods for Evaluating Resistance to Tracking and Erosion of Electrical Insulating Materials Used Under Severe Ambient Conditions
- IEC 60589 (1977) (R2001)
Methods of Test for the Determination of Ionic Impurities in Electrical Insulating Materials by Extraction with Liquids
- IEC 60641-1 (1979) (R2001)
Specification for Pressboard and Presspaper for Electrical Purposes—Part 1: Definition and General Requirements
- IEC 60641-2 (1979) (R2001)
— *Part 2: Methods of Test*
- IEC 60648 (1979) (R2001)
Method of Test for Coefficients of Friction of Plastic Film and Sheeting for Use as Electrical Insulation
- IEC 60667-1 (1980) (R2001)
Specification for Vulcanized Fibre for Electrical Purposes—Part 1: Definitions and General Requirements
- IEC 60667-2 (1982) (R2001)
— *Part 2: Methods of Test*
- IEC 60667-3-1 (1986) (R2001)
— *Part 3: Specifications for Individual Materials—Sheet 1: Flat Sheets*
- IEC 60674-1 (1980) (R2001)
Specification for Plastic Films for Electrical Purposes—Part 1: Definition and General Requirements
- IEC 60674-2 (1988) (R2001)
— *Part 2: Methods of Test*
- IEC 60684-1 (1980) (R2001)
Specification for Flexible Insulating Sleeving—Part 1: Definitions and General Requirements
- IEC 60684-3-100 - 105 (1988) (R2001)
Specification for Flexible Insulating Sleeving—Part 3: Specification Requirements for Individual Types of Sleeving—Sheets 100 to 105: Extruded PVC Sleeving
- IEC 60684-3-121 - 122 (1988) (R2001)
— *Sheets 121 and 122: Extruded Silicone Sleeving*
- IEC 60684-3-209 (1987) (R2001)
— *Sheet 209: Heat Shrinkable Sleeving General Purpose, Flame Retarded Polyolefin Shrink Ratio 2:1*
- IEC 60684-3-300 (1987) (R2001)
— *Sheet 300: Glass Textile Fibre Sleeving, Braided, Uncoated*
- IEC 60684-3-320 (1987) (R2001)
— *Sheet 320: Polyethylene Terephthalate Textile Lightly Impregnated*
- IEC 60684-3-403 - 405 (1988) (R2001)
— *Sheets 403 to 405: Glass Textile Sleeving with Acrylic Based Coating*
- IEC 60684-3-406 - 408 (1988) (R2001)
— *Sheets 406 to 408: Glass Textile Sleeving with PVC Based Coating*
- IEC 60763-1 (1983) (R2001)
Specification for Laminated Pressboard—Part 1: Definitions, Classification and General Requirements
- IEC 60795 (1984) (R2001)
Test Method for Evaluating Thermal Endurance of Flexible Sheet Materials Using the Wrapped Tube Method
- IEC 60893-1 (1987) (R2001)
Specification for Industrial Rigid Laminated Sheets Based on Thermosetting Resins for Electrical Purposes—Part 1: Definition, Designations and General Requirements



Formal Interpretations

The following interpretation involving CSA's standard C22.2 No. 38-95, Clause 4.4.9.2, has been approved by the Technical Committee on Wiring Products.

Question: Does the jacket need to be separable from the insulation for a single conductor, Type RW-90, with EP insulation and EP jacket?

Answer: No.

Certification Notices

Please note: ► Notices marked with an arrowhead are new in this issue.

Effective Date	Subject	Title
August 31, 2001	TIL No. N-31, covering interim certification requirements for cord flexing test in portable appliances. (Supersedes "Vacuum Cleaners and Blower Cleaners No. 7.")	Vacuum Cleaners and Blower Cleaners No. 7A
November 30, 2001	TIL No. B-58B, covering interim certification requirements for landscape lighting. (Supersedes "Lighting Products No. 18A.")	Lighting Products No. 34
June 1, 2002	C22.2 No. 745-1 and -2 (<i>Portable Electric Tools</i>), and C22.2 No. 745-3 and -4 (<i>Portable Battery-Operated Tools</i>).	Electrical Tools No. 6

Status of CSA Standards Projects

TYPE: ns new standard; ne new edition; spec special publication; p preliminary standard.

STATUS: 1 The project is under initial evaluation.

2 The technical content is being drafted.

3 The draft is undergoing an internal quality audit by CSA.

4 The publication is being processed for formal letter-ballot approval.

5 The approved publication will be for sale within 2-3 months.

H The publication is on hold.

C The publication has been cancelled. It will be removed from the next status report.

SUBJECT	NUMBER	TYPE	STATUS
Wiring Products			
Conduit and Cable Fittings	C22.2 No. 18.3	ns	3
Wire-Positioning Devices	C22.2 No. 18.5	ns	3
Lampholders	C22.2 No. 43	ne	1
Flexible Cords and Cables	C22.2 No. 49	ne	1
Non-metallic Surface Raceways	C22.2 No. 62.1	ns	3
Thermoplastic-Insulated Wires and Cables (Tri-national standard)	C22.2 No. 75	ne	3
Non-metallic Cable Tray Systems	C22.2 No. 126.2	ns	3
Type TECK 90 Cable	C22.2 No. 131	ne	C
Plugs, Receptacles and Cable Connectors of the Pin and Sleeve Type	C22.2 No. 182.1	ne	3
Communications Cables	C22.2 No. 214	ne	4
Liquid-Tight Flexible Nonmetallic Conduit	C22.2 No. 227.2.1	ns	3
Flexible Non-metallic Tubing	C22.2 No. 227.3	ne	1



SUBJECT	NUMBER	TYPE	STATUS
Industrial Products			
Adhesive Labels	C22.2 No. 0.15	ne	4
Enclosed Switches	C22.2 No. 4	ne	2
Moulded Circuit Breakers	C22.2 No. 5.1	ne	4
Panelboards and Enclosed Panelboards	C22.2 No. 29	ne	2
Switchgear Assemblies	C22.2 No. 31	ne	1
General Use Power Supplies	C22.2 No. 107.1	ne	5
Battery Chargers	C22.2 No. 107.2	ne	4
Safety of Uninterruptible Power Supplies (UPS)–Part 1	C22.2 No. 107.3	ns	3
Liquid Pumps	C22.2 No. 108	ne	5
Ground Fault Circuit Interrupters	C22.2 No. 144	ne	1
Switchboards	C22.2 No. 244	ns	2
Mechanical Safety of Cathode Ray Tubes	E61965	ns	5
Consumer and Commercial Products			
Landscape Lighting	C22.2 No. 9.1	ns	H
Portable Luminaires	C22.2 No. 9.12	ne	1
Christmas Tree and other Decorative Lighting Outfits	C22.2 No. 37	ne	1
Humidifiers	C22.2 No. 104	ne	4
Fans and Ventilators	C22.2 No. 113	ne	C
Electrostatic Air Cleaners	C22.2 No. 187	ne	1
Radiant Space Heating Panels, Panel Sets, and Systems	C22.2 No. 217	ne	H
Safety of Household and Similar Electrical Appliances–Part 2: Particular Requirements —			
— Stationary Cooking Ranges, Hobs, Ovens and Similar Appliances	E60335-2-6	ne	5
— Washing Machines	E60335-2-7	ne	5
— Tumbler-dryers	E60335-2-11	ne	5
— Storage Water Heaters	E60335-2-21	ne	5
— Microwave Ovens	E60335-2-25	ne	5
— Massage Appliances	E60335-2-32	ne	5
— Instantaneous Water Heaters	E60335-2-35	ne	5
— Commercial Electric Cooking Ranges, Ovens, Hobs and Hob Elements	E60335-2-36	ne	5
— Commercial Electric Deep Fat Fryers	E60335-2-37	ne	5
— Commercial Electric Griddles and Griddle Grills	E60335-2-38	ne	5
— Commercial Electric Multi-purpose Cooking Pans	E60335-2-39	ne	5
— Commercial Electric Forced Convection Ovens, Steam Cookers and Steam-convection Ovens	E60335-2-42	ne	5
— Electric Ironers	E60335-2-44	ne	5
— Commercial Electric Boiling Pans	E60335-2-47	ne	5
— Commercial Electric Grillers and Toasters	E60335-2-48	ne	5
— Commercial Electric Hot Cupboards	E60335-2-49	ne	5
— Commercial Electric Bains-marie	E60335-2-50	ne	5
— Stationary Circulation Pumps for Heating and Service Water Installations	E60335-2-51	ne	5
— Oral Hygiene Appliances Connected to the Main Supply Through a Safety Isolating Transformer	E60335-2-52	ne	5
— Projectors and Similar Appliances	E60335-2-56	ne	5
— Commercial Electric Kitchen Machines	E60335-2-64	ne	5
— Service Machines and Amusement Machines	E60335-2-82	ns	5



SUBJECT	NUMBER	TYPE	STATUS
Automatic Electrical Controls for Household and Similar Use —			
— Part 1: General Requirements	E60730-1/3E	ne	3
— Part 2: Electrically Operated Water Valves, Including Mechanical Requirements	E60730-2-8	ne	3
— Part 2: Temperature Sensing Controls	E60730-2-9	ne	3
CE Code, Part III – Outside Wiring			
Overhead Systems	C22.3 No. 1	ne	5
Electromagnetic Compatibility			
Electromagnetic Compatibility (EMC)–Part 4: Testing and Measurement Techniques – Section 27: Unbalance, Immunity Test	61000-4-27	ns	5