IEC 61169-59

Edition 1.0 2017-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Radio-frequency connectors – Part 59: Sectional specification for type L32-4 and L32-5 threaded multi-pin radio-frequency connectors

Connecteurs pour fréquences radioélectriques – Partie 59: Spécification intermédiaire relative aux connecteurs pour fréquences radioélectriques multibroches filetés de type L32-4 et L32-5

IEC 61169-59:2017-05(en-fr)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

IEC 61169-59

Edition 1.0 2017-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Radio-frequency connectors – Part 59: Sectional specification for type L32-4 and L32-5 threaded multi-pin radio-frequency connectors

Connecteurs pour fréquences radioélectriques – Partie 59: Spécification intermédiaire relative aux connecteurs pour fréquences radioélectriques multibroches filetés de type L32-4 et L32-5

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.120.30

ISBN 978-2-8322-8806-1

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

____

RADIO-FREQUENCY CONNECTORS –

Part 59: Sectional specification for type L32-4 and L32-5 threaded multi-pin radio-frequency connectors

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

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

International Standard IEC 61169-59 has been prepared by subcommittee 46F: RF and microwave passive components, of IEC technical committee 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories.

The text of this International Standard is based on the following documents:

CDV	Report on voting
46F/351/CDV	46F/362/RVC

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61169 series, under the general title: *Radio-frequency connectors*, can be found on the IEC website.

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

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

RADIO-FREQUENCY CONNECTORS –

Part 59: Sectional specification for type L32-4 and L32-5 threaded multi-pin radio-frequency connectors

1 Scope

This part of IEC 61169, which is a sectional specification (SS), provides information and rules for the preparation of detail specifications (DS) for type L32-4 and L32-5 threaded multi-pin radio frequency connectors with anti mismating mechanism, 50 Ω nominal impedance. The operating frequency of each channel is up to 4 GHz. These connectors have been widely used in mobile communication system like TD-SCDMA and TD-LTE, and can also be used in some similar equipment.

It also prescribes mating face dimensions for general connectors-grade 2, gauging information and tests selected from IEC 61169-1, applicable to all detail specifications relating to type L32-4 and L32-5 multi-pin connectors.

This sectional specification provides information and rules for the preparation of detail specifications for type L32-4 and L32-5 multi-pin connectors together with the pro forma blank detail specification.

This specification indicates the recommended performance characteristics to be considered when writing a detail specification and it covers test schedules and inspection requirements for assessment levels M and H.

NOTE Metric dimension are original dimensions.

All undimensioned pictorial configurations are for reference purpose only.

2 Normative references

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.

IEC 61169-1:2013, *Radio frequency connectors – Part 1: Generic specification – General requirements and measuring methods*

IEC 61726, *Cable assemblies, cables, connectors and passive microwave components – Screening attenuation measurement by the reverberation chamber method*

IEC 62037 (all parts), *Passive RF and microwave devices, intermodulation level measurement*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

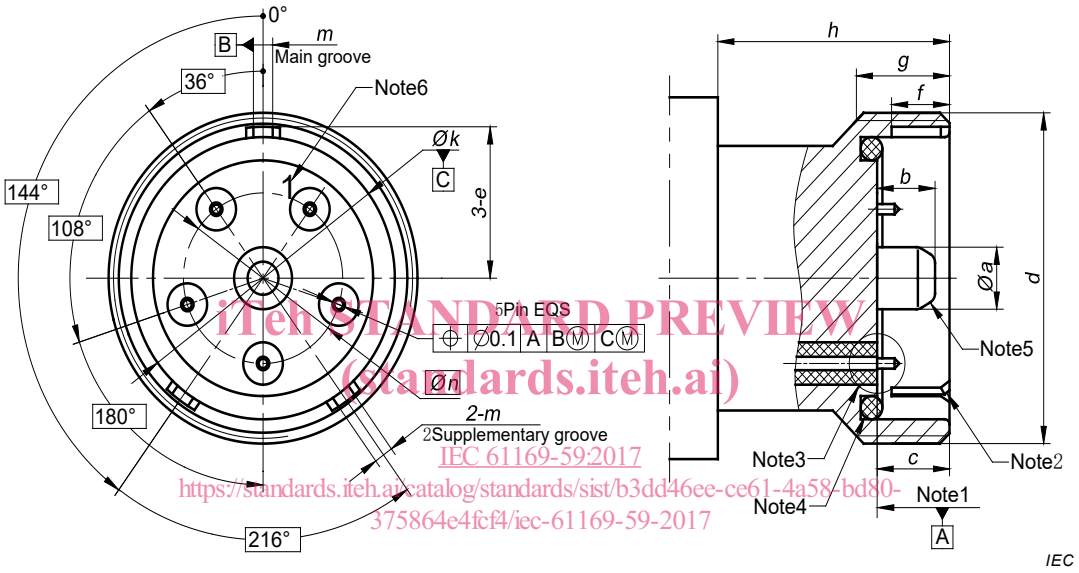
4 Mating face and gauge information

4.1 Dimensions – General connectors – Grade 2

4.1.1 Connector with pin contact

4.1.1.1 L32-5 connector with 5 pin contacts

The mating face of L32-5 connector with 5 pin contacts is shown in Figure 1 and its dimensions are shown in Table 1.



NOTE 1 Mechanical and electrical reference plane.

NOTE 2 Chamfer of three grooves is optional.

NOTE 3 The mating face of RF channel with pin contact is shown in Figure 5a) in 4.1.3 and its dimensions are shown in Table 5.

NOTE 4 The shape of seal ring is optional.

NOTE 5 Anti-mismating pin.

NOTE 6 The initial position number of RF channel with pin contact and the other positions numbered clockwise.

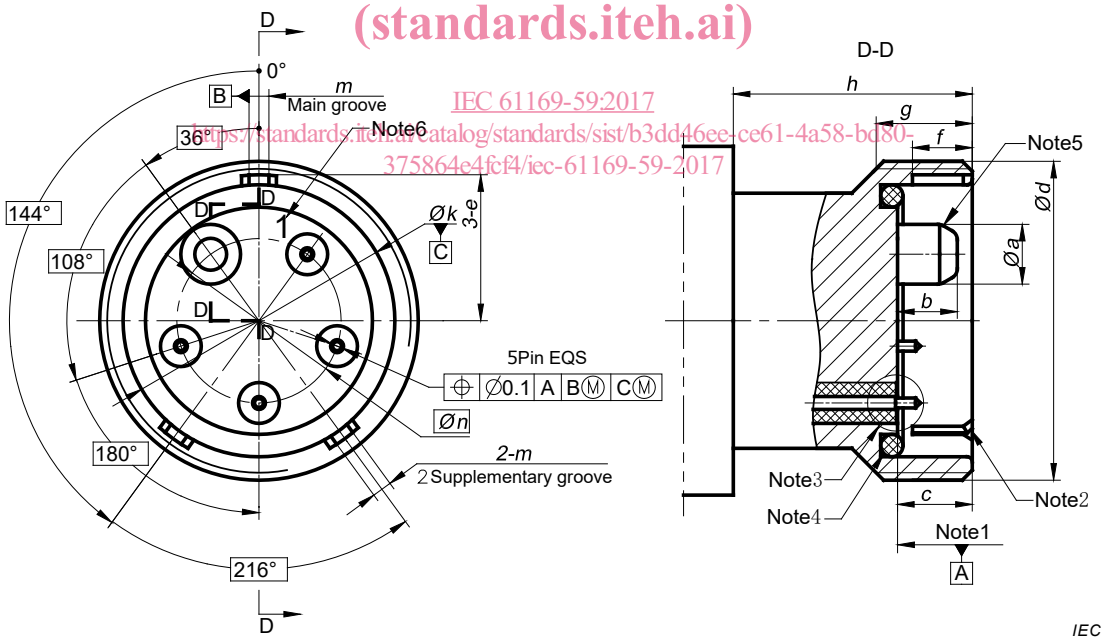
Figure 1 – L32-5 connector with 5 pin contacts

Table 1 – Dimensions of L32-5 connector with 5 pin contacts

Ref.	mm	
	Min.	Max.
a	6,0	6,1
b	6,0	6,2
c	7,5	7,6
d	M32X1,5-6g	
e	14,4	14,5
f	6,0	–
g	9,5	9,7
h	24,0	–
k	27,0	27,1
m	2,1	2,2
n	16,5	

4.1.1.2 L32-4 connector with 4 pin contacts

The mating face of L32-4 connector with 4 pin contacts is shown in Figure 2 and its dimensions are shown in Table 2.



NOTE 1 Mechanical and electrical reference plane.

NOTE 2 Chamfer of three grooves is optional.

NOTE 3 The mating face of RF channel with pin contact is shown in Figure 5a) in 4.1.3 and its dimensions are shown in Table 5.

NOTE 4 The shape of seal ring is optional.

NOTE 5 Anti-mismating pin.

NOTE 6 The initial position number of RF channel with pin contact and the other positions numbered clockwise.

Figure 2 – L32-4 connector with 4 pin contacts

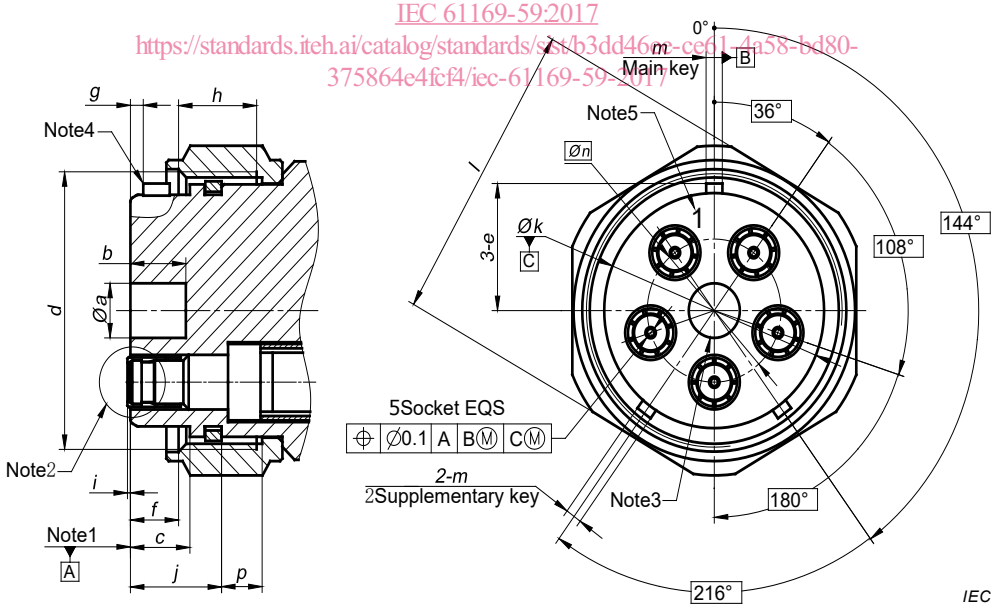
Table 2 – Dimensions of L32-4 connector with 4 pin contacts

Ref.	mm	
	Min.	**Max.**
a	6,0	6,1
b	6,0	6,2
c	7,5	7,6
d	M32X1,5-6g	
e	14,4	14,5
f	6,0	--
g	9,5	9,7
h	24,0	--
k	27,0	27,1
m	2,1	2,2
n	16,5 16,52	

4.1.2 Connector with socket contact

4.1.2.1 L32-5 connector with 5 socket contacts

The mating face of L32-5 connector with 5 socket contacts is shown in Figure 3 and its dimensions are shown in Table 3.



NOTE 1 Mechanical and electrical reference plane.

NOTE 2 The mating face of RF channel with socket contact is shown in Figure 5b) in 4.1.3 and its dimensions are shown in Table 5.

NOTE 3 Anti-mismating socket.

NOTE 4 The shape of key of shell is optional.

NOTE 5 The initial position number of RF channel with socket contact and the other positions numbered anti-clockwise.

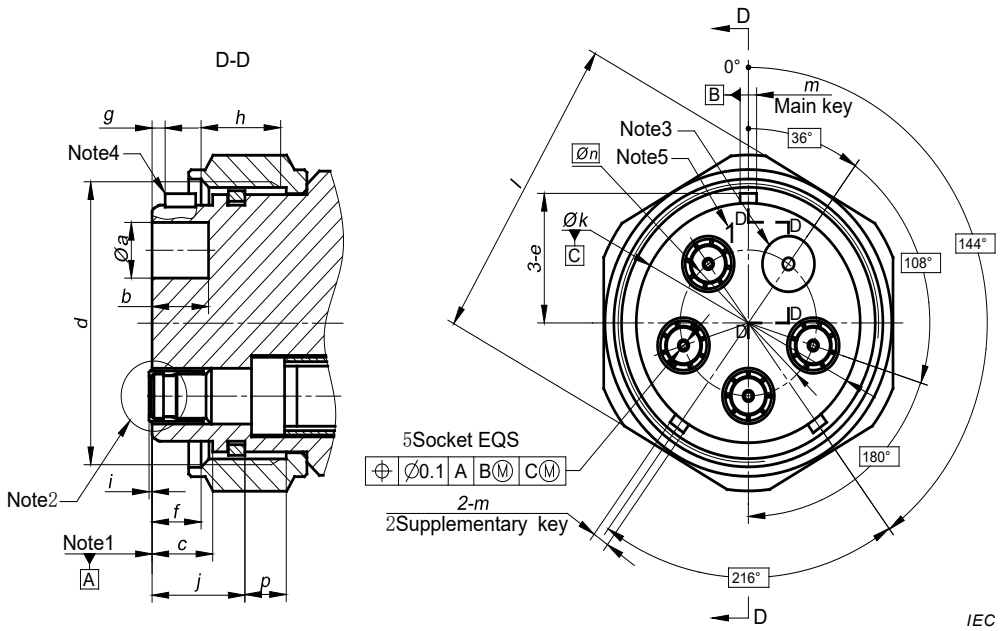
Figure 3 – L32-5 connector with 5 socket contacts

Table 3 – Dimensions of L32-5 connector with 5 socket contacts

Ref.	mm	
	Min.	**Max.**
a	6,25	6,35
b	7,0	--
c	7,7	7,8
d	M32X1,5-7H	
e	14,2	14,3
f	7,6	8,0
g	--	0,8
h	6,8	--
i	0,08	0,3
j	11,5	11,7
k	26,6	26,7
l	34,9	35,0
m	1,9	2,0
n	16,5 16,52	
p	5,8	6,1

4.1.2.2 L32-4 connector with 4 socket contacts

The mating face of L32-4 connector with 4 socket contacts is shown in Figure 4 and its dimensions are shown in Table 4.



NOTE 1 Mechanical and electrical reference plane.

NOTE 2 The mating face of RF channel with socket contact is shown in Figure 5b) in 4.1.3 and its dimensions are shown in Table 5.

NOTE 3 Anti-mismating socket.

NOTE 4 The shape of key of shell is optional.

NOTE 5 The initial position number of RF channel with socket contact and the other positions numbered anti-clockwise.

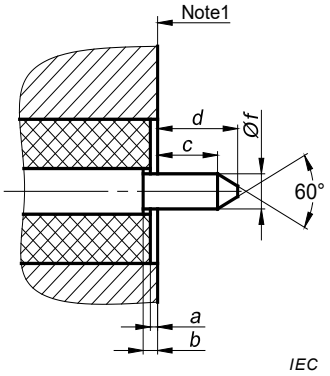
Figure 4 – L32-4 connector with 4 socket contacts

Table 4 – Dimensions of L32-4 connector with 4 socket contacts

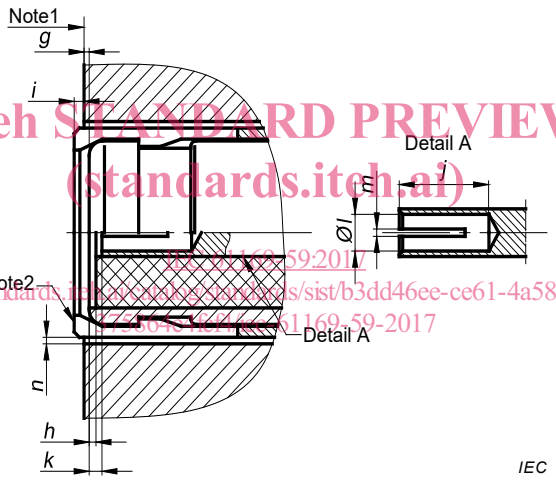
Ref.	mm	
	Min.	**Max.**
a	6,25	6,35
b	7,0	–
c	7,7	7,8
d	M32X1,5-7H	
e	14,2	14,3
f	7,6	8,0
g	–	0,8
h	6,8	–
i	0,08	0,3
j	11,5	11,7
k	26,6	26,7
l	34,9	35,0
m	1,9	2,0
n	16,5	16,52
p	5,8	6,1

4.1.3 Mating face of RF channel

The mating face of RF channel with pin contact is shown in Figure 5a), the mating face of RF channel with socket contact is shown in Figure 5b), their dimensions are shown as Table 5.



a) RF channel with pin contact



b) RF channel with socket contact

NOTE 1 Mechanical and electrical reference plane.

NOTE 2 The position of floating outer conductor in free state and its slot design is optional.

Figure 5 – Mating face of RF channel

Table 5 – Dimensions of the mating face of RF channel

Ref.	mm	
	Min.	**Max.**
a	0,00	0,25
b	0,00	0,25
c	1,27	–
d	–	2,54
f	0,902	0,935
g	0,00	0,10
h	0,00	0,25
i	0,08	0,30
j	2,67	–
k	0,00	0,25
l [a]	–	–
m [b]	–	–
n [c]	0,3	–

[a] It is assumed that the mechanical and electrical requirements are met with the chosen dimension for pin Φ0,902 mm to Φ0,935 mm,

[b] Slot design is optional, as soon as it meets the mechanical and electrical requirements.

[c] 0,2 mm to 0,3 mm of radial displacement is allowed when mating of RF channel with pin contact.

4.2 Gauges

4.2.1 Gauge for socket centre contact

The gauge for socket contact of RF channel is shown in Figure 6 and its dimensions are shown in Table 6.

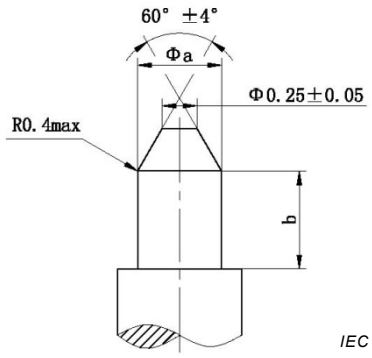


Figure 6 – Gauge for socket contact of RF channel