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IECEE OPERATIONAL DOCUMENT

IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System)

Guidelines on Component Interchangeability





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**IEC System of Conformity Assessment Schemes for Electrotechnical
Equipment and Components (IECEE System)**

Guidelines on Component Interchangeability

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

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FOREWORD

Document OwnerPACCMC WG 29 “Certification”**History of changes**

Date	Brief summary of changes
2017-03-09 <u>2017-03-09</u>	<u>Adding of “Type Dimensions” under Capacitor in Annex A and adding dimension in example in Annex B.</u>
2016-06-01	N/A, as first edition

Effective date	Target revision date
2016-06-01 <u>2017-05-17</u>	2019-06-01 <u>2020-05-17</u>

1 Scope

This document provides guidance for a consistent approach to allowing component interchangeability in the CB Scheme.

This is intended as a guidance document rather than a procedure, to be applied by the issuing NCB/CBTL for specific situations and specific components in equipment being evaluated.

It is always left to the discretion of the recognizing NCB to accept interchangeability for any particular component in the CBTR.

Interchangeability is always based on initial testing of a product that contains a number of specified components. Interchangeability for some of these components is proposed by the issuing organization on the basis of the criteria provided in this guideline.

2 Interchangeable components

Interchangeable components are components that may be substituted by equivalent and like approved/certified components which will not impact the safety and function of the particular end product.

In relation to Interchangeability, components may be classified as follows:

2.1 Interchangeability Not Allowed

For components that require an actual test or evaluation as part of a particular end-product evaluation to assess their acceptability, interchangeability is not allowed. Such components must always be individually accepted and specifically described in the CBTR.

Some examples are:

- An internal power supply or a transformer, where temperatures and other parameters must be determined in the complete product assembly,
- A power cord that requires a flexing test in a hand-held appliance,
- Where an end-product standard includes additional requirements for specific component, e.g. IEC 60335, IEC 60065, or IEC 60950.

2.2 Interchangeability is Possible

Those components that have been previously assessed for their safety performance as part of the component evaluation (e.g., to the applicable IEC standards) may be substituted by equivalent and like components, provided that the following criteria are met:

- The essential safety critical parameters of the component are to be specified.
 - Examples of typical parameters to be specified are electrical ratings, temperature ratings, flammability classifications, creepages and/or clearances, form and fit (shape, dimensions and mounting means), types of terminals, or others for a specific component type.
- the technical rationale for specifying interchangeability is provided in the component section of the Test Report, as shown in the Component Table example in Annex B.

3 Issuing of CBTRs with Interchangeable Components

The issuing NCB/CBTL must ensure that CBTRs:

- Identify the specific component (by manufacturer's name and part or model number) that was used in the original evaluation sample.
- Utilize the term "**interchangeable**" where component substitution in the end-product by the manufacturer is permitted - without the need to specify the component manufacturers or part numbers.
- Identify the safety-critical parameters that must be maintained in the interchangeable components.

Note: These may be standard parameters related to the construction of the component, as well as additional critical parameters related to the specific application of the component in the end-product. (e.g. the PCB mounting side of an appliance inlet, additional requirements for an interlock switch and critical dimensions for the component)

4 Acceptance of CBTC/CBTR with Interchangeable Components

While the accepting NCB has full discretion on the acceptance of the interchangeable components for its national certification,, the decision on acceptance of individual components identified as “interchangeable” must not impact the decision on acceptance of the entire CBTR and CBTC.

In cases where there are concerns, the Issuing NCB should be contacted for additional information, before other actions are taken.

Annex A contains some examples of selected components that may be interchanged, including their typical safety critical parameters.

Annex A - Examples of possible interchangeable components and typical parameters

Switches –

- Electrical Ratings e.g. voltage and current
- Any special features, e.g. rated for tungsten loads, motor loads, TVs, contact gap, type of terminals, method of securement, etc.
- IEC standard

Printed wiring boards – (See CTL Decision 524)

- Flammability rating
- Temperature rating
- Physical parameters

Plastic parts –

- Flammability classification
- Temperature ratings
- Physical parameters

Capacitors –

- Type (X1, Y1, etc.)
- Voltage and temperature ratings
- Capacitance
- IEC standard
- [Type \(Dimensions\)](#)

Resistors –

- Resistance value
- Wattage rating
- Type (Dimensions)
- Mounting/Terminals (cl/cr)

Fans – small dc secondary

- Electrical ratings
- Size (dimensions)
- RPM
- CFM
- Over temperature protection type

Component disk drives, e.g. media drives – See CTL Decision 558

- Ratings (e.g., voltage, current, and laser classification)
- Flammability classification
- IEC standard

Appliance Inlets

- Electrical ratings
- IEC standard
- Type (Dimensions)
- Mounting/Terminals (cl/cr)

Plugs

- Electrical rating
- Configuration/type
- Type (Dimensions)
- Cl/cr

Annex B- Example Utilizing Critical Component Table from Annex E of IECEE OD2020

Note: Excerpt is taken from Annex E that has been modified to provide examples of the use “Interchangeable”.

TABLE: Critical components information					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ^{1,2)}
AC Inlet	Makao Enterprise Ltd.	MA-224	250 V ac, 2.5 A _r <u>Soldering terminals; L,N to PE 3,2mm cl/cr</u>	IEC 60320-1 (2007)	VDE,UL Recognized
AC Inlet	Interchangeable	—	250 V ac, 2.5 A _r <u>Soldering terminals; L,N to PE 3,2mm cl/cr</u>	IEC 60320-1 (2007)	—
- Description:	Interchangeability based on specified dimensions due to mounting (including connections) and specified rating				
X-Capacitor (CX3)	Darin Co. Ltd	MPX2	0.33μF, 275V, 100°C, <u>20mm diameter; 40mm high</u>	IEC 60384-14 (2005)	VDE, SGS Fimko
X-Capacitor (CX3)	Interchangeable	—	0.33μF, 275V, 100°C, <u>20mm diameter; 40mm high</u>	IEC 60384-14 (2005)	—
- Description:	Interchangeability based on specified dimensions due to mounting (including connections) and specified rating				
Line Filter (LF1)	Wells Industry Ltd	HNN-B1	300 V, 130°C	—	—
Transformer T1	Wells Industry Ltd	HNN-2	300 V, 130°C	IEC 60950-1 (2005)	TUV Rh, Intertek NA
Bobbin of T1	Chang Plastics Co.	Designated 7-37	Nylon, V-0, 150°C	UL 94 (Sixth Edition)	UL
Switch S1	Astrodam Ltd.	LPPD-33	300 V, 2.5 A	IEC 61058-1 (2001)	DEKRA
- Description	Single throw, double-pole switch contact gap 4 mm; Number of operations 10,000; used as main disconnect device				
Optical Disk Drive	Panasonic Corp	UJDA780	5Vdc, 1.8A, Class I laser	UL 60950-1, IEC 60950-1 (2005)	UL, TUV-R
Optical Disk Drive	Interchangeable	—	5Vdc, 1.8A, Class I laser	IEC60950-1 (2005)	—

Supplementary information:

- 1) Provided evidence ensures the agreed level of compliance. See OD-2039.
- 2) This must be a certification mark showing compliance with an applicable IEC standard and National or Regional Differences.

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