SLOVENSKI STANDARD
SIST EN 60747-16-5:2014/A1:2020

01-december-2020

Polprevodniški elementi - 16-5. del: Mikrovalovna integrirana vezja - Oscilatorji - Dopolnilo A1 (IEC 60747-16-5:2013/A1:2020)

Semiconductor devices - Part 16-5: Microwave integrated circuits - Oscillators (IEC 60747-16-5:2013/A1:2020)

Halbleiterbauelemente - Teil 16-5: Integrierte Mikrowellenschaltkreise - Oszillatoren (IEC 60747-16-5:2013/A1:2020)

Dispositifs à semiconducteurs - Partie 16-5: Circuits intégrés hyperfréquences - Oscillateurs (IEC 60747-16-5:2013/A1:2020)

Ta slovenski standard je istoveten z: **EN 60747-16-5:2013/A1:2020**

ICS:

31.080.01	Polprevodniški elementi (naprave) na splošno	Semiconductor devices in general
31.200	Integrirana vezja, mikroelektronika	Integrated circuits. Microelectronics

SIST EN 60747-16-5:2014/A1:2020 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60747-16-5:2013/A1

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English Version

Semiconductor devices - Part 16-5: Microwave integrated circuits - Oscillators (IEC 60747-16-5:2013/A1:2020 + COR1:2020)

Dispositifs à semiconducteurs - Partie 16-5: Circuits intégrés hyperfréquences - Oscillateurs (IEC 60747-16-5:2013/A1:2020 + COR1:2020)

Halbleiterbauelemente - Teil 16-5: Integrierte Mikrowellenschaltkreise - Oszillatoren (IEC 60747-16-5:2013/A1:2020 + COR1:2020)

This amendment A1 modifies the European Standard EN 60747-16-5:2013; it was approved by CENELEC on 2020-08-18. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 60747-16-5:2013/A1:2020 E

European foreword

The text of document 47E/673/CDV, future IEC 60747-16-5/A1+COR1, prepared by SC 47E "Discrete semiconductor devices" of IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60747-16-5:2013/A1:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-05-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-08-18

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 60747-16-5:2013/A1:2020+COR1:2020 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Replace the existing references IEC 60747-4 and IEC 60747-16-3 by the following new references:

Publication	Year	Title	EN/HD	Year
IEC 60747-4	2007	Semiconductor devices - Discrete devices - Part 4: Microwave diodes and transistors	-	-
+ A1	2017		-	-
IEC 60747-16-3	2002	Semiconductor devices - Part 16-3: Microwave integrated circuits - Frequency converters	EN 60747-16-3	2002
+ A1	2009		+ A1	2009
+ A2	2017		+ A2	2017

IEC 60747-16-5

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Semiconductor devices – Part 16-5: Microwave integrated circuits – Oscillators

Dispositifs à semiconducteurs – Partie 16-5: Circuits intégrés hyperfréquences – Oscillateurs

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

This amendment has been prepared by subcommittee 47E: Discrete semiconductor devices, of IEC technical committee 47: Semiconductor devices.

The text of this amendment is based on the following documents:

CDV	Report on voting
47E/673/CDV	47E/705/RVC

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

2 Normative references

Replace the existing references IEC 60747-4 and IEC 60747-16-3 by the following new references:

IEC 60747-4:2007, *Semiconductor devices – Discrete devices – Part 4: Microwave diodes and transistors*
IEC 60747-4:2007/AMD 1:2017

IEC 60747-16-3:2002, *Semiconductor devices – Part 16-3: Microwave integrated circuits – Frequency converters*
IEC 60747-16-3:2002/AMD 1:2009
IEC 60747-16-3:2002/AMD 2:2017

Replace the existing terminological entry 3.3 with the following:

3.3
phase noise
$\mathscr{L}(f)$
frequency-domain measure of the short-term frequency stability of an oscillator

Note 1 to entry: This phase noise is normally expressed as the power spectral density of the phase fluctuations, $S_\phi(f)$, where the phase fluctuation function is $\phi(t)=2\pi Ft-2\pi F_0 t$. The spectral density of phase fluctuation can be directly related to the spectral density of frequency fluctuation by the following formula:

$$S_\phi(f) = \left(\frac{F_0}{f}\right) S_y(f) \text{ rad}^2/\text{Hz}$$

where

F is the oscillator frequency;

F_0 is the average oscillator frequency;

f is the Fourier frequency.

Note 2 to entry: $\mathscr{L}(f)$ is pronounced "script-ell of f".

[SOURCE: IEC 60050-561:2014, 561-03-22, modified – A symbol and Note 2 to entry have been added.]

Replace the existing terminological entry 3.14 with the following:

3.14
load mismatch tolerance
ψ_L
maximum load VSWR in the range where the device oscillates with no unexpected spurious intensity and/or no discontinuity of frequency tuning characteristics (in case of VCO) at all phase angles

Note 1 to entry: "VSWR" is an abbreviation of "voltage standing wave ratio".

Note 2 to entry: "VCO" is an abbreviation of "voltage controlled oscillator".

5.4.2.2.2 Principle of measurement

Replace the text:

"L_2 is the conversion gain from point A to point C."

by the following:

L_2 is the circuit loss from point A to point C.

5.4.2.2.4 Precautions to be observed

Replace the last sentence as follows:

The value of the output power $P_{o.osc}$ defined at the point A shall be measured beforehand (see 5.3).

5.4.2.3.4 Precautions to be observed

Replace the last sentence as follows:

The value of the output power $P_{o.osc}$ defined at the point A shall be measured beforehand (see 5.3).