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Inženiring opreme (EE) – Okoljski pogoji in preskusi vplivov okolja na telekomunikacijsko opremo – 2-8. del: Specifikacija preskusov vplivov okolja – Fiksna uporaba na podzemnih lokacijah

Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-8: Specification of environmental tests; Stationary use at underground locations

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ETSI EN 300 019-2-8 V2.1.2 (1999-09)

European Standard (Telecommunications series)

**Equipment Engineering (EE);
Environmental conditions and environmental tests for
telecommunications equipment;
Part 2-8: Specification of environmental tests;
Stationary use at underground locations**

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Environmental Engineering (EE).

The present document consists of 2 parts as follows:

Part 1: "Classification of environmental conditions".

NOTE 1: Specifies different standardized environmental classes covering climatic and biological conditions, chemically and mechanically active substances and mechanical conditions during storage, transportation and in use.

Part 2: "Specification of environmental tests".

NOTE 2: Specifies the recommended test severities and test methods for the different environmental classes.

Each part of the standard is divided into sub-parts. Sub-part 2-0 forms a general overview of Part 2.

This sub-part 2-8 deals with stationary use at underground locations.

National transposition dates

Date of adoption of this EN:	3 September 1999
Date of latest announcement of this EN (doa):	31 December 1999
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2000
Date of withdrawal of any conflicting National Standard (dow):	30 June 2000

1 Scope

The present document specifies test severities and methods for the verification of the required resistibility of equipment according to the relevant environmental class.

The tests in sub-part 2-8 of this multi-part EN apply to stationary use of equipment at underground locations covering the environmental conditions stated in ETS 300 019-1-8 [1].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] ETS 300 019-1-8: "Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-8: Classification of environmental conditions; Stationary use at underground locations"
- [2] IEC 60068-2: "Basic environmental testing procedures - Part 2: Tests".
- [3] ETS 300 019-2-0: "Equipment Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-0: Specification of environmental tests; Introduction".

3 Environmental test specifications

The detailed descriptions of the environmental conditions are in clauses 4 and 5 of ETS 300 019-1-8 [1].

ETS 300 019-2-0 [3] forms a general overview of Part 2 of the present document.

The equipment under test is assumed to be in its operational state throughout the test conditions described in this part unless otherwise stated. The required performance before, during and after the test needs to be specified in the product specification. Input and load conditions of the equipment shall be chosen to obtain full utilization of the equipment under test. The heat dissipation shall be maximized, except for the steady state low temperature test, where it shall be minimized.

3.1 Specification T 8.1: Partly weatherprotected underground locations

This specification applies to underground enclosures in footway boxes, manholes and some tunnels etc. which are protected from direct weather influences. The location has no temperature or humidity control, but the variations in the temperature are limited due to the stabilizing influence of the surroundings. The equipment may be immersed in water during exceptional conditions.

Table 1: Test specification T 8.1: Partly weatherprotected underground locations - climatic tests

Environmental parameter			Environmental Class 8.1	Environmental test specification T 8.1: In-use, partly weatherprotected underground locations				
Type	Parameter	Detail parameter	Characteristic severity	Test severity	Duration	Reference	Method	Notes
Air temperature	low	(°C)	-10	-10	16 h	IEC 60068-2-1	Ab/Ad: Cold	
	high	(°C)	+40	+40	16 h	IEC 60068-2-2	Bb/Bd: Dry heat	
	change	(°C/min) (°C)	5	-10/+40	2 cycles t1 = 3 h	IEC 60068-2-14	Na: Rapid change of temperature	1
Humidity	relative	low	(%)	5				2
		high	(%)	100				3
			(%) (°C)	93 +30	21 d	IEC 60068-2-56	Cb: Damp heat Steady state	
	condensation		yes					4
		(%) (°C)		90-100 +40	2 cycles	IEC 60068-2-30	Db: Damp heat cyclic Variant 1	
Air	absolute	low	(g/m ³)	0,5				2
		high	(g/m ³)	23				5
	pressure	low	(kPa)	70	none			6
		high	(kPa)	106	none			6
	speed	(m/s)	1	none				2
	rain	intensity	no					
		low temperature	no					
Water	other sources	dripping water condensed water (m) (kPa) immersion to soil		2 19,6	1 h	IEC 60068-2-17	Qf: Immersion	7
	icing & frosting	yes						2
Radiation	solar heat	(W/m ²)	no					
		(W/m ²)	yes					8

Environmental parameter			Environmental Class 8.1	Environmental test specification T 8.1: In-use, partly weatherprotected underground locations				
Type	Parameter	Detail parameter	Characteristic severity	Test severity	Duration	Reference	Method	Notes
Chemically active substances	sulphur	SO ₂ (mg/m ³)	0,3/1,0	none				9
		H ₂ S (mg/m ³)	0,1/0,5	none				9
	chlorine	salt mist	sea and road salts	none				9
		Cl ₂ (mg/m ³)	0,1/0,3	none				9
		HCl (mg/m ³)	0,1/0,5	none				9
	nitrogen	NO _x (mg/m ³)	0,5/1,0	none				9
		NH ₃ (mg/m ³)	1,0/3,0	none				9
	hydrogen fluoride	HF (mg/m ³)	0,01/0,03	none				9
Mechanically active substances	dust	O ₃ (mg/m ³)	0,05/0,1	none				9
		sedimentation (mg/(m ² h))	15	none				10
	sand	suspension (mg/m ³)	0,4	none				10
		(mg/m ³)	300	none				10
Flora and fauna	micro organisms	mould, fungus, etc.		none				11
	rodents, insects			none				
NOTE 1: no = this condition does not occur in this class. NOTE 2: none = verification is required only in special cases. NOTE 3: n = number of note, see clause 5.								