	PERMANENT DOCUMENT	**ENEC 303 Annex W**

ANNEX W
to Routine Test Requirements for manufacturers
(as per article 9 of the Agreement)

Appliance couplers covered by the EN 60320 series

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Annex W to PD ENEC 303

Appliance couplers covered by the EN 60320 series

1. ROUTINE TESTS (100%)

1.1 General

All factory-wired accessories shall be subjected to the following tests, as appropriate

Type of accessory	Test to be performed according to clause
2-pole accessories without earthing contact	1.2, 1.5
2-pole accessories with earthing contact	1.2, 1.3, 1.4, 1.5

The test equipment or manufacturing systems shall be such that failed samples are either made unfit for use or separated from satisfactory products in such a way that they cannot be released for sale.

NOTE: *"Unfit for use" means that the accessory is treated in such a way that it cannot fulfill the intended function. It is, however, accepted that repairable products (by a reliable system) may be repaired and retested.*

It shall be possible by process or manufacturing system to identify that accessories released for sale have been subjected to all the appropriate tests.

The manufacturer shall maintain records of the tests carried out which show the:
- type of product;
- date of test;
- place of manufacture (if manufactured in more than one place);
- tested quantity;
- number of failures and actions taken, i.e. destroyed/repaired.

The test equipment shall be checked before and after each period of use and for periods of continuous use, at least every 24 h. During these checks the equipment shall show that it indicates faults when known faulty products are inserted or simulated faults are applied.

Products manufactured prior to a check shall only be released for sale if the check is found satisfactory.

Test equipment shall be verified (calibrated) at least once a year.

Records shall be kept of all checks and any adjustments found necessary.

1.2 Polarised systems: Phase (L) and Neutral (N) – Correct connection

- For polarised systems the test shall be made using safety extra-low voltage SELV applied for a period of not less than 2 s between the remote end of the L and N conductors of the flexible cord independently and the corresponding L and N pin or contact of the accessory.

NOTE : The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

- Other suitable tests may be used.
- Polarity shall be correct.

1.3 Earth (E) continuity

- The test shall be made using safety extra-low voltage SELV applied for a period of not less than 2 s between the remote end of the E conductor of the flexible cord and the E pin or contact of the accessory, as appropriate.

NOTE : The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

- Other suitable tests may be used.
- Continuity shall be present.

1.4 Short circuit/wrong connection and reduction in creepage distance and clearance phase L or N to E

The test shall be made between L and N conductors and the E conductor:

- by applying at the end an a.c. voltage of 2000 V ± 200 V, 50 Hz or 60 Hz for a period of not less than 2 s,

  NOTE: The period of 2 s may be reduced to not less than 1 s on test equipment with automatic timing.

or

- by an impulse voltage test using 1,2/50 µs waveform, 4 kV peak value, three impulses for each pole, with intervals of not less than 1 s, the test voltage being applied at the supply end

The L and N conductors may be connected together for this test.

No flashover shall occur.

1.5 Stray strand test

It shall be checked that live parts, e.g. loose strands, are not accessible.

The following tests or similar one (e.g. impulse voltage test) shall be performed unless it can be clearly demonstrated that this can be prevented by the construction itself and suitable manufacturing process.

If this cannot be assured by the design or the production method itself then the following test is to be carried out.

The hazardous parts of the external surface of the connectors or the plug connectors, except the engagement faces, are to be scanned with adapted surface electrodes at a pressure of 20 N whilst a voltage of 2000 V AC is applied on the live parts for at least 1 second.

Neither a flash-over nor a breakdown shall occur.

NOTE : The max. tripping current is not to be higher than 100 mA. It is recommended to set the tripping device to 30 mA or less. The high voltage transformer is to be capable of maintaining the specified voltage until the tripping current flows. Tripping of the current sensing device (indicated by audible and/or visual means) is considered a breakdown.

2 PRODUCT VERIFICATION TESTS (PVT)

2.1 Dielectric Strength Test

The dielectric strength test has to be performed according to Clause 15 of EN 60320.

2.2 Mechanical Strength Test

For all connectors and plug connectors the mechanical tests have to be performed according to Clauses 23.3 and 23.6 (if applicable) of EN 60320-1.

For plug connectors, appliance outlets and appliance inlets (if applicable) the mechanical test has to be performed according to Clause 23.4 of EN 60320-1.

2.3 Connection of conductors

The pull and torque test has to be performed according to Clause 23.2.3 of EN 60320-1.

The flexing test has to be performed according to Clause 22.3 of EN 60320-1.

2.4 Force to insert and withdraw connector

Force necessary to insert and withdraw the connector (EN 60320, Part 1, section 16)

The tests of 2.1, 2.2 and 2.3 have to be performed by the manufacturer, at least 4 times per year, on 3 samples from each series/family (same construction) when in production.

The test of 2.4 has to be performed on at least 3 randomly selected samples of each production lot.