MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
** -001					Subclause and clause cross-references	When referring to a whole clause, please use the word "clause" i.e. "Clause 8". When referring to a subclause, please use the number only i.e. "8.1".	
**					Footnote 28 "the standard"	Please use the standard identifier number i.e. ISO/IEC 60559 to be clear.	
**					Grammar	General comment: remove the comma after i.e. and e.g.  See "e.g., i.e. and etc." in the ISO house style.	
**					Footnotes	footnotes 23 and 24 can easily be turned into NOTES below the text where the footnote numbers appear. The only change needed would be changing "might" to "can".	
**					Footnote 20	Footnote 20 can easily be changed to a cross-reference in parentheses i.e. (See 6.2.5) after the text where the footnote number appears. This makes the document more user friendly.	
**-006					Footnote 12	Footnote 12: Please refer to ISO/IEC 60559 and not "The IEC 60559 standard for binary floating-point arithmetic". The reference is clear without repeating the title of the standard	
**-007				Ed	Subheadings	subclauses 5.1.2.2 and 5.1.2.3 have the same title.  Please consider modifying one title so that they are clearly distinguished.	

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2 Type of comment: ge = general te = technical ed = editorial

Date:2023-12-07 Project: Document:

MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
** -008				Ge	Transfirst paragraphs	5.1.2.2 is a hanging paragraph. As per ISO/IEC Directives Part 2, 22.3.3:  "Hanging paragraphs" shall be avoided since reference to them is ambiguous.  A new subclause "5.1.2.2.1 General" must be inserted to correct this, and cross-references amended throughout the text. Otherwise the subclauses can all be moved onto the same level i.e.  5.1.2.2 Hosted environment  5.1.2.3 Program startup  5.1.2.4 Program execution etc.	
	Whole document			Ge		Please do not use "Need not" as the meaning is unclear and not aligned with the verbal expressions defined in HYPERLINK "https://www.iso.org/sites/directives/current/part2/ind ex.xhtml#_idTextAnchor069"ISO/IEC Directives, Part 2, 2021, Clause 7.  Please clearly use a verbal form as per Clause 7 of DP2 i.e. "it is not necessary/required".  Amend accordingly throughout the document.	
	Whole			Ge	all text in bold i.e. Semantics", "Constraints", "recommended practice" which are not subclause	Bold is not permitted in the main text unless it is as a subclause or clause heading. For example,	

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	document				headings.	"Recommended practice" can be made a subclause heading 5.2.4.2.3 and then remain in bold. These "headings" in bold can also be the introductory sentences of lists, so that they stand out from the other text, without using bold.  Please amend document accordingly throughout the document	
**-011	Whole document			Ge		Only the terms defined in this document can be italicized in Clause 3 for cross-reference purposes and but not other content throughout the rest of the text. Please correct.	
**-012	Whole document			Ge		In accordance with the ISO/IEC Directives, Part 2, 9.1: 'The decimal sign shall be a comma on the line in all language versions.' Please amend throughout.	
**-013				Ed	This document has been edited by an ISO/CS Editor.	Please use the file named "Word with trackchanges", from ISO CS available on ISO Projects as a basis for any further drafting. Please contact the Editor <a href="mailto:nelson@iso.org">nelson@iso.org</a> for any questions.  I can also provide a PDF file with detailed comments.	
**-014		1		Ed	Second sentence of scope	Colon: missing. Please add here and in the second paragraph too.	
**-015		2		Ed	ISO 80000–2	The correct title of "ISO 80000–2" is "Quantities and units — Part 2: Mathematics". Please correct.	

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**-016		2		Ed	ISO/IEC 60559:2020	The correct title of ISO/IEC 60559:2020 is Information technology — Microprocessor Systems — Floating-Point arithmetic  Please correct.	
**-017		2		Ed	ISO 4217, ISO 8601, ISO 80000–3, ISO/IEC ITTF, The Unicode Consortium. Unicode Standard Annex, UAX #44, The Unicode Consortium. Unicode Standard Annex, UAX #31, The Unicode Consortium. The Unicode Standard, Derived Core Properties	There is no explicit requirement to use these documents. Please move the references to the Bibliography.  In accordance with the ISO/IEC Directives, Part 2, 15.5.3: "Only references cited in the text in such a way that some or all of their content constitutes requirements of the document shall be listed in the Normative references clause."	
						This means that in order to be considered normative, these documents must be cited using a requirement i.e. "xxxx shall be in accordance with ISO 4217".  This reference must be moved to the Bibliography at the end of the document.  NB: Keep in mind these comments must be addressed. Failure to do so can result in rejection of the document at the next stage.	
**-018		2		Ed	ISO/IEC ITTF	Where is ITTF website cited in the document? It does not appear to be cited normatively so please move to the bibliography	
**-019		2		Ed	ISO 8601	ISO 8601 is a multi-part series - please include a reference to a specific part i.e. ISO 8601-1, or if the whole series applies, specify "the ISO 8601 series" in the	

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						text below.  Furthermore, please correct the title of ISO 8601 depending on which part(s) are cited.	
**-020		2		Ed	Incorrect title for ISO 4217	Please correct title to "Codes for the representation of currencies"	
**-021		2		Ed	URL in clause 2 not needed for ISO/IEC documents	Remove "Available from the ISO online browsing platform at http://www.iso.org/obp." and all other URL links for ISO/IEC documents listed in clause 2.  Only the document title and number can be included here.	
**-022	3.18	3		Ed	Definition	Please revise wording of the definition to improve grammar: "specification that is strongly recommended as being <b>kept</b> in <b>alignment</b> with the intent of the standard, but that <b>can</b> be impractical for some implementations"	
**-023	3.6	3		Ed	Need not	Please consider rephrasing this sentence to make the meaning clearer i.e. "It is not necessary to express the address of each individual bit of an object."	
**-024	3.4, 3.9	3		Ed	Term not used in the document	As per the ISO/IEC Directives, Part 2, 16.5.4: "Only terms which are used in the document (outside of clause 3) shall be listed in the Terms and definitions clause."	

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**-025	3	3		Ed	Terms and definitions are only allowed in Clause 3.	1) Please change the second line to " ISO and IEC maintain <b>terminology</b> databases for use in standardization at the following addresses:". This is the fixed text.  2) Please delete paragraph 3 as Clause 3 cannot include anything other than term entries and the template text (introductory paragraphs 1 and 2). The only place to define a term in the document is in Clause 3, please add the term entries as necessary instead of having them in other places in the document.	
**-026	General	3	Cross references	Ed	Cross references	Please insert cross references and modify the existing cross references so the term is italicized and it is accompanied by the term entry number in parentheses (see example below).  requirement that objects of a particular type be located on storage boundaries with addresses that are particular multiples of a <i>byte</i> (3.7) address	
**-027	3.4	3	Ge	Ed	Cross references to other parts of the document	Please remove cross-reference to "floating-point number" subclause "5.2.4.2.2). Only cross-references to terms within clause 3 should be included.  This is because definitions and terms can appear out of context of this document (on the HYPERLINK "https://www.iso.org/obp/ui" online browsing platform), therefore these terms and definitions should function as stand-alone entries.  Please remove other cross-references to other parts of	

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						the document in clause 3.	
**-028	General	3	Note to entry	Ed	Incorrect format for notes to entry.	Notes to entry should not be in bold font Please correct throughout Clause 3.	
**-029	3	3.1		Ed	Definition	Please remove "to" at the beginning of this definition.  In accordance with the ISO/IEC Directives, Part 2,  16.5.6: 'The definition shall be written in such a form that it can replace the term in its context." This does not work if it begins with "to".	
**-030	3.3	3.3		Ed	Deprecated term	The deprecated term should be on the line below the admitted term i.e.  argument.  actual argument  DEPRECATED: actual parameter.  See ISO/IEC Directives Part 2, 16.6 for an example.	
*-031	3.7	3.7		Ed	Italics	remove italics here as italics are reserved for cross- references to other terms within clause 3 only.	
*-032	3.9	3.9		Ed	Requirements not permitted in definitions	"is to be" suggests a requirement, which is not permitted in a definition. Please change the text to "which is intended to be interpreted" so that it does not appear as a requirement.	
**-033		3.10		Ed	Note 1 to entry	The meaning of this note to entry is unclear. What is the intended usage exactly? It seems contradictory to state that "correctly rounded"	

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						should not be followed by "result".	
**-034		3.12			Grammar	Please consider revising definition to improve readability i.e. "reference to a <b>subsequent</b> subclause of this document that contains additional information relevant to <b>that</b> subclause"	
AT- 035		3.21 3.22	side index	ed	The symbols for floor and ceiling are lost in the side index (side bar, navigation bar) of the pdf. The sole x is not helpful.	Generate the index in a way the symbols for floor and ceiling are not lost. Alternatively spell out ceiling and floor.	
**-036		4				This footnote 3 could be an Example as per the ISO/IEC	
						Directives Part 2, clause 25. Please consider changing	
GB03 -037		4	8	ed	There should not be a space before footnote number 5.	Remove the space.	
**-038		5.1, 5.2.1, 5.2.4, 5.2.4.2, 6.4.4, 6.5.2, 6.5, 6.5.1, 6.5.16, 6.5.3, 6.7, 6.7.2, 6.7.12, 6.8, 6.8.4, 6.8.5, 6.8.6, 6.9, 6.10, 6.10.4, 6.10.9, 7.2, 7.4, 7.6, 7.6.4, 7.6.5, 7.6.6, 7.8, 7.12, 7.13, 7.12.14 7.12.16, 7.12.17, 7.13, 7.14, 7.16, 7.17.2, 7.17.3, 7.17.4,		Ge	Hanging paragraphs (listed in "Clause" column)	This is a hanging paragraph. As per ISO/IEC Directives Part 2, 22.3.3:  "Hanging paragraphs" shall be avoided since reference to them is ambiguous.  A new subclause "5.1.2.1 General" must be inserted to correct this, and cross-references amended throughout the text.  NB: Keep in mind these comments must be addressed. Failure to do so can result in rejection of the document at the next stage.	

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			<u> </u>				
		7.17.5,					
		7.17.6,					
		7.17.7,					
		7.17.8, 7.20,					
		7.21, 7.22,					
		7.22.1,					
		7.22.2,					
		7.22.3,					
		7.22.4,					
		7.23.6,					
		7.24.1,					
		7.24.3,					
		7.24.5,					
		7.24.7,					
		7.24.8,					
		7.28.4,					
		7.29.3, 7.30,					
		7.30.1,					
		7.31.2,					
		7.31.4,					
		7.31.4.4,					
		7.31.6,					
		7.31.6.3,					
		7.31.6.4,					
		7.32.2,					
		7.32.2.1,					
		7.32.2.2,					
		7.32.3,					
		7.32.3.2,					
		7.33, B.6,					
		D.2, F.2.1,					
		F.8, F.9,					
		F.10.12,					
		F.10.13,					
		F.10.14, G.5,					
		G.6, H.2, H.4,					
		H.11.3,					
		H.11.3.1,					
		H.11.3.2,					
		H.12, H.12.3,					
		H.12.4, J.3, J.5, J.6,					

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MB/ NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
		K.3.5.3, K.3.6.3, K.3.6.4, K.3.6.5, K.3.7, K.3.8, K.3.8.2, K.3.9, K.3.9,3.1, K.3.9.3.2					
CA1- 039		5.1.1.2	1	te		Add to the end of 5.1.1.2#1: Trigraph sequences are replaced by corresponding single-character internal representations.  Add in a new section, 5.2.1.1 Trigraph sequences with the following body: Before any other processing takes place, each occurrence of one of the following sequences of three characters (called <i>trigraph sequences</i> ) <sup>17)</sup> is replaced with the corresponding single character.  ??= # ??([??/\ ??]]??'^??<{  ??!! ??>}??-~  No other trigraph sequences exist. Each ? that does not begin one of the trigraphs listed above is not changed.	
GB04 -040		5.1.2.1		ed	The change from "type" to "return type" made in commit 3a5f0b027d4e501aa86fbb43c1b9721439ad2c33	Change "return type" to "type".	

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MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
					was incorrect here; "type" was genuinely being used to mean type, not return type.		
GB05 -041		5.1.2.2.1	1	ed	Footnote number 10 should appear after not before the semicolon.	Move the footnote number after the semicolon.	
GB06 -042		5.1.2.3	2	ed	Footnote number 12 should appear after not before the comma.	Move the footnote number after the comma.	
** -043		5.1.2.4, Note 18			Grammar	Grammatical correction in Note 18: "In fact, most single-threaded program transformations continue to be allowed, since any program that behaves differently as a result of xxxxx necessarily has undefined behavior even before such a". Please make it clear what it is "a result of".	
GB08 -044		5.2.4.1	1	ed	In the sixth bullet point, there is a missing space before '('.	Change "name(each" to "name (each".	
GB07 -045		5.2.4.1	1	ed	Footnote number 17 should appear after not before the colon.	Move the footnote number after the colon.	
**		5.2.4.2.2			Cross references to other documents	When referring to content or elements from other documents, please make the cross-reference clear, using the following construction i.e. "xxxxx as specified in ISO/IEC 60559". or "ISO/IEC 60559:2020, Annex x".	
GB09 -047		5.2.4.2.2	8	ed	Footnote number 22 should appear after not before the comma.	Move the footnote number after the comma.	

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GB12 -048		5.2.4.2.3	10	ed	In the preferred quantum exponents table, the unary minus entry has extra space between '-' and '('.	Change "- (x)" to "-(x)" (remove that space).	
GB11 -049		5.2.4.2.3	10	ed	This table should be numbered (see the ISO/IEC Directives, Part 2, 29.3). References to the table should be by number rather than position as per the ISO/IEC Directives.	Give the "Preferred quantum exponents" table a number following ISO rules (probably sequential numbering within the clause, so Table 5.2). Change "The table below" in paragraph 9, and "The following table" and "the table above" in paragraph 10, to refer to the table by number.	
GB10 -050		5.2.4.2.3	8	ed	This table should be numbered (see the ISO/IEC Directives, Part 2, 29.3).	Give the "Quantum exponent ranges" table a number following ISO rules (probably sequential numbering within the clause, so Table 5.1).	
GB13 -051		6.1	3	ed	The cross-reference to "8" should be to "Annex A".	Change "8" to "Annex A" (keeping it as a link to the same place as at present).	
GB14 -052		6.2.2	4	ed	Footnote number 33 should appear after not before the comma.	Move the footnote number after the comma.	
GB15 - <mark>053</mark>		6.2.4	2	ed	Footnote number 35 should appear after not before the comma.	Move the footnote number after the comma.	
GB16 - <mark>054</mark>		6.2.5	12	ed	There should not be a space before footnote number 46.	Remove the space.	
GB17 -055		6.2.5	13	ed	Footnote number 47 should appear after not before the comma.	Move the footnote number after the comma.	
GB18 -056		6.2.5	31	ed	Footnote number 51 should appear after not before the comma.	Move the footnote number after the comma.	
**		6.2.6.2			Note 2	NOTE 2 correction: "Previous <b>editions</b> of this	

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-057						document." To be more specific, consider adding the year of each edition i.e. ISO/IEC 9899:2018 etc.	
GB19 -058		6.2.7	3	ed	"At least one" in the last bullet point is redundant, given that the previous bullet point covers the case where both types are enumerated types and the last bullet point now (after commit 2dbb1c091d265887a79a312a903c7c4c276ae25e) explicitly says "other than an enumerated type" for the second type.	Change "At least one" to "One" in the last bullet point.	
GB20 -059		6.2.7	5	ed	Footnote number 60 should appear after not before the comma.	Move the footnote number after the comma.	
GB21 -060		6.3.1.1	2	ed	Footnote number 62 should appear after not before the semicolon.	Move the footnote number after the semicolon.	
**		6.3.1.8, H.13, K.3.7.1.4, K.3.7.2.2, K.3.9.2.1.2, K.3.9.2.2.2 And all throughout			Example 1	Correction: please remove the "1" from this example. If there is only one example in the subclause, then it does not need to be numbered.  See ISO/IEC Directives Part 2, 25.3	
		the document				Please correct accordingly throughout the document	
GB22 -062		6.3.2.1	4	ed	Footnote number 69 should appear after not before the comma.	Move the footnote number after the comma.	
**		6.4.2.1				Please indicate where the "translation phase 4" is cited in the text to make it clear for the user.	
**		6.4.2.2 and			Examples - no imperatives permitted	"Consider" is an imperative verbal form which can be	

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-064		all examples beginning with "consider"				considered to be a requirement. Please change this to "The following code fragment can be used as an example", so that it is clearly not a requirement.	
GB23 -065		6.4.3	2	ed	Footnote number 80 should appear after not before the '.'.	Move the footnote number after the '.'.	
**		6.4.4.1			Examples – numbered when more than one within a subclause	This should be Example 1	
GB24 -067		6.4.4.2	5	ed	This table should be numbered (see the ISO/IEC Directives, Part 2, 29.3). References to the table should be by number rather than position as per the ISO/IEC Directives.	Give the table a number following ISO rules. Change "the following table" to refer to the table by number.	
** -068		6.4.4.2, 6.9.1, 6.10.1, 6.10.9, 7.3.9.3, 7.12.9.11, 7.12.12.3, 7.17.1, 7.24.9.1, 7.27, 7.28.4, F.2.1, F.10.12, F.10.13, H.2.4, H.5.2	Note 1		Note	Correction: This note must be NOTE, not NOTE 1	
** -069		6.4.4.2, Note			No requirements in notes	As stated above, notes cannot contain permissions "may" or requirements "require". Please remove these (i.e. change to "can") or make this note normal text.	

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GB26 -070		6.5.15	3	ed	Footnote number 122 should appear after not before the colon.	Move the footnote number after the colon.	
GB27 -071		6.5.16.1	1	ed	Footnote number 125 should appear after not before the colon.	Move the footnote number after the colon.	
**		6.5.2.2		ed		remove "have to be" as this is an implicit requirement which is not permitted in an EXAMPLE.	
GB25 -073		6.5.2.5	4	ed	Footnote number 110 should appear after not before the comma.	Move the footnote number after the comma.	
GB28 - <mark>074</mark>		6.6	11	ed	Footnote number 131 should appear after not before the comma.	Move the footnote number after the comma.	
GB29 -075		6.6	17	ed	Footnote number 134 should appear after not before the '.'.	Move the footnote number after the '.'.	
GB30 - <mark>076</mark>		6.7	6	ed	Footnote number 135 should appear after not before the comma.	Move the footnote number after the comma.	
GB31 -077		6.7.1	2	ed	Footnote number 137 should appear after not before the comma.	Move the footnote number after the comma.	
GB33 -078		6.7.1	22	ed	In this code example, there is a "~" in "IEC~60559" that should be a space (presumably intended as a non-breaking space in LaTeX, but shows up literally in a code example).	Change "IEC~60559" to "IEC 60559".	

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Date:2023-12-07	Document:	Project:

MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
GB32 ·079		6.7.1	6	ed	Footnote number 140 should appear after not before the comma.	Move the footnote number after the comma.	
GB39 ·080		6.7.10	11	ed	Footnote number 178 should appear after not before the semicolon.	Move the footnote number after the semicolon.	
**		6.7.10	Example 1	ed	Font	should the "d" here also be in bold? i.e. #included?	
GB40 -082		6.7.12	5	ed	The reference to "Annex M (??)" should have an actual table number (or similar), not "??". ("??" is a link to the correct destination, however.)	Change "??" to "Table M.1" (keeping it as a link to the same destination as at present).	
GB34 - <mark>083</mark>		6.7.2.1	11	ed	Footnote number 145 should appear after not before the semicolon.	Move the footnote number after the semicolon.	
GB35 -084		6.7.2.2	13	ed	Footnote number 151 should appear after not before the comma and the stray "." before it should be removed.	Change ".151)," to ",151)" (superscript "151)").	
** -085		6.7.2.2, 6.10, 6.10.1, 6.10.3.3, 6.10.3.4, 7.12.9.10,		ed	Examples must be numbered within the same subclause. If there is only 1, then this is only EXAMPLE without a number.	These examples must be numbered EXAMPLE 1, EXAMPLE 2 etc.	
GB36 -086		6.7.2.3	10	ed	Footnote number 156 should appear after not before the comma.	Move the footnote number after the comma.	
·* ·087		6.7.22, 6.7.3, 6.10.3			Must in examples	"must" is used in several EXAMPLES, which appear to be expressing requirement rather than external constraints (see ISO/IEC Directives Part	

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2 Type of comment: ge = general te = technical ed = editorial

MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
						2, 7.6).  Please remove all requirements from EXAMPLES or make them normal text.	
**	Last paragrap h	6.7.6		ed	Note that	Instead of including this text in parentheses, please consider making it a Note.	
GB37 -089		6.7.6.2	4	ed	Footnote number 173 should appear after not before the semicolon.	Move the footnote number after the semicolon.	
GB38 -090		6.7.6.3	8	ed	There should not be a space before footnote number 174.	Remove the space.	
GB42 -091		6.8.5	4	ed	Footnote number 200 should appear after not before the colon.	Move the footnote number after the colon.	
GB41 -092		6.8.5	4	ed	Footnote number 199 should appear after not before the comma.	Move the footnote number after the comma.	
** -093		6.8.6.1 (EXAMPLE 2), 7.24.3.4 (NOTE 2) And the whole document	Example 2		Negative permissions	Negative permissions are ambiguous and should not be used. Rather than using negative permissions, either rewrite the sentence to state what is permitted, or rewrite as a requirement/recommendation not to do something.  Furthermore, "is permitted" is a permission which is not permitted in an example.  See ISO/IEC Directives Part 2, 2021, 7.4 and Clause 25	
						Please check the whole document and remove all negative permissions.	
GB43		6.8.6.2	2	ed	Footnote number 202 should appear after not	Move the footnote number after the '.'.	

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MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
-094					before the '.'.		
GB44 -095		6.9.1	10	ed	Footnote number 206 should appear after not before the comma.	Move the footnote number after the comma.	
GB45 -096		6.10	2	ed	There should not be a space before footnote number 208.	Remove the space.	
GB46 -097		6.10.1	13	ed	Footnote number 212 should appear after not before the '.'.	Move the footnote number after the '.'.	
GB47 -098		6.10.4.5	5	ed	There is a mistake in the conversion of this example to LaTeX for C17 that previously went unnoticed. The definition of h should just have "~" instead of "\~{ }", and likewise where it is expanded in the expected results.	Change "\~{ }" to "~", twice (once in the definition of h, once in the expected expansion), thereby restoring the definition to the state it had in C11.	
GB48 -099		6.10.4.5	9	ed	"and", in the argument to showlist, should not be in bold, since it's not being used in any way as a standard macro. This was CD1 comment GB-140; subsequently CD2 comment GB-086 raised "and" being in the wrong colour (the latter comment rejected because of colour not being part of the final standard).	Arrange for "and" to be shown in the same font as the rest of that argument.	
GB49 -100		7.1.4	1	ed	There should not be a space before footnote number 237.	Remove the space.	
GB50 -101		7.1.4	4	ed	There should not be a space before footnote number 238.	Remove the space.	
GB51 -102		7.3.1	6	ed	Footnote number 244 should appear after not before the semicolon.	Move the footnote number after the semicolon.	

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GB52 -103		7.6	1	ed	There should not be a space before footnote number 254.	Remove the space.	
GB53 -104		7.6.2	4	ed	This table should be numbered (see the ISO/IEC Directives, Part 2, 29.3). References to the table should be by number rather than position as per the ISO/IEC Directives.	Give the table a number following ISO rules. Change "the table below" and "the table above" to refer to the table by number.	
GB54 -105		7.6.3	2	ed	This table should be numbered (see the ISO/IEC Directives, Part 2, 29.3). References to the table should be by number rather than position as per the ISO/IEC Directives.	Give the table a number following ISO rules. Change "the table below" and "the table above" to refer to the table by number.	
GB55 -106		7.17.2	1	ed	Footnote number 313 has '.' both before and after it; the latter should not be present.	Remove the second '.'.	
AT- 107		7.18.3 7.18.4 7.18.5 7.18.6	p1 p1 p1 p1	te	While the headings use common, widely used terminology the actual function names do notcount is missing in the function names. This is also not in line with 17.18.11 and 7.18.12. 7.18.11 and 7.18.12 have _count in the names as expected.	In 7.18.3 p1, 7.18.4 p1, 7.18.5 p1 and 7.18.6 p1 substitute the prefix stdc_ with stdc_count_ for all functions. This shall also apply to the generic variants.	
GB56 -108		7.21.2	3	ed	Footnote number 318 should appear after not before the '.'.	Move the footnote number after the '.'.	
GB57 -109		7.22.1.5	1	ed	Footnote number 322 should appear after not before the colon.	Move the footnote number after the colon.	
GB58 -110		7.23.1	4	ed	Footnote number 325 should appear after not before the semicolon, and there should be no space before the semicolon.	Move the footnote number after the semicolon, and remove the space.	
GB59 -111		7.23.6.2	24	ed	"\0" should be "\0" here; this is a LaTeX conversion issue introduced in C17.	Change "\\0" to "\0".	

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MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
GB60 -112		7.23.7.10	5	ed	Footnote number 353 should appear after not before the '.'.	Move the footnote number after the '.'.	
GB62 -113		7.24.3.1	2	ed	Footnote 360 should end with '.'.	Add '.' at the end of the footnote.	
GB61 -114		7.24.3.1	2	ed	Footnote number 360 should appear after not before the comma.	Move the footnote number after the comma.	
GB63 -115		7.24.5.1	5	ed	Footnote number 369 should appear after not before the comma and the stray "." before it should be removed.	Change ".369)," to ",369)" (superscript "369)").	
GB64 -116		7.26.4.1	2	ed	Footnote number 378 should appear after not before the '.'.	Move the footnote number after the '.'.	
GB65 -117		7.26.5.1	1	ed	Footnote number 379 should appear after not before the comma.	Move the footnote number after the comma.	
GB66 -118		7.29.1	2	ed	Footnote number 387 should appear after not before the semicolon.	Move the footnote number after the semicolon.	
GB67 -119		7.29.3.1	4	ed	Footnote number 396 should appear after not before the comma.	Move the footnote number after the comma.	
GB69 -120		7.31.4.1.1		ed	Footnote number 419 should appear after not before the '.'.	Move the footnote number after the '.'.	
GB68 -121		7.31.4.1.1		ed	The paragraph in this subclause should be numbered.	Give this paragraph number 1.	

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MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
**		7.31.4.5			Subclause numbering wrong	this clause numbering is wrong. 7.31.4.5 is empty. Change 7.31.4.6 to "7.31.4.5.1 Introduction" and renumber subsequent subclauses.	
GB70 -123		7.31.4.6	1	ed	Footnote number 427 should appear after not before the comma.	Move the footnote number after the comma.	
GB71 -124		7.31.6.4.1	2	ed	There should be a space after footnote number 431, before the next sentence.	Insert a space between "431)" and "Each".	
**-125		All examples in the text.		Ed	Examples	Please remember that EXAMPLES as per the ISO/IEC Directives Part 2, clause 25.This means:  1) they cannot contain requirements (shall), permissions (may) or recommendations (should).  Requirements also include "have to be/has to be", "are to be/is to be", "is/are required to be", "is/are to be", and of course "shall".  Please remove these requirements OR change these from EXAMPLES to normal text.  2) Examples appear in smaller font than normal text.  Please amend accordingly.	
						3) "might" should be replaced with "can", as "might" is not a defined verbal form in the ISO/IEC Directives Part 2, and therefore the meaning can be unclear for the user.  Please review all examples in this document to ensure	

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						they comply with the above three points.	
						NB: Keep in mind these comments must be addressed. Failure to do so can result in rejection of the document at the next stage.	
** -126		Annex A				ISO/IEC Directives, Part 2, 20.5: "Each annex shall be explicitly referred to within the text."	
						Please add a reference to this annex in the main body of the text.	
** -127		Annex A			Note in annex A	Notes cannot appear under annex title, but they can appear under A.1. Please move the NOTE and make it "NOTE" not "NOTE 1".	
**		Annex f			Self reference	within Annex F, use "this Annex" to refer to Annex F, not "Annex F"	
**		Annex J			This annex collects some information about portability that appears in this document.	This sentence must be moved to J.1. A new "General" subclause can be created if necessary.	
**		Annex L			Normative annex	Annex L is normative, so please add an explicitly normative reference to this annex in accordance with ISO/IEC Directives Part 2, 20.2.	
** -131		Annexes I and J			Reference in footnote only	ISO/IEC Directives, Part 2, 20.5: "Each annex shall be explicitly referred to within the text."	
						Please add a reference to this annex in the main body of the text. Currently Annex I and J are only cited in a footnotes 1 and 9. Please move these footnotes and citations of Annex I and J to the main text.	
GB73		F.10.6.6	3	ed	Footnote number 458 should appear after not	Move the footnote number after the colon.	

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-132					before the colon.		
GB74 -133		F.10.9.2	3	ed	Footnote number 460 should appear after not before the colon.	Move the footnote number after the colon.	
GB72 -134		F.3	1	ed	This table should be numbered (see the ISO/IEC Directives, Part 2, 29.3). References to the table should be by number rather than position as per the ISO/IEC Directives.	Give the table a number following ISO rules. Change "the following table" to refer to the table by number.	
**-135		Foreword		Ed	Updating Foreword	Please contact the editor to obtain the latest version of the Foreword, headers and footers (and other template texts) <b>before</b> submitting the document for FDIS ballot.  For example, the current foreword is missing the last line and the third paragraph has been changed.	
						The current headers and footers in this document are not correct - the footers should only have page number and the copyright. The page headers should have ISO/IEC DIS 9899:2023(E).	
GB75 -136		G.4.2	1	ed	Footnote number 463 should appear after not before the comma.	Move the footnote number after the comma.	
**-137	Whole document	General		Ed	Examples	EXAMPLES are not in bold text and should be the same size font as notes to entry.	
**-138		General		Ed	Italics	Italics text is reserved for specific uses in ISO documents i.e. variables in mathematical formulae and cross-references in clause 3. Please change italics to normal font throughout the document.	
**-139		General		Ed	Paragraph numbering	Please remove the paragraph numbering.	

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**-140		General		Ed	The font for the document shall be Cambria, use Courier New only for code. No other font shall be used.	Please change the font to Cambria before submitting the document for FDIS ballot.	
GB78 -141		H.11.3.1.1, H.11.3.1.2, H.11.3.2.1, H.11.3.2.2, H.12.3.1, H.12.3.2, H.12.4.1, H.12.4.2, H.12.4.3, H.12.4.4		ed	The PDF bookmarks for these subclauses (not the visible text on the page) say "darkmagenta" in the function names.	Remove "darkmagenta" from the text of all PDF bookmarks.	
GB79 -142		H.12.3.1	heading	ed	As noted in CD1 comment US-289: There is a space before the "N" in the function name.	Remove the space between "strfromencf" and "N".	
GB76 -143		H.2.1	1	ed	These tables should be numbered (see the ISO/IEC Directives, Part 2, 29.3). References to the tables should be by number rather than position as per the ISO/IEC Directives.	Give the tables numbers following ISO rules. Change "The two tables below" to refer to the tables by number.	
GB77 -144		H.2.3	1	ed	This table should be numbered (see the ISO/IEC Directives, Part 2, 29.3). References to the table should be by number rather than position as per the ISO/IEC Directives.	Give the table a number following ISO rules. Change "The table below" to refer to the table by number.	
GB80 -145		1.1	1	ed	The second sentence "None of such situations specified as part of this document." is ungrammatical, and also misleading (some situations for warnings <b>are</b> specified in the main body of the document, albeit non-normatively, as part of Recommended Practice, and the #warning directive is defined in normative text).	Change that sentence to "Most such situations are not specified as part of this document.".	
GB10 8-146		Index		ed	There are bogus index entries for frompfp and frompfpx functions (note the first "p"; no such functions exist). This was part of CD1 comment GB-306.	Remove those index entries.	

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GB10 7-147		Index		ed	There are bogus index etnries for decodebin, decodebind, decodedec, decodedecd, decodef, encbind, encdecd, encf, encodebin, encodebind, encodedec, encodedecd, encodef, described as functions (there are also entries describing those a function families, which are OK).	Remove the index entries describing them as functions.	
GB10 6-148		Index		ed	There are bogus index entries for macro name fragments for speed properties of fma and narrowing functions, such as FP_FAST_D, FP_FAST_F, ADDD, ADDF, XADDD, XADDF. (FP_FAST_FMAF is a valid macro name, but should not be indexed for page 562 because it's used there as a name fragment. FP_FAST_FMAD is a fragment, not a valid macro name.) This was part of CD1 comment GB-306.	Remvoe the index entries for those name fragments, and instead add entries for the macro families as listed in H.11.1 paragraphs 3 through 8.	
GB10 5-149		Index		ed	There are bogus index entries for the macro name fragments HUGE_VAL_D and HUGE_VAL_F.	Remove the index entries for those name fragments, and instead add entries for the macro families HUGE_VAL_FN, HUGE_VAL_DN, HUGE_VAL_DNX (N in italics).	
GB10 4-150		Index		ed	There are bogus index entries for math.h narrowing function name fragments such as addd, addf, xaddd, xaddf.	Remove the index entries for all those name fragments for math.h narrowing functions, and instead add entries for the function families such as fMaddfN (M and N in italics; see the H.11.2 list of families corresponding to 7.12.14 for the full list of 48 families).	
GB10 3-151		Index		ed	There are bogus index entries for stdlib.h and wchar.h functions ending with "d" where the page in question is actually using those sequences of characters not as a function name for double, but as a fragment of a function name for _DecimalN or _DecimalNx, such as wcstod on page 576 as part of the names wcstodN and wcstodNx.	Remove the index entries for all those name fragments on pages where they are used as name fragments, and instead add entries for the function families such as wcstodN and wcstodNx.	
GB10 2-152		Index		ed	There are bogus index entries for math.h, complex.h, stdlib.h and wchar.h functions ending with "f" where the page in question is actually using those sequences of characters not as a function name for float, but as a fragment of a function name for _FloatN or _FloatNx, such as acosf on	Remove the index entries for all those name fragments on pages where they are used as name fragments, and instead add entries for the function families such as acosfN and acosfNx (N in italics).	

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MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
					page 564 as part of the names acosfN and acosfNx.		
GB10 1-153		Index		ed	There are bogus index entries for math.h functions ending just "d", which are name fragments of actual functions for decimal floating types, such as for acosd where the actual functions are acosdN and acosdNx.	Remove the index entries for all those name fragments for math.h decimal floating functions, and instead add entries for the function families such as acosdN and acosdNx (N in italics).	
GB10 0-154		Index		ed	There are no index entries for the type families _FloatN, _DecimalN, _FloatN_t, _DecimalN_t.	Add such index entries (N in italics).	
GB99 -155		Index		ed	There are no index entries for the types _Decimal32, _Decimal64, _Decimal128, _Decimal64x, _Decimal128x, _Float32x, _Float64x, _Float128x.	Add such index entries.	
**-156		Introduction		Ed	Introduction	Please add a reference to the bibliography callout number [15]. See "Cross-references to an unnumbered document" in the ISO house style for further information: https://www.iso.org/ISO-house-style.html	
**		Introduction			Working group	Please remove content regarding the Working group. As per the ISO house style: "Remove extra details that do not help the user to implement the document and make the document longer than it needs to be. For example, details about the development of the document (e.g. N documents, meetings, individual contributors, decisions taken) are of interest to the members of the Working Group but not the document user."  See "Tone" ISO - ISO House Style.	
						bibliography, but please remove this text from the	

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	1		I	I			
						introduction.	
**-158	Introducti on	Introduction		Ed	Introduction	Please consider making it clearer that this is referring to this updated edition of the document i.e. "With the introduction of new devices and extended character sets, new features could be added to the new edition of this document"	
GB83 -159		J.2	1	ed	In item 141, "The type parameter" should have the word "type" in italics (similar to item 146, for example).	Change that instance of the word "type" into italics (leave the other instance in that item unchanged).	
GB82 -160		J.2	1	ed	In item 80, the second entry in the list should have "nor" before it like the third.	Change "an empty initializer" to "nor an empty initializer".	
GB81 -161		J.2	1	ed	In item 52, "a an integer" should be "an integer".	Change "a an integer" to "an integer".	
GB84 -162		J.3.2	1	ed	The change from "type" to "return type" made to item 2 in commit 3a5f0b027d4e501aa86fbb43c1b9721439ad2c33 was incorrect here; "type" was genuinely being used to mean type, not return type.	In item 2, change "return type" to "type".	
GB86 -163		J.6.1	2	ed	alignas_is_defined andalignof_is_defined were removed so should not appear in this list. This was CD1 comment GB-320.	Removealignas_is_defined andalignof_is_defined from this list.	
GB85 -164		J.6.1	2		The following are fragments of identifiers or keywords (of no significance by themselves) and should not appear in this list: FP_FAST_D, FP_FAST_F, FP_FAST_FMAD, PRIB, strfromencbind, strfromencdecd, strfromencf, strtoencbind, strtoencdecd, strtoencf, wcstoencbind, wcstoencdecd, wcstoencf, X_DECIMAL_DIG, X_DIG, X_EPSILON, X_MANT_DIG, X_MAX, X_MAX_10_EXP, X_MAX_EXP, X_MIN, X_MIN_10_EXP, X_MIN_EXP, X_SNAN, X_TRUE_MIN, _Decimal,	Remove those entries from this list.	

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					_DECIMAL_DIG, _EPSILON, _Float, _MANT_DIG, _MAX_10_EXP, _MAX_EXP, _MIN_10_EXP, _MIN_EXP, _SNAN, _TRUE_MIN. Some of these were previously listed in CD1 comment GB-319.		
GB89 -165		J.6.2	1	ed	acosd, acoshd, acospid, addd, addf, asind, asinhd, asinpid, atan2d, atan2pid, atand, atanhd, atanpid, canonicalized, cbrtd, ceild, compoundnd, copysignd, cosd, coshd, cospid, DEC, DECN_, DECN, decodebin, decodebind, decodedec, decodedecd, decodef, divd, divf, encbind, encdecd, encf, encodebin, encodebind, encodedec, encodedecd, encodef, erfcd, erfd, exp10d, exp10m1d, exp2d, exp2m1d, expd, expm1d, fabsd, fdimd, Float, floord, FLT, FLTN_, FLTN, fmad, fmaxd, fmaximum_mag_numd, fmaximum_magd, fminimum_mag_numd, fminimum_magd, fminimum_mag_numd, fminimum_numd, fmodd, frexpd, fromfpd, fromfpxd, getpayloadd, HUGE_VAL_D, HUGE_VAL_F, hypotd, ilogbd, ldexpd, lgammad, llogbd, llquantexpd, llrintd, llroundd, log10d, log10p1d, log2d, log2p1d, logbd, logd, log1pd, lrintd, lroundd, modfd, muld, mulf, N, nand, nearbyintd, nextafterd, nextdownd, nextupd, powd, pownd, powrd, quantized, quantumd, remainderd, rintd, rootnd, roundd, roundevend, rsqrtd, samequantumd, scalblnd, scalbnd, sind, sinhd, sinpid, sqrtd, subd, subf, tand, tanhd, tgammad, truncd, ufromfpd, ufromfpxd, xaddd, xaddf, xdivd, xdivf, xfmad, xfmaf, xmuld, xmulf, xsqrtd, xsqrtf, xsubd, xsubf are fragments of identifiers (of no significance by themselves) and should not appear in this list. This was CD1 comment GB-325 (which also included an identifier X_ that has been removed from the list).	Remove those entries from the list (without affecting their formatting elsewhere in the document).	
GB88 -166		J.6.2	1	ed	The eight entries starting "frompfp" (note the first 'p') are entirely spurious; there are no such standard identifiers. This was CD1 comment GB-324.	Remove those entries from the list.	

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MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
GB87 -167		J.6.2	1	ed	The names reserved for complex.h by 7.33.1 are only listed in their "double" forms, not the corresponding float and long double identifiers. This was CD1 comment GB-322.	Add the corresponding "float" and "long double" identifiers to the list.	
GB90 -168		K.3.6.3.1	7	ed	Footnote number 500 should appear after not before the comma and the stray "." before it should be removed.	Change ".500)," to ",500)" (superscript "500)").	
GB98 -169		M.2	1	ed	The list of changes should mention qualifier- preserving library macros.	Add "added qualifier preserving macros for bsearch, memchr, strchr, strpbrk, strrchr, strstr, wcschr, wcspbrk, wcsrchr, wmemchr, and wcsstr" (function names in a fixed-width font) bullet point after the "changed the type qualifiers of the" bullet point.	
GB97 -170		M.2	1	ed	The list of changes should mention the memalignment function.	Add "added memalignment function to query the alignment of a pointer" (function name in a fixed-width font) bullet point after the memset_explicit bullet point.	
GB96 -171		M.2	1	ed	The list of changes should mention sized deallocation support.	Add "added free_sized and free_aligned_sized functions" bullet point (function names in a fixed-width font) after the "zero-sized reallocations" bullet point.	
GB95 -172		M.2	1	ed	The list of changes should mention the printf/scanf %wN, %wfN support.	Add "added printf and scanf length modifiers for intN_t, int_fastN_t, uintN_t, and uint_fastN_t" as the last bullet point (N in italics, the two function names and the four type names in a fixed-width font).	
GB94 -173		M.2	1	ed	The list of changes should mention initialization with empty braces.	Add "added support for initialization of objects with empty braces;" after the constexpr bullet point.	
GB93 -174		M.2	1	ed	The list of changes should mention support for omitting parameter names in function definitions.	Add a bullet point "parameter names may be omitted in function definitions;", before the "ellipses on functions may appear" bullet point.	
GB92 -175		M.2	1	ed	The list of changes should mention the new minimum/maximum math.h functions (which didn't come from TS 18661).	In the "harmonization with floating-point standard IEC 60559" bullet point, add a new sub-bullet point at the end: "new maximum and minimum functions for operations recommended in ISO/IEC	

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						60559:2020".	
GB91 -176		M.2	1	ed	The list of changes should mention the integration of TS 18661-3.	In the "harmonization with floating-point standard IEC 60559" bullet point, add a new sub-bullet point between the second and third such points: "integration of floating-point types technical specification TS 18661-3".	
**-177	3.19	Note 1 to entry		Ed	Note to entry	Please revise note 1 to entry to improve clarity: "Despite the similar terms, a runtime-constraint is not a kind of constraint (3.9), and it is not necessary for it to be diagnosed at translation time".	
**-178	3.20.2	Notes		Ed	Definition sublevel	why is "indeterminate representation" on the same level as "value" 3.20? Should it be 3.21, as it does not appear to come under the "umbrella" of the term "value"?	
GB02 -179		page headings		ed	The page headings in the DIS say "© ISO/IEC 2023", which is not the correct year for the final standard.	Change "2023" to "2024" before publication.	
GB01 -180		page headings		ed	The page headings in the DIS say "ISO/IEC 9899:2023 (E)", which is not the correct year for the final standard.	Change "2023" to "2024" before publication.	
**-181		the whole document		Ed	Must	ISO/IEC Directives Part 2, 7.6:  Do not use "must" as an alternative for "shall". This avoids confusion between the requirements of a document and external constraints (see 7.2).	
**-182	3.5	Throughout the document		Ed	Behaviour spelling	Please use Oxford English spelling "behaviour"), as per the ISO/IEC Directives Part 2, 8.2. Please correct throughout this document.	
**		Whole document		Ed	Grammar	Should Ivalue be "I-value"?	

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**-184		Whole document		Ge	All tables in the document must be cited, given a title and a number	This is a table which must be given a table and title i.e.  Table 1 - xxxxxxxx.  It must also be cited in the text i.e. "See Table 1" instead of "the following Table".	
						See ISO/IEC Directives, Part 2, 29.4  This comment applies to all tables in this document.	
**-185		Whole document			Notes cannot contain requirements, permissions or recommendations.	As per the ISO/IEC Directives Part 2, 24.5: 'Notes shall not contain requirements (e.g. use of "shall", see Table 3) or any information considered indispensable for the use of the document, for example instructions (imperative mood), recommendations (e.g. use of "should", see Table 4) or permission (e.g. use of "may", see Table 5).'  "it is necessary" is a requirement.  We suggest changing this to normal text or change to a descriptive statement i.e. "but it is expected that data races are ensured".	
						Please review all notes in this document to ensure they comply with the directives.	
						NB: Keep in mind these comments must be addressed. Failure to do so can result in rejection of the document	

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MB/ NC¹	Line number	Clause/ Subclause	Paragraph/ Figure/Table	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
						at the next stage.	
**-186		Whole document			Imprecise references	Footnote 14:  ISO/IEC Directives, Part 2, 2021, 10.1: 'Imprecise references such as "the following clause" or "as described below" shall not be used. Please replace imprecise references with precise element numbers, e.g. "Clause 5", "Figure 3".	
**-187		Whole document			Might and can	Avoid using verbal forms that are not defined in the HYPERLINK  "https://www.iso.org/sites/directives/current/part2/ind ex.xhtml# idTextAnchor069"ISO/IEC Directives, Part 2, 2021, Clause 7.  To ensure that a document is understood and applied correctly, use "may" to express a permission and "can" to express a possibility or capability. Avoid substituting either of these terms with "might" or "could", even if this seems logical in English.  See heading "Might and could" in HYPERLINK "https://www.iso.org/ISO-house-style.html" ISO house style.  Keeping in mind that this is a NOTE, please change "could" to "can".	
**-188		Whole document			Thousand separator	ISO/IEC Directives, Part 2, 9.1: 'Each group of three digits shall be separated by a small space from the preceding digits, counting from the decimal sign.' Kindly	

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						amend throughout.	
**-189		Whole document		Ed	ISO/IEC 60599	This document is "ISO/IEC 60599". Please correct throughout the document	
**-190		Whole document		Ed	Footnotes	General comment: instead of using footnotes throughout the document, please consider using Notes instead, in accordance with <a href="the ISO/IEC">the ISO/IEC</a> Directives Part 2, Clause 24 Some of these footnotes which are short could also be incorporated into the text in parentheses. Please consider making this change to improve the readability of the document, so that the user does not need to search for footnotes to access the information.	

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ISO\_IEC DIS 9899 (Ed 5)\_BSI.doc: Collation successful

ISO\_IEC DIS 9899 (Ed 5)\_ISO.docx: Collation successful

ISO\_IEC DIS 9899 (Ed 5)\_SCC.doc: Collation successful

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SELECTED (number of files): 4

PASSED TEST (number of files conformed to CCT table model): 4

FAILED TEST (number of files conformed to CCT table model): 0

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