



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 61000-4-30:2025**  
**01-april-2025**

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**Elektromagnetna združljivost (EMC) - 4-30. del: Preskusne in merilne tehnike - Metode merjenja kakovosti napetosti**

Electromagnetic compatibility (EMC) - Part 4-30: Testing and measurement techniques - Power quality measurement methods

Elektromagnetische Verträglichkeit (EMV) - Teil 4-30: Prüf- und Messverfahren - Verfahren zur Messung der Spannungsqualität

Compatibilité électromagnétique (CEM) - Partie 4-30: Techniques d'essai et de mesure - Méthodes de mesure de la qualité de l'alimentation

**Ta slovenski standard je istoveten z: prEN IEC 61000-4-30:2025**

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**ICS:**

33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general
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# 77A/1235/CDV

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<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING <b>Attention IEC-CENELEC parallel voting</b> The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.  The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

**Electromagnetic compatibility (EMC) - Part 4-30: Testing and measurement techniques - Power quality measurement methods**

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

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## 221 INTERNATIONAL ELECTROTECHNICAL COMMISSION

222

223

224 **ELECTROMAGNETIC COMPATIBILITY (EMC) –**

225

226 **Part 4-30: Testing and measurement techniques –**227 **Power quality measurement methods**

228

229

**FOREWORD**

230 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising  
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262 International Standard IEC 61000-4-30 has been prepared by subcommittee 77A: EMC – Low-  
263 frequency phenomena, of IEC technical committee 77: Electromagnetic compatibility.

264 This standard forms part 4-30 of IEC 61000. It has the status of a basic EMC publication in  
265 accordance with IEC Guide 107.

266 This fourth edition cancels and replaces the third edition published in 2015. This edition  
267 constitutes a technical revision.

268 This edition includes the following significant technical changes with respect to the previous  
269 edition:

270 a) Corrigendum 1 and Amendment 1 of IEC 61000-4-30 Ed. 3 were included.

271 b) The measurement method for rapid voltage changes (RVC) has been corrected and  
272 extended.

273 c) The measurement method for voltage events has been updated and extended.

- 274 d) Annex C from Ed. 3 was divided into 2 parts:
- 275 • Annex C: The measurement method from IEC 61000-4-7 Annex B for conducted  
276 emissions in the 2 kHz to 9 kHz range has been separated.
- 277 • Annex D: A new measurement method for conducted emissions in the 9 kHz to 150 kHz  
278 range has been added.
- 279 e) Informative Annex D (underdeviation and overdeviation parameters) was removed.
- 280 f) Informative Annex E (Class B) was removed.
- 281 The text of this standard is based on the following documents:

FDIS	Report on voting
77A/XX/FDIS	77A/XX/RVD

282  
283 Full information on the voting for the approval of this standard can be found in the report on  
284 voting indicated in the above table.

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

286 A list of all parts in the IEC 61000 series, published under the general title *Electromagnetic*  
287 *compatibility (EMC)*, can be found on the IEC website.

288 The committee has decided that the contents of this publication will remain unchanged until the  
289 stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to  
290 the specific publication. At this date, the publication will be

- 291 • reconfirmed,
- 292 • withdrawn,
- 293 • replaced by a revised edition, or
- 294 • amended.

295

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.

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## INTRODUCTION

299 IEC 61000 is published in separate parts according to the following structure:

300 **Part 1: General**

301     General considerations (introduction, fundamental principles)

302     Definitions, terminology

303 **Part 2: Environment**

304     Description of the environment

305     Classification of the environment

306     Compatibility levels

307 **Part 3: Limits**

308     Emission limits

309     Immunity limits (in so far as they do not fall under the responsibility of the product  
310     committees)

311 **Part 4: Testing and measurement techniques**

312     Measurement techniques

313     Testing techniques

314 **Part 5: Installation and mitigation guidelines**

315     Installation guidelines

316     Mitigation methods and devices

317 **Part 6: Generic standards**

318 **Part 9: Miscellaneous**

319 Each part is further subdivided into several parts, published either as International Standards  
320 or as Technical Specifications or Technical Reports, some of which have already been  
321 published as sections. Others will be published with the part number followed by a dash and  
322 completed by a second number identifying the subdivision (example: 61000-6-1).

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## ELECTROMAGNETIC COMPATIBILITY (EMC) –

### Part 4-30: Testing and measurement techniques – Power quality measurement methods

#### 331 1 Scope

332 This part of IEC 61000-4 defines the methods for measurement and interpretation of results for  
333 power quality parameters in AC power supply systems with a declared fundamental frequency  
334 of 50 Hz or 60 Hz.

335 Measurement methods are described for each relevant parameter in terms that give reliable  
336 and repeatable results, regardless of the method's implementation. This standard addresses  
337 measurement methods for in-situ measurements.

338 This standard covers two classes of measurement methods (Class A and Class S). The classes  
339 of measurement are specified in Clause 4.

340 NOTE 1 In this standard, "A" stands for "Advanced" and "S" stands for "Surveys".

341 Measurement of parameters covered by this standard is limited to conducted phenomena in  
342 power systems. The power quality parameters considered in this standard are power frequency,  
343 magnitude of the supply voltage, flicker, supply voltage dips and swells, voltage interruptions,  
344 transient voltages, supply voltage unbalance, voltage harmonics and interharmonics, rapid  
345 voltage changes, mains communicating system voltages and current measurements.

346 Emissions in the 2 kHz to 150 kHz range are considered in Annex C and Annex D (informative).

347 Depending on the purpose of the measurement all or a subset of the phenomena on this list  
348 may be measured.

349 NOTE 2 Test methods for verifying compliance with this standard can be found in IEC 62586-2.

350 NOTE 3 The effects of transducers inserted between the power system and the instrument are acknowledged but  
351 not addressed in detail in this standard. Guidance about effects of transducers can be found IEC TR 61869-103.

352 NOTE 4 Measurements of voltage signals associated with MCS are also in the scope of this standard.

#### 353 2 Normative References and Bibliography

##### 354 2.1 Normative References

355 The following documents, in whole or in part, are normatively referenced in this document and  
356 are indispensable for its application. For dated references, only the edition cited applies. For  
357 undated references, the latest edition of the referenced document (including any amendments)  
358 applies.

359 *IEC 61000-2-4, Electromagnetic compatibility (EMC) – Part 2-4: Environment – Compatibility*  
360 *levels in industrial plants for low-frequency conducted disturbances*

361 *IEC 61000-3-8, Electromagnetic compatibility (EMC) – Part 3: Limits – Section 8: Signalling on*  
362 *low-voltage electrical installations – Emission levels, frequency bands and electromagnetic*  
363 *disturbance levels*

364 *IEC 61000-4-7:2002, Electromagnetic compatibility (EMC) – Part 4-7: Testing and measurement*  
365 *techniques – General guide on harmonics and interharmonics measurements and instrumentation, for*  
366 *power supply systems and equipment connected thereto*  
367 *IEC 61000-4-7:2002/AMD1:2008*

368 *IEC 61000-4-15:2010, Electromagnetic compatibility (EMC) – Part 4-15: Testing and*  
369 *measurement techniques – Flickermeter – Functional and design specifications*

370 IEC 62586-1, *Power quality measurement in power supply systems – Part 1: Power quality*  
371 *instruments (PQI)*

372 IEC 62586-2, *Power quality measurement in power supply systems – Part 2: Functional tests*  
373 *and uncertainty requirements*

374 IEC 62428:2008, *Electric power engineering – Modal components in three-phase a.c. systems*  
375 *– Quantities and transformations*

376 ISO/IEC Guide 99:2007

377 For the purposes of this document, the terms and definitions given in IEC 60050-161 and the  
378 following apply.

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

- 381 • ISO Online browsing platform: available at <https://www.iso.org/obp>
- 382 • IEC Electropedia: available at <http://www.electropedia.org/>

### 383 **3 Terms and definitions**

384 For the purposes of this document, the terms and definitions given in IEC 60050-161, as well  
385 as the following apply.

#### 386 **3.1** 387 **channel**

388 individual measurement path through an instrument

389 Note 1 to entry: “Channel” and “phase” are not the same. A voltage channel is by definition the difference in potential  
390 between 2 conductors. Phase refers to a single conductor. On polyphase systems, a channel may be between any  
391 two phases, or between any phase and neutral, or between any phase and earth, or between neutral and earth.

#### 392 **3.2** 393 **declared input voltage**

394  $U_{\text{din}}$

395 value obtained from the declared supply voltage by a transducer ratio

396 Note 1 to entry: This quantity can be expressed as a phase-to-phase or as a phase-to-neutral value.

#### 397 **3.3** 398 **declared supply voltage**

399  $U_{\text{c}}$

400 normally the nominal voltage  $U_{\text{n}}$  of the system

401 Note 1 to entry: If by agreement between the supplier and the customer a voltage different from the nominal voltage  
402 is applied to the terminals, then this voltage is the declared supply voltage  $U_{\text{c}}$ .

#### 403 **3.4** 404 **dip threshold**

405 voltage magnitude specified for the purpose of detecting the start and the end of a voltage dip

#### 406 **3.5** 407 **flagged data**

408 for any measurement time interval in which interruptions, dips or swells occur, the marked  
409 measurement results of all other parameters made during this time interval

410 Note 1 to entry: For some applications, this ‘marked’ or ‘flagged’ data may be excluded from further analysis, for  
411 example. See 4.8 for further explanation.

412 **3.6**  
413 **flicker**

414 impression of unsteadiness of visual sensation induced by a light stimulus whose luminance or  
415 spectral distribution fluctuates with time

416 [SOURCE: IEC 60050-161:1990, IEV 161-08-13]

417 **3.6.1**  
418  **$P_{st}$**

419 short-term flicker evaluation based on an observation period of 10 minutes

420 [SOURCE: IEC 61000-4-15:2010, 3.2]

421 **3.6.2**  
422  **$P_{lt}$**

423 long-term flicker evaluation

424 [SOURCE: IEC 61000-4-15:2010, 3.2]

425 **3.7**  
426 **fundamental component**

427 component whose frequency is the fundamental frequency

428 **3.8**  
429 **fundamental frequency**

430 frequency in the spectrum obtained from a Fourier transform of a time function, to which all the  
431 frequencies of the spectrum are referred

432 Note 1 to entry: In case of any remaining risk of ambiguity, the fundamental frequency may be derived from the  
433 number of poles and speed of rotation of the synchronous generator(s) feeding the system.

434 **3.9**  
435 **harmonic component**

436 any of the components having a harmonic frequency

437 Note 1 to entry: Its value is normally expressed as an r.m.s. value. For brevity, such component may be referred to  
438 simply as a harmonic.

439 [SOURCE: IEC 61000-2-2:2002, 3.2.4]

440 **3.10**  
441 **harmonic frequency**

442 frequency which is an integer multiple of the fundamental frequency

443 Note 1 to entry: The ratio of the harmonic frequency to the fundamental frequency is the harmonic order  
444 (recommended notation:  $h$ ).

445 [SOURCE: IEC 61000-2-2:2002, 3.2.3]

446 **3.11**  
447 **hysteresis**

448 difference in magnitude between the start and end thresholds

449 Note 1 to entry: This definition of hysteresis is relevant to PQ measurement parameters and is different from the  
450 IEC 60050 definition which is relevant to iron core saturation.

451 Note 2 to entry: The purpose of hysteresis in the context of PQ measurements is to avoid counting multiple events  
452 when the magnitude of the parameter oscillates about the threshold level.

453 **3.12**  
454 **influence quantity**

455 quantity which is not the subject of the measurement and whose change affects the relationship  
456 between the indication and the result of the measurement