



# SLOVENSKI STANDARD

## SIST EN 160200-1:2001

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### Sectional Specification: Microwave modular electronic units of assessed quality - Part 1: Capability approval procedure

Sectional Specification: Microwave modular electronic units of assessed quality -- Part 1: Capability approval procedure

Rahmenspezifikation: Elektronische Mikrowellenmodule mit bewerteter Qualität -- Teil 1: Befähigungsanerkennung

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#### **ICS:**

31.190	Sestavljeni elektronski elementi	Electronic component assemblies
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Microwave modular electronic units of assessed quality  
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**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

### Foreword

This sectional specification has been prepared by the United Kingdom under the single originator procedure for approval and publication of CECC specifications (see RP 11: Part V). It is to be used for the assessment of Microwave Modular Electronic Units (MMEUs) within the CECC capability approval scheme. The content is in accordance with the generic specification for Modular Electronic Units (MEUs); EN 160000 and meets the requirements of Rule of Procedure 14 (RP 14).

This sectional specification is based, wherever possible, on the publications of the International Electrotechnical Commission.

It includes, as (blank) examples, formats for a capability qualifying component specification and customer's detail specification (CDS).

The use of this sectional specification is as follows:

- a) a potential customer makes an enquiry to the manufacturer for a Microwave Modular Electronic Unit within the scope of his capability published in CECC 00200;
- b) the specification is negotiated between the manufacturer and the customer, until an agreed customer's detail specification is finalized;
- c) the Microwave Modular Electronic Unit is inspected and released in accordance with the agreed Customer's Detail Specification.

In order to facilitate the review of the document, the 'index of electrical test methods' has been published as Part 2 of this sectional specification.

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The text of the draft based on document CECC(Secretariat)3317 was submitted to the formal vote; together with the voting report, circulated as document CECC(Secretariat)3522, it was approved as EN 160200-1 on 1994-04-15.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1998-06-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1999-06-01



Contents	Page
<b>Section 1: General matters</b>	<b>6</b>
1.1 Scope	6
1.2 Related documents	7
1.3 Units, symbols and terminology	8
1.3.1 Microwave modular electronic unit (MMEU)	8
1.3.2 Components	8
1.4 Standard and preferred values	8
1.4.1 Preferred climatic categories	8
1.4.2 Preferred interfaces and fixings	9
1.5 Marking	9
<b>Section 2: Quality Assessment procedures</b>	<b>10</b>
2.1 General	10
2.1.1 Eligibility for capability approval	10
2.1.2 Primary stage of manufacture	10
2.1.3 Sub-contracting	10
2.1.4 Incorporated components	10
2.1.5 Structurally similar units	11
2.1.6 Validity of release	11
2.1.7 Rework	11
2.1.8 Repair	11
2.1.9 Resubmission of rejected lots (for lot-by-lot inspection)	12
2.2 Procedure for capability approval	12
2.2.1 Application for capability approval	12
2.2.2 Granting of a capability approval	12
2.2.3 Description of capability (capability manual)	13
2.2.4 Capability qualifying components (CQCs)	14
2.2.5 Demonstration and verification of capability	18
2.2.6 Procedures to be followed in the event of CQC failure	22
2.2.7 Abstract of description of capability	22
2.3 Procedures following the granting of capability approval	22
2.3.1 Maintenance of capability approval	22
2.3.2 Procedures to be followed in the event of CQC failure	23
2.3.3 Modifications likely to affect the validity of the capability approval	23
2.3.4 Extension of capability approval	23

**Contents (continued)**

	<b>Page</b>
2.4 Release for delivery	23
2.4.1 Quality conformance inspection requirements	23
2.4.2 Customer detail specification	24
2.4.3 Detail specification for standard catalogue items to be included in the QPL	24
 Section 3: Test and measurement procedures	 25
3.1 General	25
3.2 Standard conditions for testing	25
3.2.1 Standard atmospheric conditions	25
3.2.2 Electrical measurements	26
3.3 Alternative test methods	28
3.4 Measurement uncertainty	29
3.5 Visual inspection, dimensions/gauging and mass test methods	29
3.6 Environmental, mechanical and endurance test methods	29
3.7 Electrical and performance test methods	30
 <b>Tables</b>	 
	 <small>SIST EN 160200-1:2001 <a href="https://standards.iteh.ai/catalog/standards/sist/e0ac3500-3ace-4e58-9058-838b15d1c0f4/sist-en-160200-1-2001">https://standards.iteh.ai/catalog/standards/sist/e0ac3500-3ace-4e58-9058-838b15d1c0f4/sist-en-160200-1-2001</a></small>
1 Test schedule for demonstration of limits of capability approval	31
2 Test schedule for demonstration of process control and maintenance of capability approval	34
3 Supplementary process controls	37
 <b>Annexes</b>	 
A.1 Generic process flow chart - Process	38
A.2 Process flow chart - Waveguide technology	39
A.3 Process flow chart - Ferrite technology	40
A.4 Process flow chart - Substrate line and component technology	41
A.5 Process flow chart - Diode/transistor and complex circuit technology	42
B Capability approval test report	43

<b>Contents (continued)</b>		<b>Page</b>
C	Abstract of capability	44
D	Requirements for the form and content of a capability manual	45
E.1	Example of CQC selection matrix - single technology	46
E.2	Example of CQC selection matrix - multiple technologies	47

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## Sectional specification for microwave modular electronic units of assessed quality Part 1: Capability approval procedure

### Section 1 General matters

#### 1.1 Scope

This CECC Sectional Specification, in conjunction with the Generic Specification EN 160000 describes, a system for capability approval of manufacturers of Microwave Modular Electronic Units (MMEUs) which are not covered by other CECC specifications.

It defines standard terms, inspection procedures and methods of test for capability approval of MMEUs. These units may be supplied to either a Customer's Detail Specification (CDS) or as Standard Catalogue Items.

Examples of typical MMEUs which are covered by this specification and related Blank Detail Specifications (BDSs) are:

- amplifiers;
- couplers/power dividers;
- isolators/circulators;
- mixers;
- oscillators;
- switches;
- attenuators;
- filters;
- limiters;
- noise sources;
- phase shifters;
- transmitters (e.g. Integrated Multichannel).

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The MMEUs may incorporate passive and/or active devices/elements.



## 1.2 Related documents

See clause 1.2 of EN 160000.

Latest issue of the following documents applies unless otherwise stated:

ISO 31	Specification for quantities, units and symbols
IEC 50 (726)	International electrotechnical vocabulary - Transmission lines and waveguide
IEC 68	Environmental testing
IEC 154	Flanges for waveguides
IEC 410	Sampling plans and procedures for inspection by attributes
IEC 512	Electromechanical components for electronic equipment: basic testing procedures and measuring methods
CECC 00007	Sampling plans and procedures for inspection by attributes
CECC 00009	Basic testing procedures and measuring methods for electromechanical components
CECC 00200	Qualified products list
CECC 00016	Requirement for the use of statistical process control (SPC) in the CECC system
CECC 00017	Basic specification: Microwave common modules for use up to 20 GHz Interfaces, fixings, connection protocol and module coding
CECC 00114 Part III	Rule of procedure 14; Quality assessment procedures; Capability approval of an electronic component manufacturing activity
CECC 00400	Handbook for the production of CECC documents
CECC 22000	Radio frequency coaxial connectors

Page 8  
EN 160200-1:1997

CECC 63000	Film and hybrid integrated circuits
EN 100015	Protection of electrostatic sensitive devices; Part 1: Minimum requirements
EN 160200-2	Sectional specification: Microwave modular electronic units of assessed quality Part 2: Index of test methods

### 1.3 Units, symbols and terminology

Unless otherwise stated they shall be as defined within ISO 31, IEC 50(726) and clause 1.3 of EN 160000. The following terminology is applicable to this specification:

#### 1.3.1 Microwave modular electronic unit (MMEU)

For the purpose of this specification the term MMEU relates to devices designed to work within the frequency band 300 MHz - 300 GHz. The definition for Modular Electronic Unit (MEU) is contained in clause 1.3 of EN 160000.

MMEUs may consist of passive and/or active elements which are interconnected to form an electronic circuit.

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#### 1.3.2 Components

For the purpose of this specification, in addition to conventional discrete electronic components (e.g. resistors, capacitors and semiconductor devices), the following items which utilise microwave transmission theory in their design are considered to be components:

- lumped elements (passive circuits based on microstrip/stripline);
- machined, cast and electroformed items (e.g. passive filter);
- moulded/metallized and microwave absorbent materials (e.g. loads).

### 1.4 Standard and preferred values

#### 1.4.1 Preferred climatic categories

The MMEUs covered by this specification are classified into climatic categories according to the general rules given under IEC 68-1.

The severities for cold, dry heat and damp heat steady state tests shall preferably be chosen from the following:

lower category temperature: - 55 °C, - 40 °C and - 25 °C;

upper category temperature: + 85 °C, + 100 °C and + 125 °C;

duration of damp heat

steady state test: 4, 10, 21 and 56 days  
(hermetically sealed units)

#### **1.4.2 Preferred interfaces and fixings**

See clause 1.2, the following specifications are applicable.

CECC 00 017

CECC 22 000

IEC 154

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#### **1.5 Marking**

The MMEU and package shall be marked in accordance with clause 1.4 of EN 160000 and the BDS including necessary warning labels (e.g. electrostatic sensitive devices: EN 100015), unless otherwise specified in the Customer Detail Specification.

## Section 2 Quality assessment procedures

### 2.1 General

#### 2.1.1 *Eligibility for capability approval*

See clause 2.1 of CECC 00114/III.

#### 2.1.2 *Primary stage of manufacture*

The primary stage of manufacture is the joining together of all piece parts (e.g. components, substrates and packages). This includes mounting of the piece parts to form the MMEU and necessary interconnections/terminations.

The sub-contracting of the above process and/or all subsequent processes is prohibited unless otherwise stated in clause 2.1.3 of this specification.

#### 2.1.3 *Sub-contracting*

Sub-contracting shall be in accordance with clause 2.2 of CECC 00114/III: 1989 and the constraints of clause 2.1.2 above.

Only sub-contracting of the following specialised processes is permitted in accordance with clause 2.2.2 of CECC 00114/III.

Painting  
Surfaces finishes  
Printing  
Irradiation

#### 2.1.4 *Incorporated components*

See clause 2.3 of CECC 00114/III.

For the purpose of this specification d.c. substrates (e.g. driver assemblies) may be treated as an incorporated component (also see clause 1.3.2).

### 2.1.5 Structurally similar units

Structurally similar units are MMEUs produced by the same manufacturer with essentially the same design, materials, processes and methods though they may be of different sizes and electrical performance. They are such that the results of a given test carried out on one of these MMEUs can be recognised as being valid for the others of the group. They are separately identifiable.

Structural similarity may be utilised for selection of product for both CQC testing and the sampling of MMEUs for quality conformance inspection. This may be applied to any product where the stages/processes of the declared technology flow chart (ref. annex A, clauses 2.2.3 and 2.2.5(1)) are common to the CQC or customer detail specification. Commonality shall apply in respect of all Quality Factors including those categorised as second and third order processes. The application of structural similarity should be described in the manufacturer's capability manual.

### 2.1.6 Validity of release (delayed delivery)

In addition to clause 2.1.5 of EN 160000 the following shall apply:

MMEUs when held for a period exceeding 2 years following acceptance inspection (or a lesser time if stated in the detail specification), shall be re-examined before release by applying the following Group A tests in accordance with the agreed detail specification:

- external visual inspection;
- electrical measurements at reference (room) temperature.

### 2.1.7 Rework

The conditions under which incomplete or otherwise unsatisfactory processing may be reworked shall be detailed in the Capability Manual, see clause 7.1 of CECC 00114/III.

### 2.1.8 Repair

See clause 7.2 of CECC 00114/III.