



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 63437:2025**  
**01-maj-2025**

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**Hladilni aparati za delovanje izven omrežja in pri nezanesljivem omrežju za domačo in lahkotno komercialno uporabo - Značilnosti in preskusne metode - Zahtevane lastnosti in poraba energije**

Off grid and unreliable grid refrigerating appliances for domestic and light commercial use - Characteristics and test methods - Performance requirements and energy consumption

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Appareils de réfrigération hors réseau et sur réseau peu fiable pour un usage domestique et commercial léger - Caractéristiques et méthodes d'essai - Exigences d'aptitude à la fonction et consommation d'énergie

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**ICS:**

97.040.30      Hladilni aparati za dom      Domestic refrigerating appliances

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# 59M/182/CDV

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SECRETARIAT: Italy	SECRETARY: Ms Milena Presutto
OF INTEREST TO THE FOLLOWING COMMITTEES:	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED: Energy Efficiency, Environment	
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TITLE:

**Off grid and unreliable grid refrigerating appliances for domestic and light commercial use - Characteristics and test methods - Performance requirements and energy consumption**

PROPOSED STABILITY DATE: 2028

NOTE FROM TC/SC OFFICERS:

The CDV of IEC 63437 Ed1 has been prepared by SC59M/WG6 Test standard for refrigerated appliances for use with off grid or weak grid, under the convenorship of Mr Patrick Becks.

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**OFF GRID AND UNRELIABLE GRID REFRIGERATING APPLIANCES FOR  
DOMESTIC AND LIGHT COMMERCIAL USE -  
CHARACTERISTICS AND TEST METHODS – PERFORMANCE  
REQUIREMENTS AND ENERGY CONSUMPTION**

## FOREWORD

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IEC 63437 has been prepared by subcommittee 59M/WG6: Performance of electrical household and similar cooling and freezing appliances, of IEC technical committee 59: Performance of household and similar electrical appliances. It is an International Standard.

302 Background information and arguments for this standard are provided in Annex B.

303 The following print types are used in this international standard:

304 – requirements: in roman type;

305 – test variables: in *italic* type;

306 – notes: in small roman type.

307 – words in **bold** are defined in Clause 0;

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Draft	Report on voting

309

310 Full information on the voting for its approval can be found in the report on voting indicated in  
311 the above table.

312 The language used for the development of this International Standard is English.

313 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in  
314 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available  
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317 The committee has decided that the contents of this document will remain unchanged until the  
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338 **OFF GRID AND UNRELIABLE GRID REFRIGERATING APPLIANCES FOR**  
339 **DOMESTIC AND LIGHT COMMERCIAL USE-**  
340 **CHARACTERISTICS AND TEST METHODS – PERFORMANCE**  
341 **REQUIREMENTS AND ENERGY CONSUMPTION**  
342  
343

344 **1 Scope**

345 This document specifies the essential characteristics of **off grid** and **unreliable grid**  
346 **refrigerating appliances** for domestic and similar use or **light commercial use**, cooled by  
347 internal natural or forced air convection. It defines input voltage supply signals for appliances  
348 designed for **unreliable grid** and **off grid** conditions.

349 An **unreliable grid** condition can be the result of disturbances on the electricity supply, such  
350 as **power outages**, or issues with power quality, such as voltage spikes and surges, that could  
351 cause performance challenges to refrigerating appliances. An **off grid** supply, in this context,  
352 for example is generated by a **solar panel** or a stand-alone solar home system that is not  
353 connected to the power grid. The standard simulates the power characteristics in off grid and  
354 unreliable grid conditions but does not prescribe requirements or test procedures to assess  
355 performance of generators, **solar panels**, solar home system or any other system generating a  
356 supply signal.

357 The supply signals defined in this document can also be used for evaluation of the performance  
358 of other **refrigerating appliances** such as medical or laboratory appliances, professional  
359 storage **refrigerators** and/or **freezers**, refrigerated display cabinets, beverage coolers or ice  
360 cream **freezers**.

361 This standard prescribes the test methods for measuring the functional performance  
362 characteristics and requirements. The standard does not apply to **refrigerating appliances**  
363 designed for a good quality and stable electricity grid and **refrigerating appliances** utilising  
364 fuelled absorption cooling technology.

365 This standard is applicable to any **refrigerating appliance** for domestic or **light commercial**  
366 **use** that has a **rated** performance to properly operate **off grid** or under **unreliable grid**  
367 operating conditions resisting power interruptions and supply variations. **Off grid** and  
368 **unreliable grid refrigerating appliances** are appliances intended to for use with standalone  
369 or intermittent and/or distorted electrical mains. Electrical mains supply is assumed to be  
370 alternating current (AC) for **unreliable grid** or direct current (DC) for **off grid**. The standard is  
371 also applicable to **hybrid refrigerating appliances**.

372 The test procedures primary focus on the performance of the overall **refrigerating appliances**  
373 and not on the specific performance of **auxiliary** components such as electrical batteries,  
374 **inverters** or **rectifiers** or any device intended to improve the power quality but external to the  
375 appliance itself. In case a **refrigerating appliance** is supplied with control unit, an **electrical**  
376 **battery**, a **voltage protector**, an **inverter** or a **rectifier** in the original product packaging, these  
377 components are considered as a component of the **refrigerating appliance** and should be  
378 connected during testing.

379 The tests defined in this standard aim to assess the fundamental design and functional  
380 operation of the **refrigerating appliance** as well as its resilience to given power quality issues.

381 **Unreliable Grid (UG) refrigerating appliance** categories in scope:

- 382 1. UG<sub>intermittent</sub>: AC voltage supplied **refrigerating appliances** designed for proper operation during  
383 intermittent **power outages**, containing an internal **thermal store** and/or **electrical battery**.  
384

- 385 2. UG<sub>distorted</sub>: AC voltage **refrigerating appliances** designed for operation when connected to a  
 386 **distorted grid** supply (for example **voltage sags** or **voltage surges**).  
 387
- 388 3. UG<sub>intermittent+distorted</sub> AC voltage **refrigerating appliances** designed for operation with  
 389 **intermittent grid / power outages** and **distorted grid** supply (combination of 1 and 2).  
 390

391

392 **Off Grid (OG) refrigerating appliance** categories in scope:

- 393 • OG<sub>SDD</sub>: DC voltage supplied **solar direct drive refrigerating appliances**, designed for direct  
 394 connection to a photovoltaic **solar panel**, containing an internal **thermal store** with an optional  
 395 **electrical battery** to supply auxiliaries such as a controller, lighting or fans. The compressor of  
 396 the appliance is directly supplied by the **solar panel**.  
 397
- 398 • OG<sub>battery supported</sub>: DC voltage supplied, **electrical battery supported solar refrigerating**  
 399 **appliance** designed for direct connection to a photovoltaic **solar panel**, incorporating an  
 400 **electrical battery** to supply the compressor when there is insufficient solar power. These  
 401 appliances may also have internal **thermal store**. The **electrical battery** is charged by the  
 402 **solar panel** only. The battery should be part of the appliance or should be supplied in the same  
 403 packaging of the appliance.  
 404
- 405 • OG<sub>intermittent</sub>: DC voltage supplied **refrigerating appliance** designed for proper operation during  
 406 **power outages**, containing an internal **thermal store** and/or **electrical battery**.  
 407
- 408 • OG<sub>continuous</sub>: Continuous DC voltage supplied **refrigerating appliances**, without any internal  
 409 **thermal store** and **electrical battery**.  
 400

Pre-standards  
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