

IEC/TR 62130

Edition 1.0 2012-09

TECHNICAL REPORT



Climatic field data including validation RD PREVIEW (standards.iteh.ai)

IEC TR 62130:2012 https://standards.iteh.ai/catalog/standards/sist/d8d24d0e-0b59-4e5e-8db6beddd5cb3471/iec-tr-62130-2012





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CLIMATIC FIELD DATA INCLUDING VALIDATION

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IEC/TR 62130, which is a technical report, has been prepared by IEC technical committee 104: Environmental conditions, classification and methods of test.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
104/572/DTR	104/577/RVC

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

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

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

- reconfirmed,
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CLIMATIC FIELD DATA INCLUDING VALIDATION

1 Scope

IEC/TR 62130, which is a technical report, provides traceable recommendations from validated field data for updating IEC 60721-2-1.

2 Normative references

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

IEC 60721-1:1982, Classification of environmental conditions – Part 1: Environmental parameters and their severities

IEC 60721-2-1:1982, Classification of environmental conditions – Part 2-1: Environmental conditions appearing in nature – Temperature and humidity Amendment 1:1987 **Tob STANDADD DDEVIEW**

Amendment 1:1987 **iTeh STANDARD PREVIEW**

3 Current IEC 60721-2-1 standard dealing with temperature and humidity

IEC 60721-2-1:1982 and its Amendment 17 6(1987) give maps of climatic types with the following parameters://standards.iteh.ai/catalog/standards/sist/d8d24d0e-0b59-4e5e-8db6-beddd5cb3471/iec-tr-62130-2012

- mean value of the annual extreme daily mean values of temperature, humidity and highest temperature with RH < 95 %;
- mean value of the annual extreme values of temperature, humidity and highest temperature with RH \geq 95 %;
- absolute extreme values of temperature, humidity and highest temperature with RH \geq 95 %.

Values of parameters and maps of statistical open-air climates in the geographical areas of the world are given in Tables 1 to 3, and in Figures 1 and 2, respectively.

	Mean value of the annual extreme daily mean values of temperature and humidity								
Type of climate	Low temperature	High temperature	Highest temperature with RH ≥ 95 %	Highest absolute humidity					
	°C	°C	°C	$g \times m^{-3}$					
Extremely cold (except Central Antarctic)	-55	+26	+18	14					
Cold	-45	+25	+13	12					
Cold temperate	-29	+29	+18	15					
Warm temperate	-15	+30	+20	17					
Warm dry	-10	+35	+23	20					
Mild warm dry	0	+35	+24	22					
Extremely warm dry	+8	+43	+26	24					
Warm damp	+12	+35	+28	27					
Warm damp, equable	+17	+33	+31	30					

Table 1 – Types of climate by extreme daily mean values from the current standard

Table 2 – Types of climate by annual extreme values from the current standard

iTel	h STAND		lue of the annual extreme values f temperature and humidity						
Type of climate	(SLownda) temperature	High temperature	Highest temperature with RH ≥ 95 %	Highest absolute humidity					
https://standa	<u>IEC TF</u> ards.iteh.ai&atalog/sta	<u>k 62130:2012</u> ndards/sist <mark>/9</mark> 8d24d0e-	0b59-4e5&8db6-	$g \times m^{-3}$					
Extremely cold (except Central Antarctic)	beddd5cb347 -65	1/iec-tr-62130-2012 +32	+20	17					
Cold	-50	+32	+20	18					
Cold temperate	-33	+34	+23	20					
Warm temperate	-20	+35	+25	22					
Warm dry	-20	+40	+27	24					
Mild warm dry	-5	+40	+27	25					
Extremely warm dry	+3	+55	+28	27					
Warm damp	+5	+40	+31	30					
Warm damp, equable	+13	+35	+33	36					

	Absolute extreme values of temperature and humidity								
Type of climate	Low temperature	High temperature	Highest temperature with RH ≥ 95 %	Highest absolute humidity					
	°C	°C	°C	$g \times m^{-3}$					
Extremely cold (except Central Antarctic)	-75	+40	+24	20					
Cold	-60	+40	+27	22					
Cold temperate	-45	+40	+28	25					
Warm temperate	-30	+40	+28	25					
Warm dry	-30	+45	+30	27					
Mild warm dry	-15	+45	+31	30					
Extremely warm dry	-10	+60	+31	30					
Warm damp	0	+45	+35	36					
Warm damp, equable	+4	+40	+37	40					

Table 3 – Types of climate by absolute extreme value from the current standard

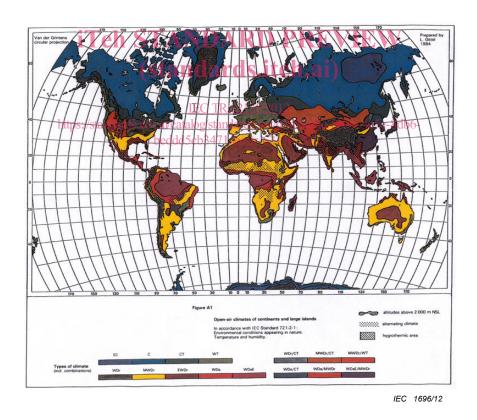
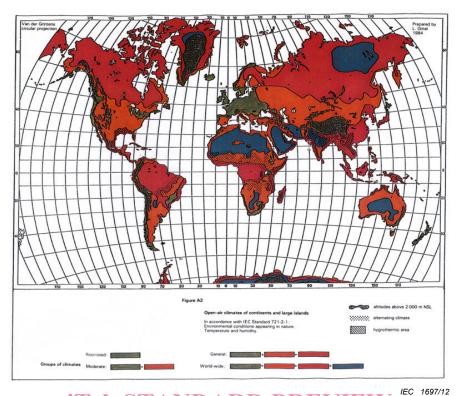


Figure 1 – Current map showing types of climate and their combinations



iTeh STANDARD PREVIEW Figure 2 – Current map showing the groups of climates

4 Task 1

IEC TR 62130:2012

https://standards.iteh.ai/catalog/standards/sist/d8d24d0e-0b59-4e5e-8db6-

The purpose of task 1 is to collect <u>field</u> data and <u>to</u> collate the validated data into a form suitable for comparison with IEC 60721-2-1.

The field data was collected from two independent main sources. The data was organized, arranged and analysed using a spreadsheet (Figure 3 and attachment). Annex A shows the graphical data based on the data in Annex B. The validation process is described in details in Clauses 5 and 6.

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2			of temperature and humidity of temperature		values erature and h	Absolute extreme value nd humidity of temperature and humidity								
			Type according the map		riign temperature			High temperature			riign temperat <u>ur</u>			
3	City or Locaton 🛛 🔽	Proposal 🔻	by M.Kottek et al 🔻		(°C) 🔽			(°C) 🔻				humidi 🔻	Years on record	
4	Akureyri, IL	very low	polar	-11	19	13	-17	23	14	-19	27	21	1973-1992	Expert CD, 199
5	Jan Mayen, No	very low	polar	-14	11	8	-19	12	8	-26	18	11	1973-1992	Expert CD, 199
6	Godthab, GL	very low	polar	-14	14	9	-21	18	10	-28	21	13	1973-1992	Expert CD, 199
7	Eureka, CN	very low	polar	-35	1	5	-50	15	7	-53	19	9	1973-1992	Expert CD, 199
3	Mould Bay, airport, CN	very low	polar	-34	2	5	-47	13	8	-53	19	11	1973-1992	Expert CD, 199
)	Resolute airport, CN	very low	polar	-32	2	7	-45	13	9	-51	16	25	1973-1992	Expert CD, 199
D	Sondre Stromfjord	very low	polar	-26	15	8	-40	21	9	-46	22	11	1973-1992	Expert CD, 199
	Forbisher, CN	very low	polar	-26	10	8	-42	23	10	-45	25	32	1973-1992	Expert CD, 199
2	Thule, CN	very low	polar	-26	8	6	-39	15	7	-44	20	9	1973-1992	Expert CD, 199
3	Fort Reliance, CN	very low	polar	-27	16	10	-45	28	14	-52	33	21	1973-1992	Expert CD, 199
4		very low	Polar	-40	25	15	-50	30	20	-60	35	25		
	Harbin,China	Low	snow	-14	24	14	-33	33	23	-37	37	29	1973-1992	Expert CD, 199
3	Nome, AK, US	very low	snow	-24	16	9	-37	25	12	-47	28	16	1973-1992	Expert CD, 199
,	Chibougamau-Chapais, CN	very low	snow	-21	21	13	-40	31	17	-44	35	20	1973-1992	Expert CD, 199
	Mountain Home, ID, US	Intermediate	Snow	-13	31	13	-20	40	14	-30	43	23	1973-1992	Expert CD, 199
	Renner, KS, US	Intermediate	Snow	-12	33	14	-24	37	18	-32	40	21	1973-1992	Expert CD, 199
	Jinzhou,China	Intermediate	snow	-6	29	15	-19	34	27	-23	37	37	1973-1992	Expert CD, 199
	Yulin.China	Intermediate	snow	-10	27	13	-23	35	19	-29	39	26	1973-1992	Expert CD, 199
	Pyongynag,N.Korea	Intermediate	snow	-5	25	17	-20	33	24	-25	35	29	1973-1992	Expert CD, 199
	Beijing.China	Intermediate	snow	-1	28	16	-14	37	26	-17	39	29	1973-1992	Expert CD, 199
	Griffiss AFB/Rome, NY, US	Low	snow	13	28	17	-27	34	22	-34	36	24	1973-1992	Expert CD, 199
	Winnipeg Intl Airport, CN	Low	snow	-18	25	13	-35	35	20	-38	38	24	1973-1992	Expert CD, 199
	Huron Regional, SD, US	Low	snow	-16	31	16	-31	39	22	-38	42	25	1973-1992	Expert CD, 199
	Andoya NORWAY	Intermediate	snow	-11	16	10	-16	23	12	-20	26	16	1973-1992	Expert CD, 199
	Oslo NORWAY	Intermediate	snow	-10	22	12	-19	30	15	-26	35	17	1973-1992	Expert CD, 199
	Shengvang.China	Low	snow	-8	26	15	-25	34	24	-28	38	27	1973-1992	Expert CD, 199
	Jyvaskyla FINLAND	Low	snow	-18	19	12	-31	28	16	-38	34	23	1973-1992	Expert CD, 199
	Kajaani FINLAND	Low	snow	-21	18	11	-34	27	15	-41	30	19	1973-1992	Expert CD, 199
-	rajaanii nezriite	2011	011011										1010 1002	
2		Low	Snow	-25	35	25	-45	45	25	-50	45	30		
3	Gibraltor	High	WT	9	31	17	5	36	18	-1	39	20	1973-1992	Expert CD, 199
	Palma Mallorca SPAIN	High	WT	2	30	19	-3	36	24	-6	40	29	1973-1992	Expert CD, 199
	Rabat, Morocco	High	WT	13	23		5	38		0	48		1973-1992	Expert CD, 199
	Naples ITALY	High	WT	3	30	19	-2	36	25	-5	40	32	1973-1992	Expert CD, 199
	Posadas airport, AG	High	WT	6	37	25	1	39	27	-2	41	36	1973-1992	Expert CD, 199
8	Buenos Aires, AG	High	WT	1	33	21	-3	37	24	-4	40	29	1973-1992	Expert CD, 199
	Shanghai,China	High	WT	3	31	22	-6	37	28	-9	39	30	1973-1992	Expert CD, 199
	Fukuoka,Japan	High	WT	4	29	20	-4	35	25	-7	38	29	1973-1992	Expert CD, 199
	Palermo ITALY	High	WT T	10	33	21	5	37	26	/ 2	43 7	34	1973-1992	Expert CD, 199
	Athens GREECE	High	WT	6	30-	17 🕖	- 0	37	21	∠ – 3	/ 41/	26	1973-1992	Expert CD, 199
3	Osaka(Itami),Japan	High	WT	4	28	19	-4	36	24	-7	38	27	1973-1992	Expert CD, 199
4	Tokyo,Japan	High	WT	5	28	19	-3	3 4	25	-5	37	27	1973-1992	Expert CD, 199
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Figure 3 – Screenshot from data analysis spreadsheet <u>IEC TR 62130:2012</u> https://standards.iteh.ai/catalog/standards/sist/d8d24d0e-0b59-4e5e-8db6beddd5cb3471/iec-tr-62130-2012

5 Task 2

5.1 General

The purpose of task 2 is to ensure traceability of the comparison process.

5.2 Description of the comparison process

The high level process for updating IEC 60721-2 standards [1]¹ is given in Figure 4. The process has four main phases. The traceability between measured field data and values given in the standard can be achieved by following this process. Detailed actions that were carried out in each phase are given in Table 4. To ensure full traceability, it is crucial that all process phases are documented and that the sources used can be found in the future.

In Phase 1, it is decided what standards will be reviewed and possibly updated. In Phase 2, data sources are identified and data is collected with certain attributes. Analysis of data and comparison to current values in the particular standard takes place in Phase 3. The data comparison process is a key phase to ensure traceability of data and it can vary depending on which parameters are in question. This phase is described in detail in Clause 6. The output of the process (Phase 4) helps the maintenance team decide how a standard should be updated and/or modified. The decision can also be a proposal to leave the parameters in the standard as they are.

¹ References in square brackets refer to the Bibliography.