First Committee Draft of Recommendation
Instruments for continuous measuring CO and NOx in stationary source emissions

Synthesis of comments received

Coun -try Code	Clause/ paragraph / table	gen./ edit./ techn.	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
NL	Document	edit	The correct IUPAC name for CO is carbon monoxide and not carbon oxide	Change carbon oxide into carbon monoxide	Accepted
NL	Document	Gen./tech.	It makes no sense to add N_2O to these specifications. NO_x is the generic term for the mono-nitrogen oxides NO and NO_2. Both NO and NO_2 are produced from oxygen and nitrogen in the air at high temperatures such as during combustion processes. NO_x reacts in the atmosphere with sunlight to form photochemical smog and acid rain. N_2O (laughing gas) is a commonly known greenhouse gas and is used as an anesthetic and food additive. It is not a product of combustion.	Delete N_2O throughout the document	Accepted
NL	front page	edit	First Draft of Recommandation	Change to: First Committee draft of Recommendation	Accepted

Coun -try Code	Clause/ paragraph / table	gen./ edit./ techn.	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
NL	General lay-out	gen.	Draft is not completely in line with Recommendation template	Standard Foreword to be added (see Recommendation lay-out template) http://workgroups.oiml.org/tcsc/general-templates Recommendation to be split in 2 parts. Part 1 "Metrological and Technical requirements" and Part 2 " Metrological control and performance tests"	Accepted
NL	1.1	edit	"of industrial enterprises" "IR method"	Replace by "by industry" and delete remainder of sentence as this is part of "controlling" Replace by "IR methods"	Accepted (corrected)
NL	1.1	edit	Note is to complicated in wording	Replace text of Note by: This Recommendation is also applicable to analyzers that are capable of analyzing only 1 or 2 of the mentioned components	Accepted
NL	1.2.1	tech	The text is not very clear. It seems that we want to give a warning that the final uncertainty in measurement is influenced by the quality of the calibration gas used to calibrate to analyzer at the point of use.	Clarify text.	Accepted: Item 1.2.1 is excluded
NL	2.1	edit	"samples taken directly from the pipe or gas duct of an industrial enterprise"	"samples taken directly from the smokestack or flue line in industry"	Accepted
NL	2.13 ; 2.15	gen	What is the difference between 2.13 and 2.15 ?	Delete 2.15	Accepted

Coun -try Code	Clause/ paragraph / table	gen./ edit./ techn.	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
NL	3.1	edit	"The gas analytical system for extractive methods consists of a means for sampling" "CO, N_2O, NO, NO_2 и NO_x" "The example"	Delete "for extractive methods" This is obvious for a gas Replace by "CO, NO, NO_2 and NO_x" Replace by "An example" Заменить на	Accepted
NL	3.2	edit	"valve to estimate the efficiency of that system, i.e. the absence of probe composition change);" Don't understand the relation between the efficiency and the probe composition change	Clarify text	Corrected
NL	4.2	tech	The range for CO: 1 ppm to 20% seems to be non realistic; the amount of CO in a fume gas will never be as low as 1 ppm. An analyser for more than 4 decades (1-10; 10-100 ; 100 -1000 ;1000- 10000 ; 10000 – 20000) is not very likely to be available and unnecessarily costly	Change the range for carbon monoxide to 100 – 10000 ppm	Corrected
NL	4.3.1/4.3.2	tech	The measurement ranges start from 1 ppm onwards; a MPE of 0,5 ppm (or even 5 ppm under 4.3.2) seems strange	Start ranges at 10 ppm or lower MPE's	Corrected
NL	7.1		Type approval is a decision. Type evaluation is the activity, comprising examination and testing.	Change to "type evaluation	Accepted

Coun -try Code	Clause/ paragraph / table	gen./ edit./ techn.	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
NL	ANNEX A A12.1 A14.1 A15.1 etc.		Several tests are not in line with OIML D11 (2004)	Update tests on basis of OIML D11 (2004). Please be aware that D11 is in revision and the 1CD is published yet Several immunity requirements and tests are missing and need to be added e.g. bursts, surges and internal battery related	Corrected
NL	A2	tech	Should the title not be linearity?		Not required
NL	A10	tech	CO2 is present at high concentrations is the flue and stack gas and is a potential interferent (especially on CO in infra red) Is it useful to depend on a list from the manufacturer for maximum levels of interferent? What if this lists gives a value far below the measurement range?	Ad 15% of CO2 to the list Limit the amount of interferent to the maximum of the measurement range	Corrected
JP	Document		Although there are no comments to the contents of the present draft, we would like to confirm the follwoing point. This draft is titled as "First Draft of Recommendation." However, it might be a misprint of "First Committee Draft (1CD)" since voting by the CIML members is not required. We presume that Second Commitee Draft will be proposed based on the comments to the present draft. Is our understanding correct?	Change to: First Committee draft of Recommendation	Accepted

Coun -try Code	Clause/ paragraph / table	gen./ edit./ techn.	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
CH	Document	Gen.	Due to the fact, that recommendation 143 was used as a model, already draft 1 is of very high consistence and up-to-date.	?	Accepted
CH		tech	Despite of the fact that it is still a very common unit ppm should not be used, because ppm is not a unique unit but also used for mass or amount of substance fractions. µL/L or 10^{-6} L/L could be an alternative for a volume fraction and is unequivocal. (see ISO 80000-1 point 6.5.5)		Not accepted
CH	Annex B.2.3	tech	There are a lot of special signs (±, and others) that are not displayed correctly. (i.e. Annex B.2.3 and others). Please check all		Corrected
CH	Annex B.2	tech	Annex B.2. Uncertainties do not have a sign. VIM 2.26: non-negative parameter characterizing the dispersion of the **quantity values** being attributed to a **measurand,** based on the information used.		Accepted, corrected
CH	Docum	edit	6.2, 7.1.1, 8.4.1 to 8.6 and other points: Lay-out problems		Corrected

Coun -try Code	Clause/ paragraph / table	gen./ edit./ techn.	COMMENTS	PROPOSED CHANGE	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
CH	4.1	tech	4.1 : The standard pressure should be given with the full resolution (101.325 kPa) Please give the full reference for the quantity 'volume fraction' (ISO 80000-9-9.15)		Corrected
CH	3.1	edit	3.1 There are Cyrillic signs in the enumeration of analytes	?	Corrected
DE			Germany has no comments on the above draft.	No comments	
PL			Central Office of Measures in Poland has no comments regarding this document	No comments	
RO			we have analyzed the above-mentioned document and have no comments or suggestions to make.	No comments	
RS			we have no comments or suggestions	No comments	
MC			they are no comment regarding "1st Draft IR Instruments for continuous measuring CO, NOx in stationary source emissions "	No comments	
US			The US has no comments on the 1cd of CO and NOx at this time.	No comments	

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	Document	gen	▪ Formatting should be applied consistently - some paragraphs are indented further than other paragraphs in the same section, some headings are presented differently (ensure consistency in font formatting), "Note" formatting is inconsistent and some sections have bulleted paragraphs/clauses ex 7.2.2.1 and 7.2.2.2 while other sections do not. ▪ All references made to a 'representative sample' should be amended to read "sample". The present document also does not provide a location of sampling. ▪ Possibly suggest using "constituent" instead of "component" when referring to gas components.	▪ Maintain internal consistency and helps in reading of the document.. ▪ This would avoid confusion when using 'component' to refer to a part of the measuring system.	Not accepted “Representative sample” is included only in the definition of terms 2.2 and 2.3 as it is given in ISO 7504: 2001 Gas analysis – Vocabulary See 5.8
AU	Document	tech edit	▪ Replace term 'modulus' with "absolute value" so that the phrase reads: When listing items, penultimate item in the list should be followed by "and".	"The indications of the gas analyzer shall not vary by more than half the absolute value of the maximum…"	Accepted
AU	Document	edit	Substitue "carbon monxide" instead of "carbon oxide", substitute "nitrous oxide" instead of "dinitrogen oxide" and substitute "nitric oxide" for nitrogen oxide.	Change carbon oxide into carbon monoxide, nitrogen monoxide	Accepted Not accepted (see: BIPM KCDB)
AU	Title page	edit	▪ Change "Recommandation" to "Recommendation".	▪ Editorial. ▪ What is meant by the term "stationary source emissions"? To provide clarity, a definition should be included in section '2. Terminology'	Corrected Not necessary

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	Explan. Note	edit	▪ First paragraph - delete 'BILM' and replace with 'BIML'. ▪ Fourth paragraph - delete entire paragraph and replace with following →	"In 2010, a survey of the TC16/SC1 members recommended unifying p1 and p3 into one project and preparing this recommendation under the name, "Instrument for continuous measurement of CO and NOx in stationary source emissions"	Accepted
AU	1.1	edit	▪ Substitute "or" instead of "and" (present word)	such that the 3rd line reads as follows, "…nitrogen dioxide (NO_2) or sum of nitrogen oxides…"	Accepted
AU	1.1	edit	Substitute "measuring (analyzing)" for "controlling", …"	such that 2nd paragraph reads, "This Recommendation applies to gas analytical systems intended for *measuring (analyzing)* the emissions of industrial enterprises	Corrected
AU	1.1	edit	Provide complete wording for abbreviations used i.e. "Infrared" and "Ultraviolet" absorption at first instance.	Phrase should read, "The principle of operation of gas analytical systems can be assessed on infrared (IR) and ultraviolet (UV) absorption…"	Accepted
AU	2.	edit	▪ Insert following definition: "**2.26 gas pipe, gas duct** containment throught which the gas being sampled for analysis flows".	▪ Provides clarity to the reader of the various terms used in the Recommendation.	Not accepted It is unnecessary
AU	2.1	edit	▪ Is the Recommendation limited to the techniques outlined in ISO 7504 (referenced) or is the ISO used to examplify certain things only?	▪ Unclear/ambiguous. ▪ Maintain internal consistency of document	This is the definition of the term
AU	2.1	tech	Note makes reference to a "means for adjusting zero (gas analyser)"	The system should be one that can be adjusted but zero should not be able to be adjusted	Not accepted
AU	2.3	edit	Is there a definition for sampling techniques? If not required should be deleted.	Clarity	Accepted
AU	2.9	edit	The gases referenced in this clause do not include NOx (other nitrogen oxides) as indicated in the scope of the Recommendation.	Maintain internal consistency of the document.	Accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	2.11	edit	Substitue the following for present definition provided, "the amount of time that the gas analytical system requires to go from applying power to the instrument to operating temperature, at which the instrument will operate within the maximum permissible errors"	Editorial. Current wording can cause confusion.	Corrected
AU	2.22	edit	▪ Insert word "automatic" so that term reads, "automatic checking facility". Replace current wording with the following definition, "internal device or process that checks whether the system is suitably adjusted. Such a device may include internal checking elements (example signal stability or temperature stability) or additional external elements to be connected to the instrument." ▪ Definition provided for "Acted upon" does not include a means for recording any faults.	▪ Increases the clarity of the document. ▪ Should there not be a means of recording any faults?	Not accepted This is the determination of the term worded in OIML D 11 (3.18)
AU	3.1	edit	▪ The character "N" should be replaced with the word "and". ▪ Delete phrase "The pump provides the" from second sentence of paragraph 1	Sentence should read, "A means for conveying the gas sample through a gas handling system."	Accepted
AU	3.2	edit	▪ Restructure dot points so it gives a broad idea of the system and is not limiting the various components used. ▪ Second section, first sentence insert phrase "and record" so the sentence reads:	"The gas analytical system may include means to signal and record:"	Not accepted (This is just an example of the system composition)) Accepted
AU	Figure 1	edit	Insert phrase "for illustrative/example purposes only".	Provides greater clarity.	Accepted
AU	4	edit	Suggest using SI units as well. Use either mole fraction (μmol/mol) or volume fraction (μL/L).	Endorse use of SI units.	Vvolume fraction (μL/L) is used throughout the text of Recommendation
AU	4.1	edit	As per comments made for 1.1 regarding gases measured	Maintain internal consistency of the document.	Accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	4.2	edit	▪ First sentence - substitute "shall" for present wording "has to ▪ Delete indented paragraph and replace with the following wording [gas]: 1 ppm to [high] ppm.	Sentence should read, "The gas analyzer shall provide measurements of a volume fraction of the components determined in the range from:" For instance "carbon dioxide: 1 ppm to 20,000 ppm..."	Corrected
AU	4.3.2	edit	▪ Second line - replace "or greater" with ", greater than or less than". Line should read, "equal to, greater than or less than the maximum permissible…" ▪ What does the term "real values" mean?	▪ Present wording is ambiguous and lacks clarity.	Not accepted
AU	4.4	edit	▪ Insert a reference to Annex A clause A.4 which makes reference to the formula/equation used. ▪ Rephrase sentence so it reads as follows:	"An estimate of the standard deviation is used as a characteristic of repeatability. The estimate of standard deviation shall not..."	Corrected
AU	4.5.1	techn edit	▪ Insert the following: "(e) Temperature of the input gas: [specify rated operating conditions], (f) Particulate content of input gas: [specify rated operating conditions]" ▪ Note 1 - substitute "rated operating conditions for" instead of present wording, "limiting values of" and deleted phrase "under the rated operating conditions for use of the gas analyzer	 Sentence should read, "The above rated operating conditions for temperature, relative humidity and atmospheric pressure may be changed to extend the ranges."	See 8.7 and 8.8 Accepted
AU	5.1	edit	▪ Clause 5.1.3 - delete "analyzed" and insert "to be analyzed	" so that the phrase reads "…gas calibration mixtures and gas sample to be analyzed to flow into the analyzer."	Accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	5.2.3	edit	▪ Clause 5.2.3.1 - insert "for illuminated displays and 10 mm in all other cases." at end of clause. ▪ Insert clause "5.2.3.3 When a measurement result is zero, it shall not be possible to cofnuse such a result with the zero indication prior to measurement."	▪ The specified height of figures (5 mm) is suitable for illuminated displays but where it is not so, the figures should be a height of 10 mm for ease of readability. ▪ Adds clarity and prevents confusion between period prior to measurement and during it.	Accepted
AU	5.3	edit	▪ Need to divide the section into "Printing device" and "Storage (Recording) of data	Rename current section "5.3 Durable recording of measurement results".	Accepted
AU		edit	First sentence - delete phrase, "or records". Reword the dot points so that it reads as follows:	"▪ the date and time of measurement; ▪ the measurement results and their units. The printed measurement results shall not differ from the measurement results provided by the indicating device."	Accepted
AU			Delete dot point that makes reference to "the result of self-checking by means of an automatic adjustment facilities".	Not an essential requirement for printing of measurement results.	Not accepted
AU		techn	Insert following, "The minimum height for the figures of the printing device is 2 mm."	Requirements for printed data is essential.	Accepted
AU		edit	Fourth paragraph - delete phrase, "for one month"	replace with "for the relevant period as required by the national authority".	Accepted
AU	5.5	techn	▪ Clause 5.5.1 - Substitute "visible" for present wording "luminous"▪ Clause 5.5.1 - are not the instruments for continuous measurement? If so why does the clause refer to "maximum permissible single emission"? Is this phrase refering to the maximum permissible errors specified? ▪ Clause 5.5.3 - are there sensors for indicating the expiration of the filters, sensors etc that have been used?	Sentence should read, "The gas analytical system may be equipped with an alarm system that shall give an audible or visible signal..."	Accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	5.7		Insert phrase for sampling probe not being tampered with		Not accepted
AU	5.8	edit	▪ Substitute "Inscriptions" instead of present heading 'Markings' ▪ Insert following phrase "trademark/corporate" after the word "manufacturer's" in first dot point	▪ Conforms with Template for OIML Recommendations ▪ Substitute term "manufacture" instead of "production" ▪ Delete references to where the various inscriptions/markings will be located on the instrument/system i.e. "front surface", "rear outer surface"	Accepted
AU	6	edit	Clause 6.1 - insert "An instruction manual for users shall be made available for each individual instrument."		Accepted
AU			Clause 6.2 - Delete entire section and replace with the following:	The operating manual shall include: (a) instructions for the correct operation of the instrument, (b) maximum and minimum storage temperatures, (c) rated operating conditions, (d) warm-up time after switching on the instrument/electrical power, (e) all other relevant mechnical and electromagnetic environmental conditions, (f) mechanical and electromechanical environmental classes, (g) safety and security conditions	Accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	7.1.1	edit	▪ Dot point (d) - delete word "the" at start of sentence. Also delete "required for a microprocessor included in a gas" and replace with "used as part of the". ▪ Dot point (e) - delete present wording ▪ Dot point (f) - delete present wording ▪ Dot point (g) - delete present wording	(d): Sentence should read, "general information on the software used as part of the gas analytical system" (e): replace with "a description of the formula applied for calculation of mass emission components" (f): replace with "the operating manual to be provided to the user (g): replace with "details and results of any testing which may have been carried out by the manufacturer"	Accepted
AU	7.1.2	edit	Delete current wording	replace with, "Type evaluation shall be carried out on at least one unit, which represents the definitive type	Accepted
AU	7.1.3	edit	▪ Second paragraph - delete "As a rule" and replace with "Where possible ▪ Second paragraph - Insert "However" at start of the second sentence ▪ Third paragraph - delete phrase "Tests of such a kind can be performed only in cases when " Also 'return tab' between second and third paragraph so that it reads as one paragraph. ▪ Note - delete "when being tested" and replace with "tested". Also delete term "should	"Where possible, tests should be carried out with a completely mounted gas…" "However, it is permitted to perform the test..." Such tests can only be performed in cases where it is possible to simulate the operating conditions..." Sentence should read "It is not intended that separate components be dismantled for testing."	Accepted
AU		edit	Clause 7.1.3.2 - delete phrase "(or the compliance of the characteristics obtained with those specified by the manufacturer)"		Accepted
AU	8	edit	▪ Delete term "and" and replace with "or". ▪ Delete phrase "(if not specified otherwise)"		Accepted
AU			▪ Insert phrase "Unless specified otherwise the reference conditions are:" prior to dot points		Not accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU		edit	▪ Point c), after the word 'stable' there is a character in the shape of a square. ▪ Items (d) - (p) may not necessarily be measured or controllable during testing in normal circumstances, apart from doing the specific tests for their effect. Further specifying "none" for some of the items is not because it is not measured but due to not having instruments that are sensitive enough to capture the measurements. The intention of this section is that no deliberate alteration of these conditions should occur.	Should this be the "±"	Accepted Not accepted
AU		edit	▪ Suggest combining section 8 into Annex A. ▪ Note that many of the reference conditions mentioned are unlikely to be specifically controlled or able to be controlled in many laboratories (and would normally also be unlikely to be measured).		Not accepted
AU	8.3 Repeatability	edit	▪ Delete phrase "of one and" and replace with "of". ▪ Delete all references to phrase "one and" in the paragraph.	Sentence should read: For 20 consecutive measurement of the same CGM, made by the same operator using the same gas analytical system during a short period of time..."	Accepted
AU	8.4	edit	▪ Delete "As a rule"	Sentence should read "Only one influence quantity shall be varied…"	Accepted
AU	8.4.1	edit	▪ Delete word "change" and delete phrase "given in operating manual" and replace with "specified in this Recommendation (4.3.2)". ▪ Consideration needs to be given to dust and particulate matter that may be present. See IEC documents that specify basic testing procedures and measuring methods.	Sentence should read "The reading of the gas analytical system shall remain within the maximum permissible error specified in this Recommendation (4.3.2), during the following..."	Accepted Not accepted
AU	8.4.2	Gen.	What types of gas components other than the measurand does this section refer to?		See A 10

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AU AU	8.6	edit techn	▪ Delete "leakproofness" in dot point (d) and replace with "leak detection". Insert "8.7 Temperature of input gas" and "8.8 Particulate content" and provide details for each section		Not accepted Accepted, see text
AU	Annex A	edit	▪ The tests outlined should be presented in accordance with the Template for OIML Recommendations. ▪ All tests should be cross referenced to earlier sections in this Recommendation		Accepted
AU	A.2	Edit, techn	▪ It is not indicated how it would be determined whether the instrument had a linear or nonlinear calibration characteristic. Delete entire section and suggest structuring the error determination section as follows to clarify the determination of which CGM's to use for each test. **"A.2 Error determination** The errors of a gas analytical system shall be determined using calibration gas mixtures (CGMs) having various volume fractions of the components to be measured. Measurements at each point of the measurement range shall be repeated at least three times, and no errors shall be greater than the specified limits. A.2.1 Intrinsic error determination The intrinsic error determination for each component to be measured shall be carried out under reference conditions with CGMs having volume fractions of at least five points approximately uniformly distributed within the measuring range, including the minimum and maximum volume fractions. A.2.2 Error determination through Volume Fraction Range Based on an analysis of the initial error determination results (A.2.1), it may be determined that the characteristic of the measurement performance for particular components are linear. In this case error determination may subsequently be carried out using only three volume fractions of those components, these are recommended to be as follow:		Not accepted The linearity and nonlinearityof a graduation characteristic are known and indicated in the Operating manual. Thus, paragraph A2.1 is needless. Moreover, in case of the linear characteristic it is necessary to buy expensive extra CGM. In A.2 all this is clearly and briefly set out.

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AU			s: * Minimum value of the measuring range +10%. * Middle value of the measuring range ± 10% (i.e. half way between maximum and minimum) * Maximum value of the measuring range -10%. If the intrinsic error determination indicates that the characteristic of the measurement performance for particular components are not linear, then subsequent testing shall be carried out using at least five points as described in A.2.1. A.2.3 Error determination at near Minimum and Maximum Volume Fraction In some test descriptions of this Annex testing is required only near the minimum and maximum values of each component, these are recommended to be: * Minimum value of the measuring range +10%. * Maximum value of the measuring range -10%. A.2.4 Error determination at Maximum Volume Fraction In some test descriptions of this Annex testing is required only near the maximum values of each component, this is recommended to be: * Maximum value of the measuring range -10%."		
AU	A.3	Gen.	▪ Insert phrase "under reference conditions" after phrase "at least every 24 hours". ▪ Insert following at the end of the paragraph "During the tests the requirements of 4.8 shall be met."		Accepted
AU	A.4	edit	▪ Insert reference to section 4.4. ▪ Delete reference to section "A.3" and replace with "A.2"		Accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	A.5	edit	▪ Clause A.5.1 - insert heading "Conditions" following A.5.1. Delete phrase "This test consists of exposure of". Insert phrase "is exposed to" after phrase "(or its separate components)". Sentence should read "The gas analytical system (or its separate components) is exposed to a temperature…" ▪ Clause A.5.1 - Second sentence, delete "component" and replace with "components". ▪ Clause A.5.2 - insert heading "Test" following A.5.2. Delete "calibration gas mixture" and replace with "CGM" to maintain internal consistency. Delete reference to "A.3" and replace with "A.2.2" ▪ Clause A.5.2 - Do other test authorities have experience with ensuring that the supply of CGM to the sampling probe is within ±0.8 kPa of ambient pressure? It sounds problematic to us but we do not have experience in this testing. Also applies to other tests.	**A.5 Dry heat** **A.5.1 Conditions:** The gas analytical system (or its separate components) is exposed to a temperature of 40 °C (or at the maximum operating temperature specified by the manufacturer) for 2 hours. The time duration begins after the gas analytical system (or its component) has reached temperature stability. The change in temperature shall not exceed 1 °C/min during heating up and cooling down, and the relative humidity shall not exceed 50 %. **A.5.2 Tests:** The calibration gas mixture shall be supplied to the sampling probe at ambient pressure (with a deviation of ± 0.8 kPa). During the test one set of measurements shall be performed every half-hour according to A.2.3. References: IEC Publication 60068-2-2 [4], IEC 60068-3-1 [18] and OIML D 11:2004 [2], 10.1.1."	Accepted
AU	A.6	edit	▪ Clause A.6.1 - insert heading "Conditions" following A.6.1. Delete phrase "This test consists of exposure of". Insert phrase "is exposed to" after phrase "(or its separate components)". ▪ Clause A.6.1 - Second sentence, delete "component" and replace with "components". ▪ Clause A.6.2 - insert heading "Test" following A.6.2. Delete reference to "A.3" and replace with "A.2.2"	Sentence should read "The gas analytical system (or its separate components) is exposed to a temperature…"	Accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	A.7	edit	▪ Clause A.7.1 - insert heading "Conditions" following A.7.1. Delete phrase "This test consists of exposure of". Insert phrase "(or its seprate components) is exposed to" after phrase "gas analytical system". ▪ Clause A.7.2 - insert heading "Test" following A.7.2. Delete reference to "A.3" and replace with "A.2.2"	Sentence should read "The gas analytical system (or its separate components) is exposed to a temperature…"	Accepted
AU	A.8	edit	▪ Are laboratories practically able to apply this test? ▪ Clause A.8.1 - Insert heading "Condition" following Clause A.8.1. Delete phrase "The test consists in determining the error of". Delete phrase "under the" and replace with "is exposed to". Delete word "of" and replace with term "specified in..." ▪ Clause A.8.2 - insert heading "Tests" following clause A.8.2. Delete reference to "A.3" and replace with "A.2.2"	Sentence should read "The gas analytical system is exposed to extreme pressures specified in the rated operating conditions	Accepted
AU	A.9	edit	▪ Is frequency variation testing necessary? ▪ Insert "(ref 8.4.1e)" at the end of heading ▪ Clause A.9.1 - Insert heading "Condition" following Clause A.9.1. Delete phrase "The test consists in determining the error of". Delete phrase "under the" and replace with "is exposed to". Delete word "of" and replace with term "specified in" ▪ Clause A.9.1 - delete phrase "and nominal frequency" ▪ Clause A.9.2 - insert heading "Tests" following clause A.9.2. Insert phrase "at least two" preceeding/before the term "measurements". Sentence should read, "At each extreme value of the power supply parameters, at least two measurements shall be carried out...". Delete phrase "according to A.2"	Sentence should read "The gas analytical system is exposed to extreme values of the nominal power supply..."	Accepted

2Country code	Clause/ paragraph/ table	Gen./ edit/ techn	Comment	Proposed change	Observations of the Secretariat on each comment submitted
AU	A.10	edit	▪ Insert following "(ref 8.4.2)" at end of heading ▪ Current wording is not sufficient. What if the manufacturer does not indicate any influencing gas? ▪ No indication of whether the gases are tested separately or as a mixture		Corrected
AU	A.11	edit techn	▪ Insert "(ref 8.4.3)" at end of heading ▪ Clause A.11.2 - the specified conditions appear to give an advantage to instruments with a large base. Suggest specifying in terms of an angle. ▪ Clause A.11.2.1 - Delete reference to "A.2" and replace with "A.2.2"		Corrected Clause A.11.2 – not accepted
AU	A.12 A 13 A 14	gen	The response to the test is likely to depend on how long the measurement takes - if the measurement occurs during the 10 s between power reductions the result may well be different from if it occurs during a reduction.		Not accepted
AU	A.15	gen	▪ Similar comment to A.12.. ▪ Not necessary to indicate details of how the field strength is generated	▪ The 3V/m level seems to be low, given that such systems may well be installed in industrial locations (e.g. power stations) with substantial ambient field strengths	Not accepted
AU	A.17	edit	Clause A.17.1 - It is not clear how an "instant replacement" of the sample would be achieved.		Corrected
AU	A.19	Edit	▪ Delete word "leak-proofness" and replace with "Leak-proofing". ▪ Reword paragraph to read, "The compliance of the leak-proofing requirements detailed 5.1.6, for the gas analytical system and its components, is determined…"		Partly accepted Corrected
AU	Annex C	edit	Clause C.4 - replace "system" with the following phrase, "analyzer and volume sampler"		Accepted