

Förderverein für Elektrotechnische Normung (FEN) e. V.
Cenelec Electronic Components Committee

CECC

Système Harmonisé d'Assurance de la Qualité
des Composants Electroniques



SPECIFICATION PARTICULIERE CADRE:
RESONATEURS A QUARTZ

Harmonized System of Quality Assessment for
Electronic Components

BLANK DETAIL SPECIFICATION:
QUARTZ CRYSTAL UNITS

Harmonisiertes Gütebestätigungssystem für
Bauelemente der Elektronik

VORDRUCK FÜR BAUARTSPEZIFIKATION:
SCHWINGQUARZE

1

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Information about the System may be obtained from:



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and
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or from the National Authorized Institutions
of the participating countries listed
who can supply copies of:

- 1 The Internal Regulations of the FEN e.V.
- 2 CECC Specifications of the FEN and National Specifications for the System
- 3 CECC 00 200: Qualified Products List (QPL)
- 4 CECC 00 300: CECC Publications and their related national documents

Austria

Österreichischer Verband
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Belgium

Comité Electrotechnique Belge
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Dansk Elektroteknisk Komite
Strandgade 36
DK-1401 Copenhagen K

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P.O. Box 134
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FOREWORD

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby acceptable in all member countries without further testing.

This specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized specifications for QUARTZ CRYSTAL UNITS. It should be read in conjunction with the current regulations for the CECC System.

At the date of printing of this document the member countries of the CECC are, Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom, and copies of it can be obtained from the addressees shown on the blue fly sheet.

PREFACE

This blank detail specification was prepared by CECC Working Group 17 : Piezoelectric devices for frequency control and selection.

It is based, wherever possible, on the Publications of the International Electrotechnical Commission and in particular on IEC Publication 122-1: Quartz crystal units for frequency control and selection: Part 1: Standard values and test conditions.

The text of this blank detail specification was circulated to the CECC for voting in the documents listed below and was ratified by the President of the CECC for publication as a CECC Specification.

<u>Document</u>	<u>Voting</u>	<u>Report on the Voting</u>
CECC(Secretariat)2189	May 1988	CECC(Secretariat)2313

NOTE: This specification is published initially in French and English. The German text will follow as soon as it has been prepared.

BLANK DETAIL SPECIFICATION

A blank detail specification is a supplementary document to the sectional specification and contains requirements for the minimum content of detail specifications.

The front page layout shown on page 3 is applicable to detail specifications for standard catalogue items only.

For custom-built quartz crystal units where the detail specification is not intended for publication, a suggested layout for the front page is given in Annex A. This is not mandatory, but it is recommended that the layout should be followed whenever possible.

KEY FOR PAGE 3

The numbers between the square brackets on page 3 correspond to the following information which should be given in the appropriate boxes.

- [1] The name of the National Standards Organization under whose authority the detail specification is published and, if applicable, the organization from whom the detail specification is available.
- [2] The CECC Symbol and the number allotted to the detail specification by the CECC General Secretariat.
- [3] The number and issue number of the CECC generic or sectional specification as relevant; also national reference if different.
- [4] If different from the CECC number, the national number of the detail specification, date of issue and any further information required by the national system, together with any amendment numbers.
- [5] A brief description of the quartz crystal unit or range of quartz crystal units. (For example frequency, order, cut, mode)
- [6] Information on typical construction (where applicable). (For example resistance welded, cold welded).

For [5] and [6] the text to be given in the detail specification should be suitable for an entry in CECC 00 200 (QPL) and CECC 00 300 (Library List).

- [7] An outline drawing with main dimensions which are of importance for interchangeability and/or reference to the appropriate national or international document for outlines. Alternatively, this drawing may be given in an Annex to the detail specification.

Specification available from : [1]	CECC 68 101-XXX [2] Page 1 of ... 
ELECTRONIC COMPONENTS OF ASSESSED QUALITY BY CAPABILITY APPROVAL IN ACCORDANCE WITH : [3]	[4]
Outline and dimensions - (first angle projection) :   [7]	QUARTZ CRYSTAL UNITS [5]
Dimensions in mm	ENCLOSURE [6]

1. RATINGS (see 2.4 of CECC 68 000 for preferred ratings)

Operating temperature range

Circuit condition

Drive level

Climatic category

Mechanical test severities

Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00 200 :
Qualified Products List.

2. CHARACTERISTICS (see 2.3 of CECC 68 000)

Nominal frequency/range

Reference temperature

Frequency tolerance(s)

Maximum resonance resistance

In addition other characteristics including the following may be stated

Maximum shunt capacitance

Frequency pulling range or motional parameters

Unwanted responses

Ageing rate

Drive level dependency

Note: Information on the above characteristics may be given in tabular form if necessary.

3. RELATED DOCUMENTS

Generic specification CECC 68 000

Sectional specification CECC 68 100

4. MARKING

The marking of the quartz crystal unit and the primary package shall be in accordance with the requirements of 2.5 of CECC 68 000. Full details shall be given in the detail specification.

5. ORDERING INFORMATION

The following ordering information shall be specified :

- (1) Quantity
- (2) CECC or customer detail specification number, issue number and date

and where applicable

- (3) Nominal frequency expressed in kHz or MHz and overtone order
- (4) Enclosure type
- (5) Frequency tolerance(s) and operating temperature range
- (6) Circuit condition
- (7) Full description of any additional requirements.

6. CERTIFIED TEST RECORDS

The detail specification shall state whether certified test records are required/not required in accordance with 3.11 of CECC 68 000.

7. ADDITIONAL INFORMATION (not for inspection purposes)

The detail specification may include information (which is not normally required to be verified by the inspection procedure) such as circuit diagrams, curves, drawings and notes for the clarification of the detail specification.

8. INSPECTION REQUIREMENTS

Clause numbers of tests and performance requirements refer to CECC 68 000

The ILs and AQLs given in table 1 are selected from IEC 410

In this table

D = destructive
ND = non-destructive
IL = inspection level
AQL = acceptable quality level

The manufacturer and his customer shall ensure that any quality aspects of the quartz crystal unit to be supplied that are not covered by the maintenance of the capability approval programme are included in the detail specification.

This blank detail specification does not include any periodic tests as these are controlled by the CQC testing under the maintenance of the capability approval as defined in 3.11 and 3.12 of CECC 68 100.

TABLE 1

CLAUSE NUMBER AND TEST	D or ND	CONDITIONS OF TEST	IL	AQL %	PERFORMANCE REQUIREMENTS
<u>100% INSPECTION</u>	ND				
4.5.1 Visual test A		4.5.1			4.5.1
4.7.1 Frequency and resonance resistance		4.7.1			Frequency tolerance and maximum resonance resistance
<u>GROUP A INSPECTION</u> To be conducted on a sampling basis, lot-by-lot					
<u>Sub-Group A1</u>	ND		II	1,5	
4.7.9 Insulation resistance		4.7.9			4.7.9
<u>Sub-Group A2</u>	ND		I	1,5	
4.7.3 Test A Frequency and resonance resistance as a function of temperature		4.7.3 test A.			Frequency tolerance and/or variation and maximum resonance resistance
4.7.3 Test B Frequency and resonance resistance as a function of temperature		4.7.3 test B.			4.7.3 test B
<u>GROUP B INSPECTION</u> To be conducted on a sampling basis, lot-by-lot					
<u>Sub-Group B1</u>	ND		S-4	4,0	
4.6.1 Dimensions Test A		4.6.1			4.6.1

CLAUSE NUMBER AND TEST	D or ND	CONDITIONS OF TEST	IL	AQL %	PERFORMANCE REQUIREMENTS
<u>Sub-Group B2</u>	ND		S-4	4,0	
4.8.2(2)Fine line test (except for evacuated glass enclosures)		4.8.2(2)			2.4.11
4.8.2(1)Gross leak test (except for evacuated glass enclosures)		4.8.2(1)			4.8.2(1)
4.8.2(3)Vacuum test for evacuated crystal units (for glass enclosures only)		4.8.2(3)			4.8.2(3)