JCGM Survey (GUM)

Collated responses

2012-07-19

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This document contains the collated responses to the JCGM Survey on the GUM for which the closing date was 15 June 2012. Personal information about the respondents has been omitted.

This document has three parts:

PART 1

The survey questionnaire

JCGM_GUM

1. JCGM GUM Survey - Respondent Identification

This part of the survey is optional. Anonymous responses will also be considered.

However, respondents who have identified themselves will receive a summary of the survey results.
If you wish to receive the summary, please provide your e-mail address.

Identification (optional)

Name:

City/Town:

Country:

Email Address:

2. JCGM GUM Survey - Respondent background

In this part we ask you to provide some information about your professional background and familiarity with the GUM. These questions require a response.

*Which of the following best describes your occupation?

- ◯ Scientist
- ◯ Metrologist
- ◯ Technician
- ◯ Engineer
- ◯ Teacher
- ◯ Linguist
- ◯ Other (please specify)

*Which of the following best describes your primary field of expertise ?

- ◯ physics
- ◯ metrology
- ◯ psychology
- ◯ chemistry
- ◯ clinical laboratory sciences
- ◯ technology
- ◯ legislation
- ◯ Other (please specify)

*How would you describe your degree of knowledge of the GUM ?

- ◯ [a] none, or almost none
- ◯ [b] not enough to take full advantage of its content
- ◯ [c] sufficient for my needs
- ◯ [d] good
- ◯ [e] excellent

Comment (optional):

Page 2

JCGM_GUM

*In which field do you use the GUM ?

	Not in my field of expertise	Not at all (0)	Occasionally (1)	Regularly (2)	Intense (3)
Metrology	◯	◯	◯	◯	◯
Research	◯	◯	◯	◯	◯
Teaching / education	◯	◯	◯	◯	◯
Industrial practice	◯	◯	◯	◯	◯

Comment (optional):

Page 6

3. JCGM GUM Survey - Motivation for the revision of the GUM

The JCGM has decided that a revision of the Guide to the expression of uncertainty in measurement (GUM) is necessary for the reasons listed hereafter.

Please provide your comment / opinion on each reason in the respective text boxes (optional).

a. Internal inconsistency: Conflicting (frequentist and Bayesian) views of probability, which cause a number of problems, especially in the evaluation of a coverage interval.

b. Internal inconsistency: Conflicting use of terminology, such as for the term "value"

c. External inconsistency: With respect to Supplements 1 and 2 and the other documents being developed according to a consistent conceptual framework.

d. External inconsistency: With respect to the VIM 3.

e. Inadequacy: Since its publication, the need to evaluate measurement uncertainty has been recognised in an increasing number of scientific disciplines, for which the present GUM does not provide sufficient guidance.

f. Inadequacy: The present GUM is focused mainly on the situation of a physical quantity which "...can be characterized by an essentially unique value". This has probably inhibited the wide use of the GUM in some scientific disciplines, such as chemistry and biology, in which a definition of the measurand according to the requirements of the present GUM can be impossible.

g. Ambiguities: Notational and terminological.

4. JCGM GUM Survey - Objective of the revision of the GUM

The revision of the GUM will be carried out to address the aspects listed on the previous page, along the following lines:

(please insert your comments / opinion in the boxes provided)

a. Clarity of presentation.

b. Structure as close as possible to that of the present GUM.

c. Level of presentation comparable to that of the present GUM.

d. Better specification of the conditions of applicability.

5. JCGM GUM Survey - Outcome of the revision of the GUM

The revised GUM, while keeping the law of propagation of uncertainty as its central concept, will assign input uncertainties in a consistent way, following a Bayesian approach for both Type A and Type B evaluations. The main expected differences with respect to the present GUM will be the following:

(please provide your comments / opinion in the boxes provided)

a. Increased guidance in the evaluation of standard uncertainties associated with input estimates.

b. Bayesian approach extended to Type A evaluations of uncertainty.

c. Increased number of examples, with applications taken from biology, chemistry etc.

d. Links to GUM Supplements where appropriate.

6. JCGM GUM Survey - Timescale for the revision of the GUM

It is anticipated that a final draft will be available by the end of 2014.

What is your view on this timescale?

This is the end of the survey. If you have any additional remarks, please provide them here:

PART 2

Summary information about the responses to each of the questions

1. Which of the following best describes your occupation?

		Response Percent	Response Count
Scientist		23.4%	45
Engineer		22.4%	43
Metrologist		**35.4%**	**68**
Teacher		4.7%	9
Technician		3.6%	7
Linguist		0.0%	0
Other (please specify)		10.4%	20
		answered question	**192**
		skipped question	**8**

2. Which of the following best describes your primary field of expertise ?

	Response Percent	Response Count
physics	20.3%	39
chemistry	11.5%	22
technology	18.2%	35
metrology	**34.9%**	**67**
clinical laboratory sciences	3.6%	7
legislation	0.5%	1
psychology	0.0%	0
Other (please specify)	10.9%	21
	answered question	**192**
	skipped question	**8**

3. How would you describe your degree of knowledge of the GUM ?

	Response Percent	Response Count
[a] none, or almost none	7.8%	15
[b] not enough to take full advantage of its content	11.5%	22
[c] sufficient for my needs	31.8%	61
[d] good	**35.9%**	**69**
[e] excellent	13.0%	25
	Comment (optional):	9
	answered question	**192**
	skipped question	**8**

4. In which field do you use the GUM ?

	Not in my field of expertise	Not at all (0)	Occasionally (1)	Regularly (2)	Intense (3)	Response Count
Metrology	7.1% (13)	9.2% (17)	20.1% (37)	**35.3% (65)**	28.3% (52)	184
Research	14.2% (21)	18.2% (27)	26.4% (39)	**27.7% (41)**	13.5% (20)	148
Teaching / education	18.5% (29)	13.4% (21)	26.8% (42)	**28.7% (45)**	12.7% (20)	157
Industrial practice	22.2% (32)	18.1% (26)	**28.5% (41)**	20.8% (30)	10.4% (15)	144
				Comment (optional):		11
				answered question		**192**
				skipped question		**8**

5. a. Internal inconsistency: Conflicting (frequentist and Bayesian) views of probability, which cause a number of problems, especially in the evaluation of a coverage interval.

	Response Count
	63
answered question	**63**
skipped question	**137**

6. b. Internal inconsistency: Conflicting use of terminology, such as for the term “value”

	Response Count
	63
answered question	**63**
skipped question	**137**

7. c. External inconsistency: With respect to Supplements 1 and 2 and the other documents being developed according to a consistent conceptual framework.

	Response Count
	51
answered question	51
skipped question	149

8. d. External inconsistency: With respect to the VIM 3.

	Response Count
	57
answered question	57
skipped question	143

9. e. Inadequacy: Since its publication, the need to evaluate measurement uncertainty has been recognised in an increasing number of scientific disciplines, for which the present GUM does not provide sufficient guidance.

	Response Count
	73
answered question	73
skipped question	127

10. f. Inadequacy: The present GUM is focused mainly on the situation of a physical quantity which "…can be characterized by an essentially unique value". This has probably inhibited the wide use of the GUM in some scientific disciplines, such as chemistry and biology, in which a definition of the measurand according to the requirements of the present GUM can be impossible.

	Response Count
	65
answered question	65
skipped question	135

11. g. Ambiguities: Notational and terminological.

	Response Count
	47
answered question	47
skipped question	153

12. a. Clarity of presentation.

	Response Count
	61
answered question	61
skipped question	139

13. b. Structure as close as possible to that of the present GUM.

	Response Count
	64
answered question	64
skipped question	136

14. c. Level of presentation comparable to that of the present GUM.

	Response Count
	54
answered question	54
skipped question	146

15. d. Better specification of the conditions of applicability.

	Response Count
	58
answered question	58
skipped question	142

16. a. Increased guidance in the evaluation of standard uncertainties associated with input estimates.

	Response Count
	63
answered question	63
skipped question	137

17. b. Bayesian approach extended to Type A evaluations of uncertainty.

	Response Count
	57
answered question	57
skipped question	143

18. c. Increased number of examples, with applications taken from biology, chemistry etc.

	Response Count
	75
answered question	75
skipped question	125

19. d. Links to GUM Supplements where appropriate.

	Response Count
	65
answered question	65
skipped question	135

20. What is your view on this timescale?

	Response Count
	74
answered question	74
skipped question	126

21. This is the end of the survey. If you have any additional remarks, please provide them here:

	Response Count
	45
answered question	45
skipped question	155

PART 3

Collated responses to each of the open questions

Note:

The numbering of the responses to individual questions in this part does not imply a relationship between the answers to different questions, i.e. answer no. 7 to one question is not necessarily from the same person as answer no. 7 to another question.

Page 2, Q1. Which of the following best describes your occupation?

1	Accreditor	Jun 15, 2012 7:46 PM
2	Consultant & Laboratory Accreditation Assessor	Jun 7, 2012 3:25 PM
3	x	Jun 6, 2012 11:29 AM
4	Consultant	Jun 1, 2012 6:30 AM
5	state officer - metrology	May 30, 2012 12:49 PM
6	medical physicist, clinical and in a secondary standard dosimetry lab	May 20, 2012 11:42 AM
7	Statistician	May 16, 2012 10:30 PM
8	Engineering Student	Apr 26, 2012 8:06 PM
9	Hydrometerist	Apr 3, 2012 11:28 AM
10	Mathematician	Mar 22, 2012 5:56 PM
11	student	Mar 21, 2012 5:47 AM
12	consulting engineer	Mar 20, 2012 2:51 PM
13	Student	Mar 14, 2012 2:50 PM
14	Accreditation assessor	Feb 27, 2012 6:04 AM
15	QA Director	Feb 26, 2012 7:34 AM
16	employee of an accreditation body	Feb 24, 2012 2:28 PM
17	lab	Feb 24, 2012 7:08 AM
18	Medical practitioner	Feb 23, 2012 9:32 AM
19	Laboratory Physician	Feb 14, 2012 5:03 PM
20	ISO/IEC17025 assessor	Feb 14, 2012 6:53 AM

Page 2, Q2. Which of the following best describes your primary field of expertise ?		
1	Mechanical engineering	Jun 6, 2012 2:22 PM
2	x	Jun 6, 2012 11:29 AM
3	Statistics	May 21, 2012 12:57 PM
4	medical physics, radiation dosimetry	May 20, 2012 11:42 AM
5	Statistics	May 16, 2012 1:31 PM
6	Statistics	May 15, 2012 10:22 PM
7	Statistics	Apr 11, 2012 1:27 PM
8	Environmental microbiology	Apr 6, 2012 3:52 PM
9	Hydrometry	Apr 3, 2012 11:28 AM
10	mathematics	Mar 22, 2012 5:56 PM
11	manufacturing	Mar 14, 2012 2:55 PM
12	streamflow	Mar 12, 2012 9:46 AM
13	flow measurement	Mar 9, 2012 4:19 PM
14	Laboratoire d'essais ferroviaires	Mar 9, 2012 12:25 PM
15	Materials science	Feb 29, 2012 7:10 PM
16	flow measurement	Feb 29, 2012 4:54 PM
17	Metallurgy	Feb 28, 2012 5:56 PM
18	accreditatin of calibration labs	Feb 24, 2012 2:28 PM
19	quality control	Feb 20, 2012 11:34 PM
20	statistics	Feb 15, 2012 8:12 AM
21	-	Feb 14, 2012 5:35 AM

Page 2, Q3. How would you describe your degree of knowledge of the GUM ?

1	I served as co-director of the project on adoption of GUM and associated Guidelines as national standards of Russian Federation (GOST R 54500-series), published some articles and reports on basic issues of GUM and took part in discussions of such issues at international seminars (conferences)	Jun 13, 2012 1:02 PM
2	My knowledge of the content of the GUM is sufficient for me to use the document, but my statistical background is not sufficient to understand some of the concepts presented in the document.	Jun 8, 2012 3:25 PM
3	Comprehension is difficult for people who have learned their skills by on-the-job training and hard work and do not have the benefit of university education. The guide should be understandable by a skilled technician.	Jun 7, 2012 3:25 PM
4	Proposed to be included in a new GUM -- Generalized Gaussian Error Calculus Michael Grabe, Germany, 38104 Braunschweig, Am Hasselteich 5, michael.grabe@gmx.net Abstract – Uncertainty assessments include the differences between the true values and the expected values of estimators as caused by unknown systematic errors which, on there part, are constant in time. To this end, the common practice to randomize systematic errors should be abolished. This proceeding and a new treatment of random errors, resolving a misinterpretation of old regarding the alleged interchangeability of theoretical and empirical moments of second order, forges ahead what may be addressed as "Generalized Gaussian Error Calculus". The formalism issues reliable uncertainties being up to localize the true values of physical quantities. Index Terms – Generalized Gaussian error calculus, localization of true values, measurement uncertainties. I. INTRODUCTION In view of modern metrology, the classical Gaussian error calculus is obsolete. Firstly, Gauss himself deliberately ignored so-called unknown systematic errors, these being errors constant in time and unknown with respect to magnitude and sign. Without doubt, metrological traceability is a must. Hence, in my view, experimenters are asked to treat unknown systematic errors as biases. At the same time, this way of proceeding would cause the classical Gaussian fomalism to break down – entailing, incidentally, the end of the analysis of variance as well -- may we like it or not. Apart from the omission of biases in the past, error calculus still suffers from a sore point scarcely ever addressed. To evaluate measurements, experimenters are used to adopting, without further ado, a formalism created by mathematicians. However, while mathematicians are in a position to freely preset theoretical and empirical moments of second order (i.e. variances and covariances), metrologists have nothing but empirical moments at their disposal and the common metrological practice to substitute empirical moments for theoretical ones is prone to spoil their formalism. Thus, there is an abyss of old separating mathematical and metrological applications. As will be indicated, an appropriate metrological processing of empirical moments of second order presupposes the ostensibly trivial concept to refer to equal numbers of repeated measurements. II. MAIN BODY As much as we assume the laws of physics to be true, we expect the constants of physics to possess true values. In this sense, it should be the mission of experimenters to localize the true values of measurands via properly specified uncertainty intervals. Unfortunately, neither the GUM's “1 standard uncertainties” nor its “expanded uncer-tainties” are up to localize the true values of measurands. An unknown systematic errors shifts the bulk of repeated measurements as a whole, thus introducing a permanent, time-constant difference between “the center of gravity” of the repeated measurements and the true value of the quantity aimed at. Repeated measurements take place not until this fixed difference has been established	Apr 27, 2012 3:01 PM

experimentally, i.e. over the course of the setting up of the components of the measuring device. Obviously, this being done, there is no longer anything random about the aforesaid difference. But as traceability asks us to reckon with any possible value, I propose to resort to biassed estimators and to subsequently submit suchlike biases to worst case assessments. Indeed, this proceeding would map the basic working principle of stationary measuring devices. Textbooks on the statistical treatment of empirical data are used to allocating ample space to Student's distribution density, to the Student-factor and, eventually, to confidence intervals. Remarkably enough, these discussions are regularly confined to just one measured quantity and no hint is given as to proceed in case of two or even more variables or how to handle possible dependences between measured quantities. Given the measured data are to be considered normally distributed, or at least approximatetely so, the distribution density of the empirical moments of second order reveals, amazingly enough, a depence between the empirical variances and the empircal covariances, be the variables themselves dependent or not. Obviously, just this tells us not to ignore empirical covariances, even if the considered variables happen to be independent. At the same time we should strive for equal numbers of repeated easurements, as otherwise empircal covariances turn out to be undefined. After all, the crucial point is that considering consistently empirical covariances, be the implied variables dependent or not, we may generalize the idea of confidence intervalls according to Student. And this, indeed, will be well worth the effort However, at present, in regard to error propagation, to ask for equal numbers of repeated measurements, seems to be outside of common practice. If we are willing to comply with the properties of the multidimensional model of normally distributed variables, we are put in a position to define confidence intervals in error propagation. This covers, in principle at least, arbitrary many variables up to the mechanisms of least squares.This perspective appears exciting in regard to the attempt to localize the true values of measurands. The idea to ask for equal numbers of repeated measurements put experimenters in a position to shape their formalim outside the common practice, namely to start with theoretical moments and to afterwards substitute empirical moments for the theoretical ones. As an example, let us consider a set of independent variables. Here, the theoretical covariances are set to zero, leaving over the theoretical variances. In hindsight, however, when metrologists insert their empirical variances, as they have nothing else at their disposal, the empirical covariances are tacitly left behind which, in fact, spoils the formalism. After all, equal numbers of repeated measurements, allowing to introduce complete sets of empirical variances and covariances, establish a well-structured methodology of data evaluation. This proceeding would stipulate measurement uncertainties in terms of linear sums of confidence intervals and appropriatley designed worst-case estimations. Should the underlying error model apply, the associated uncertainty intervals would localize the true values of the measurands. With respect to the method of least squares, non-randomized systematic would errors abrogate the Gauss-Markoff theorem, which, as is known, specifies the weighting matrix. As weighting factors shift the adjusted parameters and shrink their uncertainties the fundamental property of the error model discussed here reads: Regardless of the choice of weighting factors, the sums of confidence intervals and appropriately designed worst-case estimations yield uncertainties being up to localize the true values of the LS-estimators [4,5]. III. CONCLUSION Taking recourse to the legendary panel discussion of 1971 by P. L. Bender et al.: Should least squares adjustments of the fundamental constants be abolished?, [3], it seems reasonable to suppose: For the tangly contradictions within the then bulk of measuring results not the

Page 2, Q3. How would you describe your degree of knowledge of the GUM ?

	method of least squares was to be blamed but rather the error model colleagues referred to. Starting from [1] – [2], I would like to propose an essentially new, self-contained draft of error calculus proposed to be termed Generalized Gaussian Error Calculus, its intrinsic properties being to localize the true values of measurands and thus to safeguard traceability. This should be the core of the new GUM. REFERENCES [1] Eisenhart, C., "The Reliability of Measured Values – Part I Fundamental Concepts", Photo¬grammetric Engi-neering, vol. 18, pp.543-561, 1952. [2] Grabe, M., „Über die Fortpflanzung zufälliger und systematischer Fehler", Seminar über die Angabe der Messunsicherheit, 20. Und 21. Februar 1978; Physikalisch-Technische Bundesanstalt Braunschweig. [3] Bender, P.L. et al., „Should least squares adjustments of the fundamental constants be abolished?" NBS Special Publications 343, 1971, United States Department of Commerce, Washington D.C. [4] Grabe, M., "Measurement uncertainties in Science and Technology", Springer-Verlag Berlin, Heidelberg 2005. [5] Grabe, M., "Generalized Gaussian error calculus", Springer-Verlag Berlin, Heidel¬berg 2010.	
5	For example, spending additional time to learn how to rigorously compute effective degrees of freedom, if actually possible, does not seem to be worth the effort at this point.	Mar 22, 2012 5:56 PM
6	BS degree ME	Mar 14, 2012 2:55 PM
7	Very useful, but might occasionally allow or include other approaches	Mar 12, 2012 6:11 PM
8	entre B et C	Mar 9, 2012 12:25 PM
9	Sorry, but I am not at all happy with the GUM. In my view it is terrible. Please, abolish the GUM.	Mar 6, 2012 7:19 PM

Page 2, Q4. In which field do you use the GUM ?		
1	As the most experience user of GUM within my laboratory organization (50 scientiest), I have the supplemental responsibility for the training of other measurement scientist on the application of GUM. The Analytical Laboratories (within the Savannah River National Laboratory) uses GUM WorkbenchTM for measurement uncertainty calculations.	Jun 15, 2012 9:07 PM
2	Planning to conduct measurements, in general, in accordance with the concepts of the GUM.	Jun 15, 2012 7:21 AM
3	1) accreditation of testing laboratories 2) development of standards 3) training courses for metrologists	Jun 13, 2012 1:02 PM
4	The GUM is used as an essential reference in development of documents in ISO TC212 regarding metrological traceability.	Jun 12, 2012 2:58 PM
5	The teaching is on metrology and related matters.	Jun 6, 2012 4:55 PM
6	I am having the course of Experimental statistics and mechanical measurement and I am not able to understand completely what is going on about the Lab. experiment of the course.	Apr 26, 2012 8:06 PM
7	Concisely written, excellent implementation	Mar 12, 2012 6:11 PM
8	The GUM is an extremely important document to me; I deal with uncertainty on a daily basis.	Mar 5, 2012 7:23 PM
9	Our laboratory is accredited following ISO 17025 for the calibration of pressure and temperature devices and also for the analysis of reference gases.	Mar 5, 2012 11:47 AM
10	Industrial taken to include clinical lab services.	Feb 23, 2012 9:32 AM
11	Our company has prepared an in-house procedure for estimation of measurement uncertainty based on GUM	Feb 16, 2012 9:19 AM

Page 3, Q1. a. Internal inconsistency: Conflicting (frequentist and Bayesian) views of probability, which cause a number of problems, especially in the evaluation of a coverage interval.

1	Not a significant concern for my application of GUM.	Jun 15, 2012 9:28 PM
2	There are inconsistencies when the contributions are not from normal probabilitydistributions and which are assigned a high number of degrees of freedom. It must be said that both methods provide the tools important to carry out the aplicattion that are to be carried or used	Jun 15, 2012 8:15 PM
3	True. It would be nice to see an explicit treatment of the Bayesian approach.	Jun 15, 2012 1:27 PM
4	The current situation mixes frequentist techniques (in type A evaluation of uncertainty) and Bayesian techniques (in type B evaluation of uncertainty). Hence, uncertainties determined by type A and type B evaluations have different meanings, and, strictly speaking, cannot be combined. This requires changes. One important example is the construction of expanded uncertainties, for which currently the Welch-Satterthwaite formula in combination with effective degrees of freedom is recommended. However, it is not appropriate to mix frequentist and Bayesian results. As a consequence, for instance, it may even happen that expanded uncertainties become smaller if an additional, independent and additive uncertainty component was added*. *M. Ballico, Limitations of the Welch-Satterthwaite approximation for measurement uncertainty calculations, Metrologia 2000, 37, 61-64.	Jun 13, 2012 4:11 PM
5	I don't agree. The key idea enforced strictly throughout the GUM is that both the measurement result (evaluation of the measurand) and evaluation of input quantities shall be only interpreted as a subjective judgment of the researcher concerning their possible values. This excludes frequentist viewpoint fundamentally. While dealing with type-A evaluation, it is only mentioned that data of observationes should be treated statistically. This may not be considered as a direct reference to the frequentist inference because the Bayesian inference is also based on statistical analysis of series. The only arguable point in Gum is Clause G.3 of Annex G whose content coupled with the key GUM's idea mentioned above becomes a force to suspect a fiducial inference (fiducial, not frequentist!).	Jun 13, 2012 3:06 PM
6	From a theoretical point of view it might be satisfactory to establish consistency. On the practical level measurement uncertainty evaluation is much more than just using the “correct” statistical method. The most important part is recognizing all essential influences and coming up with a model of the measurement. Statistics is just a small part and in many situations frequentist and Baysian techniques will lead to the same result anyway. Mixing different statistical methods is not per se bad. The emphasis should be on applicability, feasibility and simplicity. Consistency.should be more of a second order goal.	Jun 12, 2012 4:44 PM
7	Not a major concern for the field of laboratory medicine.	Jun 12, 2012 3:07 PM
8	As a user with only moderate statistical training, this distiction eludes me. The GUM fundamentally breaks uncertainty components down into estimates of standard deviation and introduces this approach on the basis of frequentist statistics. Overall, one of the GUM's weaknesses is that it requires the reader to have a very strong statistics background, so many readers find it a difficult document to understand and use. This inconsistency in fundamental probablistic viewpoints only adds to the difficulty in using the standard.	Jun 8, 2012 3:25 PM
9	I am not so sure	Jun 8, 2012 12:44 PM

Page 3, Q1. a. Internal inconsistency: Conflicting (frequentist and Bayesian) views of probability, which cause a number of problems, especially in the evaluation of a coverage interval.

10	Agree - pick one method and stay with it. Or make two publication (or one publication with two parts). One part of the publication should be suitable for a journeyman bench technician to use on the job. The other part can bee for academic and engineering use. Methods and terminology suitable for academic use and study will almost certainly be too complex for the bench technician to handle on a daily basis. They are looking for clarity, simplicity and speed.	Jun 7, 2012 3:31 PM
11	Interesting topics for rather "academic" discussions but no problems found in the practice.	Jun 6, 2012 5:34 PM
12	The main conflict is between Type A and Type B where Type A evaluation is often seen as frequentist since it is evaluated statistically. although this has subsequently been addressed satisfactorily. With coverage interval the main need is NOT to consider it in terms of the probability that it contains an (unknowable) true value. It is an interval that contains a given percentage of the values ATTRIBUTABLE to the measurand. This interval can readily be obtained given the probability distribution of the values attributable to the measurand as obtained from the evaluation of the uncertainty on the result. The lack of knowledge of this probability distribution is reflected in the lack of knowledge about the coverage interval not its definition.	Jun 6, 2012 2:48 PM
13	Methodology to approach uncertainty or error (old fashsioned but intuitive) cannot be an obstacle to operative and quantitative evaluation.	Jun 6, 2012 2:33 PM
14	Although there is a philosophical inconsistency in the GUM most of the users of the GUM are unaware of this and even if aware unconcerned. What they require is a practical and pragmatic uniform guide to determine the uncertainty of measurement - the current version of the GUM provides this solution an attempt to make the GUM more consistent by moving to for eg a Bayesian approach will make the GUM less accessable to most users and therefore diminish the importance and use of the GUM leading to fragmentation of uncertainty analysis.	May 28, 2012 8:39 PM
15	Though this is an issue, I would support keeping the document in the frequentist perspective. If needed, a Bayesian approach could be generated as a separate document.	May 16, 2012 10:33 PM
16	In most practical engineering applications such conflicts do not have a decisive impact	Apr 24, 2012 7:33 PM
17	I completely agree. The GUM's approach to the evaluation of the uncertainties is essentially frequentist and it should incorporate more of the Bayesian methods.	Apr 24, 2012 2:42 PM
18	It seems both point	Apr 18, 2012 8:44 AM
19	The evaluation of the coverage interval is not problematic for needs of industrial purposes (large uncertainties). The problem is in the interpretation of it.	Apr 11, 2012 10:01 PM
20	I think that Bayesian view is more consistent with metrological application, especially for definition of Type B uncertainty. Interpretation of credibility interval (instead of coverage interval) is easier and more natural for non-statistician scientist. However, prior elicitation is complicated and bayesian calculations have some programming challenges.	Apr 11, 2012 1:57 PM

Page 3, Q1. a. Internal inconsistency: Conflicting (frequentist and Bayesian) views of probability, which cause a number of problems, especially in the evaluation of a coverage interval.

21	An important element in fields of environmental analyses.	Apr 6, 2012 3:58 PM
22	coverage interval idea is not part of mainstream GUM and it should be relegates as a not essential part of uncertainty in measurement	Apr 3, 2012 4:08 PM
23	no opinion	Apr 2, 2012 2:31 AM
24	This is a very important issue, in my opinion. Bayes' theorem provides a rigorous way of combining indications and expert opinion (the Type A vs. Type B distinction), yet it is hardly mentioned in the GUM, if at all. A sound Bayesian methodology (such as the Observation Equation described by Possolo and Toman, Metrologia, 2007) is needed to take aleatory uncertainty (or variability) in the measurement process of gathering indications, and combine them rigorously with epistemic uncertainty from expert opinion to give a result of measurement as a probability distribution that can be rigorously interpreted as an epistemic uncertainty in the value of some presumed "true parameter". This doesn't necessarily mean getting rid of measurement equations for some measurement problems, but one must ensure that all inputs to the measurement equation have a consistent (epistemic) interpretation before propagating this uncertainty. A Bayesian methodology can be used to convert indications with aleatory uncertainty from a measurement process into parameter values with purely epistemic uncertainty that may be propagated further in a measurement equation to produce the desired measurand. Can a new GUM successfully address the associated challenges with a Bayesian methodology?	Mar 22, 2012 6:31 PM
25	No opinion	Mar 21, 2012 2:13 PM
26	Agree.	Mar 20, 2012 2:55 PM
27	The uncertainty is a combination of real measurements and statistical calculation. but the coverage factor is based in the field of the theory. I think that the Bayesian probability calculations are better in this field.	Mar 20, 2012 2:26 PM
28	I do not take a stand, because I do not analyse this problem in my works.	Mar 14, 2012 7:09 PM
29	Probably	Mar 14, 2012 12:45 PM
30	I partially agree	Mar 13, 2012 5:49 PM
31	This is becoming more and more of an issue -- thank you for addressing this.	Mar 13, 2012 12:08 AM
32	waste of time	Mar 12, 2012 6:27 PM
33	might be improved	Mar 12, 2012 6:11 PM
34	The document provides a number of views not on occasion there is no clear direction for the user leaving them confused.	Mar 9, 2012 4:21 PM
35	consent	Mar 9, 2012 4:19 PM
36	It is important to address this issue, and use a consistent Bayesian approach.	Mar 8, 2012 7:01 PM
37	Consistency is fundamental. I would be in favor of an approach that shows that the current calculation steps in the GUM form a good approximation of a consistent theory, rather than changing the entire procedure to make it	Mar 8, 2012 9:45 AM

Page 3, Q1. a. Internal inconsistency: Conflicting (frequentist and Bayesian) views of probability, which cause a number of problems, especially in the evaluation of a coverage interval.

	consistent in itself.	
38	Yes, this is true.	Mar 6, 2012 7:21 PM
39	I am not a statistician. It does seem that the uncertainty using either frequentist or bayesian statistics is roughly the same. GIven that NMIs have differences in uncertainty on nearly the same process (gage blocks, for example) of 10% or more, the type of statistics doesn's seem important.	Mar 5, 2012 7:34 PM
40	Should be solved	Mar 3, 2012 12:22 PM
41	Probability distribution shape assumption (rectangular, triangle, normal...)	Mar 1, 2012 4:45 AM
42	Nice to know experts are looking at this sort of thing, but I don't think it will change how I deal with it practically.	Feb 29, 2012 4:29 PM
43	Agree	Feb 29, 2012 4:26 PM
44	I think the Bayesian view should be added on this revision. As the Monte Carlo method comes from a Bayesian concept, therefore the Monte Carlo method should be emphasized in this new version.	Feb 28, 2012 6:14 PM
45	We need to be practical here. There was considerable resistance to the publication of the original TAG4 document because it convolved actual and approximated PDFs. Uncertainty is only good to 10 to 20 % of the number quoted and we should keep that in mind while accepting that it is inconsistent and there are other ways to do things. For all that it has been remarkably successful-just look at all accredited labs scope or at the KCDB.	Feb 27, 2012 6:20 AM
46	Including Bayesian probability points of view would be very valuable. Also what to do if the Welch–Satterthwaite equation is not valid	Feb 23, 2012 11:54 PM
47	I agree that there are conflicting processes (i.e. frequentist and Bayesian) in the present version. There were considered in detail when the GUM was first being formulated and the rationale to the approach was described in the REPORT of the BIPM WORKING GROUP ON THE STATEMENT OF UNCERTAINTIES (1st meeting, October 1980); particularly in Sections 3 and 4. In practice, the outcome (i.e., expressing both as standard uncertainties) generally works well, at least in reasonably straightforward cases. It does add complications, such as the necessity to evaluate degrees of freedom in some cases and not in others. So a review of this aspect of the GUM is probably beneficial.	Feb 23, 2012 2:39 PM
48	Insufficient knowledge.	Feb 23, 2012 9:39 AM
49	One challenge to bringing these two paradigms together is that in practical applications of the frequentist approach, effective degrees of freedom need to be estimated for B-type evaluations of uncertainty. This is rarely done. Instead, coverage factors of k=1 or k=2 are often used, bypassing any probabilistic interpretation of the results. Thus, the practice of the frequentist approach would have to change.	Feb 22, 2012 3:19 PM
50	I have no such problem with the exisiting GUM.	Feb 21, 2012 5:07 PM
51	I am not concerned (don't use coverage intervals)	Feb 21, 2012 3:29 PM
52	Agreed. The GUM is not consistent with its founding document (the CIPM	Feb 20, 2012 9:49 PM

Page 3, Q1. a. Internal inconsistency: Conflicting (frequentist and Bayesian) views of probability, which cause a number of problems, especially in the evaluation of a coverage interval.

	report) which was entirely frequentist.	
53	yes for a basic use bayesian statistic are meaningless, people just need to get a idea of the uncertainty with a knowledge of a posible under of over estimate	Feb 16, 2012 2:32 PM
54	can't judge	Feb 15, 2012 2:37 PM
55	This issue should be addressed indeed	Feb 15, 2012 12:00 PM
56	I agree. Firsst of all internal inconsistency causes misleading in Type A uncertainty evaluation	Feb 15, 2012 8:04 AM
57	I think that the major point concerns the implicit reference to normal distributions. I would prefer a document focusing on standard uncertainties, with a supplement for those interested in coverage intervals. To be more specific, there is no need to suppose a statistical distribution of the measurand, if the concept of uncertainty is expressed as the standard deviation of an unknown distribution.	Feb 14, 2012 3:41 PM
58	agreed	Feb 13, 2012 3:39 PM
59	gb	Feb 13, 2012 2:56 PM
60	Not a principal difficulty, user must be aware of the difference between these treatments. Much more important is to test assumptions underlying a measurement process, otherwise in both cases the estimates obtained may be invalid. Present GUM is not dealing with this issue sufficiently (assumptions underlying Type A estimation for example).	Feb 7, 2012 2:42 PM
61	-	Feb 7, 2012 2:08 PM
62	OK.	Feb 6, 2012 10:15 PM
63	Agree	Feb 6, 2012 5:31 PM

Page 3, Q2. b. Internal inconsistency: Conflicting use of terminology, such as for the term “value”		
1	This has not generated any practical problems in my application of GUM.	Jun 15, 2012 9:28 PM
2	We think that the term "value" is not a cause of conflict	Jun 15, 2012 8:15 PM
3	Not sure. I haven't noted any particular problems - maybe this comes from trying to apply the over-rigorous approach found in the VIM3?	Jun 15, 2012 1:27 PM
4	Terminolgy should be stated accurately. VIM3 can be osed for terminolgy	Jun 15, 2012 1:17 PM
5	The conflict using different terminologies in all JCGM documents shall be avoided. Wherever possible, notation might be better aligned with standard statistical terminology to facilitate potential dissemination and acceptance of the GUM beyond its current fields of application.	Jun 13, 2012 4:11 PM
6	I agree. Bearing in mind that the measurement result should be considered as synonym of "posterior for random variable associated with the measurand" such concepts as "measured value" and "best estimate of the value of the measurand" loose their meaning.	Jun 13, 2012 3:06 PM
7	The terminology should be clear and consistent.	Jun 12, 2012 4:44 PM
8	This is an occasional concern for the the field of laboratory medicine.	Jun 12, 2012 3:07 PM
9	I find that the standard is internally inconsistent in its treatment of systematic errors. In paragraph 3.2.4, the expectation that all systematic effects have been corrected for limits the usefulness of the standard. While the ideal situation is that every estimate of measurement uncertainty will be task specific, and the systematic error for that task has been quantified, in reality some estimates of uncertainty will apply to measurements in which the systematic error can only be estimated by a maximum expected value, or by a range of possible values. In addition, the treatment of systematic effects in the GUM is confusing and inconsistent. In 3.2.4, the expectation is that systematic effects have been quantified and corrected for, but Annex E presents a discussion on the treatment of systematic versus random effects, and concludes that they are “treated in the same way in E.3.6.c. Paragraph E.4.4 and its associated example are also difficult to interpret. Appendix F presents yet another treatment of systematic effects in section F.2.4.5. This treatment in appendix F appears to have practical value, but it is hidden so deeply within the standard that many users will never see it.	Jun 8, 2012 3:25 PM
10	I agree	Jun 8, 2012 12:44 PM
11	Refer to and use the terms as defined in the VIM.	Jun 7, 2012 3:31 PM
12	No problems found in the practice after the concept is clear.	Jun 6, 2012 5:34 PM
13	Over zealous attempts to achieve internal consistency lead to multitudinous definitions of terms which conflict with the terms currently in use. The use of the term value does not cause a problem. .	Jun 6, 2012 2:48 PM
14	Ok. The effort in consistency for precise definitions make them sometimes little operative	Jun 6, 2012 2:33 PM
15	This should be made consistent with a frequentist view	May 28, 2012 8:39 PM
16	Terminology must be cleaned up.	May 16, 2012 10:33 PM
17	Agree	May 16, 2012 1:34 PM

Page 3, Q2. b. Internal inconsistency: Conflicting use of terminology, such as for the term “value”		
18	Important, we all to use the same language	May 16, 2012 9:20 AM
19	In most practical engineering applications the meaning of the terminology is completely understood by its context.	Apr 24, 2012 7:33 PM
20	Not even JCGM 100 (the Guide) and JCGM 104 (Introduction to the Guide) are consistent when using these terms.	Apr 24, 2012 2:42 PM
21	None.	Apr 11, 2012 10:01 PM
22	Important because of the various uses of terminologies by different training that staff received before acquiring work with the City.	Apr 6, 2012 3:58 PM
23	no opinion	Apr 2, 2012 2:31 AM
24	not a problem	Mar 26, 2012 8:55 PM
25	What is the "best estimate" of a measurand, especially in nonlinear situations? First, the mean of the output of a nonlinear measurement equation is generally not the value of the measurement equation at the mean of the inputs. The GUM should be rewritten so that this situation is not misperceived when moving from linear(ized) measurement equations to nonlinear ones. Second, why should the mean be chosen over the median or mode (if output is uni-modal)? In fact, is stating a single "best estimate" even well-advised if an x%–(100-x)% coverage interval is available (assuming this interval can be computed reliably)?	Mar 22, 2012 6:31 PM
26	No opinion	Mar 21, 2012 2:13 PM
27	Agree.	Mar 20, 2012 2:55 PM
28	No problems with this term	Mar 20, 2012 2:26 PM
29	Yes, I agree with it.	Mar 14, 2012 7:09 PM
30	True	Mar 14, 2012 12:45 PM
31	agree	Mar 13, 2012 5:49 PM
32	Yes, this needs to be cleaned up. As does the word "precision."	Mar 13, 2012 12:08 AM
33	waste of time	Mar 12, 2012 6:27 PM
34	might be improved	Mar 12, 2012 6:11 PM
35	This is a problem as different users will have their own vocabulary, in my industry error is often deemed as an allowance under the overall uncertainty i ahve to explain that error (bias) and uncertainty are not the same.	Mar 9, 2012 4:21 PM
36	consent	Mar 9, 2012 4:19 PM
37	Important	Mar 8, 2012 7:01 PM
38	I'm still using the concept of true value and error as well. I would rather give this concepts clear definitions than not to use them at all. The vocabulary can indeed be clarified.	Mar 8, 2012 9:45 AM
39	This seems to be unimportant on the practical level of estimating uncertainty.	Mar 5, 2012 7:34 PM

Page 3, Q2. b. Internal inconsistency: Conflicting use of terminology, such as for the term “value”		
	Uncertainty is not statistics.	
40	More philosophical importance	Mar 3, 2012 12:22 PM
41	Stnadard value, nominal value, and reading value	Mar 1, 2012 4:45 AM
42	The GUM can be hard to read, and if this sort of thing can be sorted out, this would be good.	Feb 29, 2012 4:29 PM
43	Agree	Feb 29, 2012 4:26 PM
44	Some of the internal problems are no doubt due to the compromises that were made to get the document published. Some of the philosophical assumptions are critical if the document is to be useful at all.	Feb 27, 2012 6:20 AM
45	Make consistent with VIM3.	Feb 23, 2012 11:54 PM
46	Yes, there are internal inconsistencies - another one is the ambiguity of upper and lower case symbols relating to the measurand Y and its value y, which are sometimes used interchangeably.	Feb 23, 2012 2:39 PM
47	Insufficient knowledge - but consistency desirable.	Feb 23, 2012 9:39 AM
48	Ok, maybe I am not such a GUM expert. I don't remember this problem.	Feb 22, 2012 3:19 PM
49	I have no problem with the use of this term in the exisiting GUM.	Feb 21, 2012 5:07 PM
50	Not so important in practice for my work	Feb 21, 2012 3:29 PM
51	this has not been an obstacle	Feb 20, 2012 9:49 PM
52	conflicting uses of terminology must in any case be removed, as this really makes it hard for "beginners" to understand, or even to look expressions up	Feb 16, 2012 3:40 PM
53	no	Feb 16, 2012 2:32 PM
54	hardly confusing	Feb 15, 2012 2:37 PM
55	Should be consistent with the VIM	Feb 15, 2012 12:00 PM
56	I don't see it explicitly.	Feb 15, 2012 8:04 AM
57	Not a problem for me.	Feb 14, 2012 3:41 PM
58	did never realize	Feb 13, 2012 3:39 PM
59	gfb	Feb 13, 2012 2:56 PM
60	The particular use of terms must be clarified more flexibly according to the particular situation and context. Very strict definitions of generally used terms may cause additional difficulties and inconsistencies with the many standards, recommendations and textbooks already in use and newly appearing in parallel.	Feb 7, 2012 2:42 PM
61	-	Feb 7, 2012 2:08 PM
62	What about VIM3?	Feb 6, 2012 10:15 PM

Page 3, Q2. b. Internal inconsistency: Conflicting use of terminology, such as for the term “value”		
63	Agree	Feb 6, 2012 5:31 PM

Page 3, Q3. c. External inconsistency: With respect to Supplements 1 and 2 and the other documents being developed according to a consistent conceptual framework.

1	It is important that the collection of GUM standards be self-consistent. However, the current documents have not generated any practical problems in my application of GUM to measurements performend at my laboratory.	Jun 15, 2012 9:28 PM
2	We do not have enough knowledge of the supplements 1 and 2	Jun 15, 2012 8:15 PM
3	The main GUM document does seem slightly outdated, and is not always consistent with the newer supplements	Jun 15, 2012 1:27 PM
4	Requires improvement. For instance, Supplement 1 to the GUM actually gives different results for a type A uncertainty evaluation than the GUM. This difference is not due to a violation of assumptions in the GUM (i.e. linearity of model) but due to the fact that the GUM proposes a frequentist type A evaluation of uncertainty while Supplement 1 carries out a Bayesian type A evaluation of uncertainty. The current (frequentist) type A evaluation of uncertainty yields smaller standard uncertainties than the Bayesian approach. However, as the Bayesian approach better reflects practical experience, particularly in case of small sample sizes, this inconsistency requires a change in the Guide.	Jun 13, 2012 4:11 PM
5	I don't agree. GUM and Supplements 1 and 2 and other relevant guidelines exist within the same conceptual framework based on the Bayesian approach to measurements. (Even if the words "Bayes" and "Bayesian" are not encountered in GUM, Bayesian approach is assumed there.)	Jun 13, 2012 3:06 PM
6	If possible the conceptual framework should be the same in the GUM in all its supplement documents.	Jun 12, 2012 4:44 PM
7	Not a concern in laboratory medicine.	Jun 12, 2012 3:07 PM
8	The GUM makes a strong argument for avoiding the terminology "true value" of a measurand, but in JCGM 104:2009 Evaluation of Measurement Data – An Introduction to the “Guide to the Expression of Uncertainty of Measurement” and Related Documents, the term "true value" is introduced early in the document, a statement is made that this conflicts with the GUM, but a further statement is made that the concept of a "true value" will be used anyway. This is highly inconsistent.If a suplement can simply choose to ignore guidelines provided in the GUM, can I simply choose to ignore other parts ofthe GUM that I don't like?	Jun 8, 2012 3:25 PM
9	The consistency could be significantly improved	Jun 8, 2012 12:44 PM
10	True, but this is hard to manage as each document is on a different timeline.	Jun 7, 2012 3:31 PM
11	A minor one on the so called law of propagation of uncertainties that it is an approximation to combine standard uncertainties in an easy way rather than a LAW. In my opinion the apporach should be highlighted as an approximation, and hopefully let the denomination of LAW down.	Jun 6, 2012 5:34 PM
12	See comments in b	Jun 6, 2012 2:48 PM
13	I am not sure who uses the supplements - I have not found any need to resort to them in my work in Temperature. But if asked to give an opinion the supplements should be revised to make them frequentist in approach as that is the approach that most metrologists understand and reflects physical reality.	May 28, 2012 8:39 PM

Page 3, Q3. c. External inconsistency: With respect to Supplements 1 and 2 and the other documents being developed according to a consistent conceptual framework.

14	In my field (personal protective clothing standards, where we discuss about resutls from test on tensile strength or chemical resistance or heat resistance), results are given without any information on uncertainity. This is also not a normative requirement from the standards and it is not something test houses would give to the customers.	May 16, 2012 9:20 AM
15	I prefer to use the approach of the Supplement 1 in each of the applications to avoid such problems. Additionally, the traditional GUM can not be applied in most measurement systems that tend to use due to the high nonlinearity that characterices them.	Apr 24, 2012 7:33 PM
16	Yes, there is inconsistency. Supplement 1 is closer related to bayesian statistics than the GUM. But it call my attention that in examples proposed in Supplement 1 input quantities have known parameters; there is not explanation about how to evaluate the posterior pdfs of each input quantity (of a measurement model) taking on account the observations and a prior pdf and and how to combine all posteriors pdfs to get the posterior pdf from the measurement model (see http://www.cenam.mx/sm2010/info/pviernes/sm2010-vp03d.pdf)	Apr 11, 2012 10:01 PM
17	The concept is laudable.	Apr 6, 2012 3:58 PM
18	no opinion	Apr 2, 2012 2:31 AM
19	Can the confusing and ad hoc effective degrees of freedom be gotten rid of across GUM and all supplements? Not familiar enough with S2 yet to comment about this supplement.	Mar 22, 2012 6:31 PM
20	Do not know enough to express an opinion	Mar 21, 2012 2:13 PM
21	No comments.	Mar 20, 2012 2:55 PM
22	No problems with this	Mar 20, 2012 2:26 PM
23	Yes, I agree with it.	Mar 14, 2012 7:09 PM
24	Not applicable to me	Mar 14, 2012 12:45 PM
25	Till now I did not need to use the supplements	Mar 13, 2012 5:49 PM
26	waste of time	Mar 12, 2012 6:27 PM
27	consent	Mar 9, 2012 4:19 PM
28	Of course. At the present moment it is difficult to explain to people that use uncertainty during their testing activities that GUM and the supplements have some inconsistencies.	Mar 8, 2012 7:01 PM
29	Same as in a: try to show that simple, intuitive calculations (which may be inconsistent conceptually) form a good approximation of a consistent theory.	Mar 8, 2012 9:45 AM
30	Bayesian statistics seems to be intrinsically more complicated, even abtruse. If the different frameworks results in very different answers I would pay more attention. In dimensional metrology the differences do not seem important.	Mar 5, 2012 7:34 PM
31	Sould be done	Mar 3, 2012 12:22 PM

Page 3, Q3. c. External inconsistency: With respect to Supplements 1 and 2 and the other documents being developed according to a consistent conceptual framework.

32	Again, this is worth doing.	Feb 29, 2012 4:29 PM
33	Do not know	Feb 29, 2012 4:26 PM
34	Yes, I agree. All the documents and also Eurachem (for chemical area) have to be harmonized.	Feb 28, 2012 6:14 PM
35	Yes	Feb 27, 2012 6:20 AM
36	Good idea!	Feb 23, 2012 11:54 PM
37	Insufficient knowledge - but consistency desirable.	Feb 23, 2012 9:39 AM
38	Important.	Feb 22, 2012 3:19 PM
39	I encounter no problems with respect to the Supplements.	Feb 21, 2012 5:07 PM
40	I can live with this inconsistency and apply the GUM or its supplements depending on the type of problem.	Feb 21, 2012 3:29 PM
41	The new supplements are absolutely shocking. They are less consistent that the GUM, give rise to serious definitional problems about uncertainties and probability, and it is difficyult to see how they can work in practice.	Feb 20, 2012 9:49 PM
42	same remark as before complex concept are of interest but it must be warn about their use	Feb 16, 2012 2:32 PM
43	can't judge	Feb 15, 2012 2:37 PM
44	Agree	Feb 15, 2012 12:00 PM
45	I share this opinion.	Feb 15, 2012 8:04 AM
46	Not a problem for me.	Feb 14, 2012 3:41 PM
47	agreed	Feb 13, 2012 3:39 PM
48	fgb	Feb 13, 2012 2:56 PM
49	Conceptual contradictions inside the GUM and its supplements should be avoided.	Feb 7, 2012 2:42 PM
50	-	Feb 7, 2012 2:08 PM
51	No opinion	Feb 6, 2012 10:15 PM

Page 3, Q4. d. External inconsistency: With respect to the VIM 3.		
1	I think that it is important for GUM and VIM to mesh well and not have conflict.	Jun 15, 2012 9:28 PM
2	There are not inconsistency that can affect the standard	Jun 15, 2012 8:15 PM
3	I would hesitate to revise the GUM to be consistent with the VIM3, as the VIM3 seems to be a confusing and complex evolution of the VIM2	Jun 15, 2012 1:27 PM
4	VIM3 is the specific document for general metrology vocabulary. Therefore, GUM can be revised using VIM3 terminology.	Jun 15, 2012 1:17 PM
5	Agreement with all fundamental terms and concepts deemed as very important.	Jun 15, 2012 7:31 AM
6	Yes	Jun 14, 2012 4:20 PM
7	To avoid confusion caused by different terminologies in both JCGM documents according harmonization is required. Examples are the different meaning of "measurement result" or "bias" in both documents.	Jun 13, 2012 4:11 PM
8	The question seems confusing. GUM shall not be consistent with VIM. It is VIM that shall be consistent with GUM.	Jun 13, 2012 3:06 PM
9	VIM and GUM have to be consistent, especially when regarding such important definitions as uncertainty and value. For example: The concept “true value” should be identically defined and interpreted in both documents.	Jun 12, 2012 4:44 PM
10	Inconsistency with VIM3 is problematic on occasion. Also, the term 'measurand' can be especially challenging when considering complex or heterogeneous analytes in the field of laboratory medicine.	Jun 12, 2012 3:07 PM
11	None noted, but I did not actively look for inconsistencies.	Jun 8, 2012 3:25 PM
12	The consistency could be significantly improved	Jun 8, 2012 12:44 PM
13	Refer to and use the terms as defined in the VIM.	Jun 7, 2012 3:31 PM
14	Please avoid non relevant changes in the VIM. Please allow flexibility to accept clarifying and updating notes as needed, when, for example, changes in the VIM are required.	Jun 6, 2012 5:34 PM
15	The above comments apply even more to VIM 3. Also the comments made in (a) above where VIM jumps without any justification, from a reasonable definition of uncertainty, to one of confidence interval in terms of the probability that it contains an unknowable true value..	Jun 6, 2012 2:48 PM
16	The VIM should be revised to be consistent.	May 28, 2012 8:39 PM
17	Agree	May 16, 2012 1:34 PM
18	I never heard of GUM and VIM in my life I am afraid. I did statistics at the university and I know some basics. Nevertheless, it is extreely importat everybody uses the same terms, possible th same symbols.	May 16, 2012 9:20 AM
19	I believe that it is important to unify the terminology. Nevertheless it has never been a barrier to understand the concepts.	Apr 24, 2012 7:33 PM
20	None	Apr 11, 2012 10:01 PM

Page 3, Q4. d. External inconsistency: With respect to the VIM 3.

21	The definition of many metrological terms are not consistent with VIM3. This should be updated as soon as possible.	Apr 2, 2012 2:31 AM
22	Cannot comment meaningfully on this.	Mar 22, 2012 6:31 PM
23	OK	Mar 21, 2012 2:13 PM
24	No comments.	Mar 20, 2012 2:55 PM
25	No problems with this	Mar 20, 2012 2:26 PM
26	Yes, a lot of definitions were changed in VIM.	Mar 14, 2012 7:09 PM
27	N/A	Mar 14, 2012 12:45 PM
28	I did not notice	Mar 13, 2012 5:49 PM
29	waste of time	Mar 12, 2012 6:27 PM
30	consent	Mar 9, 2012 4:19 PM
31	VIM 3 and GUM should have identical definitions (and so, should undergo simultaneous revisions)	Mar 8, 2012 7:01 PM
32	I hardly use the VIM.	Mar 8, 2012 9:45 AM
33	It would be nice to be consistent with the VIM, but VIM 3 is considerably different from VIM 2 so it is difficult to require consistency with an "living" document.	Mar 5, 2012 7:34 PM
34	Agree	Mar 5, 2012 5:44 PM
35	Is a continuous process, would be nice	Mar 3, 2012 12:22 PM
36	These should agree.	Feb 29, 2012 4:29 PM
37	Do not know	Feb 29, 2012 4:26 PM
38	Yes but the GUM was not developed for non-physical measurements. ISO 5725 was referred to for those. See my comments on the VIM.	Feb 27, 2012 6:20 AM
39	YES.	Feb 23, 2012 11:54 PM
40	It is not necessary to express, in Section 2: Definitions- General metrological terms, all terms defined in VIM3, it is sufficient to refer to VIM3. More examples in Annexes	Feb 23, 2012 11:12 PM
41	The document needs to be aligned to VIM3	Feb 23, 2012 5:00 PM
42	There do need to be some updates to address VIM3 terminology.	Feb 23, 2012 2:39 PM
43	Insufficient knowledge - but consistency desirable.	Feb 23, 2012 9:39 AM
44	Good idea. The word "measurand" is of interest. It refers to the reported quantity, rather than the directly-measured quantity. You and I could compare measurements of a measurand, say, the length of a rod. You may be measuring distance using a meter stick, I may be measuring time using a clock, then converting the time to distance using a known speed, and	Feb 22, 2012 3:19 PM

Page 3, Q4. d. External inconsistency: With respect to the VIM 3.		
	reporting that distance. We intend to measure the same quantity - the length of the rod. I find it useful to note that we were actually measuring things of different quality (you distance, me time). Is there a word for that quality that each of us measures?	
45	I have great difficulty with VIM3. It would be a massive step backwards for the GUM to assimilate some of the flaws of VIM3.	Feb 21, 2012 5:07 PM
46	Don't know: did not read VIM3 yet.	Feb 21, 2012 3:29 PM
47	agreed - but conflicts are not at all serious.	Feb 20, 2012 9:49 PM
48	problems occur when looking at the definition of calibration in the VIM which cannot bu used in any cases	Feb 16, 2012 2:32 PM
49	hardly confusing	Feb 15, 2012 2:37 PM
50	Agree	Feb 15, 2012 12:00 PM
51	Yes. But it requires few changes.	Feb 15, 2012 8:04 AM
52	Not a problem for me.	Feb 14, 2012 3:41 PM
53	did not realize so far	Feb 13, 2012 3:39 PM
54	fgb	Feb 13, 2012 2:56 PM
55	VIM 3 is treating a significant part of general terms presently used in different fields related to metrology (from pure mathematics like a quantity calculus to simple practical measurements), and often these terms are helpful and used with a very good reason. Therefore one should be rather careful advising that the use of some terms in future preferably should be avoided.	Feb 7, 2012 2:42 PM
56	-	Feb 7, 2012 2:08 PM
57	No opinion	Feb 6, 2012 10:15 PM

Page 3, Q5. e. Inadequacy: Since its publication, the need to evaluate measurement uncertainty has been recognised in an increasing number of scientific disciplines, for which the present GUM does not provide sufficient guidance.

1	Not a serious issue for the destructive analytical methods used at my nuclear laboratory. It is more challenging to apply GUM to nondestructive analysis methods, mostly because of calibration challenges.	Jun 15, 2012 9:28 PM
2	In our opinion the GUM provide the sufficient guidance (for our needs as accreditation body)	Jun 15, 2012 8:15 PM
3	True. Certainly some wider examples would be a good idea.	Jun 15, 2012 1:27 PM
4	Number of examples should be increased for new disciplines. For example, optics, acoustic, acceloremeter,mass calibration and chemistry, biology eamples can be added to annexH	Jun 15, 2012 1:17 PM
5	Agree to this. A new version is needed.	Jun 14, 2012 4:20 PM
6	Even within metrology the Guide has severe limitations. For instance, prior knowledge or physical constraints cannot be taken into account at present. Furthermore, the assumptions required by the Guide (linear models, Gaussian distributions) restrict its application significantly. For example, the knowledge that a physical quantity is positive can often reduce the uncertainty; however, the Guide is not capable of using such information. A revision of the Guide should enable metrologists to apply according techniques, which are readily available, for adequate uncertainty evaluation.	Jun 13, 2012 4:11 PM
7	I don't agree. The only strict limitation imposed by GUM is need for a model. Provided with a model, researcher can make good use of principles described in GUM and its Supplements for specific tasks and applications.	Jun 13, 2012 3:06 PM
8	This is true. The GUM should promote also simplified approaches and give (simple) guidance to treat multi-dimensional quantities, functional quantities (e.g. frequency dependent quantities), complex parameters (such as roughness, resulting from peak or average values from a filtered profile), chemistry etc.	Jun 12, 2012 4:44 PM
9	This is a major issue for the field of laboratory medicine. There is a need for specific worked examples in the laboratory medicine field, but this could be handled as an Annex or Supplement to the VIM, since this should not translate to need for any refinements in the fundamental theory, concepts or calculations of measurement uncertainties.	Jun 12, 2012 3:07 PM
10	the document needs to have varieties of practical examples applicable to various disciplines	Jun 12, 2012 2:20 PM
11	I find that the primary inadequacy of the GUM is that it is written at a technical level that is too high for many users to understand it and use it effectively. Overall, the standard is thorough in its documentation of a consistent approach for estimating measurement uncertainty. However, a consequence of its thoroughness is that it is cumbersome and not easily understood by the typical user, which limits the standard's adoption. It makes the topic of uncertainty estimation appear so complex, that many users will be discouraged from even attempting the process. A revision that can help address this is: in the Introduction, immediately direct readers to JCGM 104:2009 Evaluation of Measurement Data – An Introduction to the "Guide to the Expression of Uncertainty in Measurement and Related Documents" and strongly encourage reading that document first; or, consider making JCGM 104 the primary standard relating to measurement	Jun 8, 2012 3:25 PM

Page 3, Q5. e. Inadequacy: Since its publication, the need to evaluate measurement uncertainty has been recognised in an increasing number of scientific disciplines, for which the present GUM does not provide sufficient guidance.

	uncertainty, and make the present GUM a supplement, like the existing documents JCGM 101, 102, etc. However, even JCGM 104:2009 will be daunting for many readers – creating a new, even more basic “Overview” document would probably be of greatest benefit. In its present thorough but cumbersome form, users will rely on other documents that claim to follow the principals standardized in the GUM. This can easily result in variations in users understanding of uncertainty principals and methods for uncertainty evaluation – the very goal of a single standard.	
12	I totally agree	Jun 8, 2012 12:44 PM
13	The application of the GUM does require the knowledge of the VIM, and so this should be stressed in the GUM with enough visibility. On the other hand, the hypothesis and assumptions to aplly the GUM should be the most explicit and guidance to other Supplements should be included as well when these hypothesis are not fulfilled.	Jun 6, 2012 5:34 PM
14	Suitable guidance has been written for some areas. There is no problem if one sticks to the basic principles of GUM. Problems can arise if critics assume that the only ways to evaluate uncertainty is in accordance with these principles are those illustrated in GUM	Jun 6, 2012 2:48 PM
15	The use of probabilistic distributions is a wide umbrella for many physical phenomena, but eventually cannot cover those events that are not ordinary modellized in statistical terms.	Jun 6, 2012 2:33 PM
16	Frequentist supplements should be developed to address these without a wholesale revision of the GUM.	May 28, 2012 8:39 PM
17	The present GUM will have to provide additional detailed information on Ionizing Radiation Metrology, more specifically to the evaluation of standard and expanded uncertainties. In the field of medical physics, measurement is at the heart of everything. Uncertainty evaluation is therefore a fudamental skill for those working in this field.	May 20, 2012 11:49 AM
18	Agreed. A number of supporting publications have been required in many economies.	May 17, 2012 6:22 AM
19	GUM should be generalized and not developed for a specific discipline.	May 16, 2012 10:33 PM
20	Agree. Include non-physical measurements as well such as responses to surveys	May 16, 2012 1:34 PM
21	I wish I would have known of GUM before. I am pretty sure somebody else in the standardisation comittee know it and it did not bring it to the committee discusion because he/she thought it would not help. I just had a brief look at the document. It would be extremely helpful to give more examples and write a short smmary on which method to use according to the different type of results achieved. Additionaly, I would support the GUM comittee to present their work to CEN/ISO technical committee, to enhance the use of GUM and VIM in the standardisation work.	May 16, 2012 9:20 AM
22	The application of the guide is complicated in many scientific measurements (uncertainty type B). The guide is more suitable for laboratory calibration.	May 3, 2012 11:15 AM
23	It is true, especially in the area of engineering and compliance testing.	Apr 24, 2012 7:33 PM

Page 3, Q5. e. Inadequacy: Since its publication, the need to evaluate measurement uncertainty has been recognised in an increasing number of scientific disciplines, for which the present GUM does not provide sufficient guidance.

24	I use the GUM for the industrial instrumentation metrology and it works just fine.	Apr 24, 2012 2:42 PM
25	It's right. Analytical methods used in Chemistry need to apply a different approach, based on "design of experiments" and "variance components" methodologies. The GUM is based on "deterministic" models that are suitable for physics but in chemistry there are much more variables that are not easy to explain using a deterministic equation like F = m a. In chemistry statistical models are much more useful.	Apr 11, 2012 10:01 PM
26	In chemistry is very common to measure two or more true replicate analysis (i.e subsampling from the same test portion). However, GUM does not provide some guidance to handle repeated measurements. In some instances we have applied other statistical tools to address this situation (i.e, variance components).	Apr 11, 2012 1:57 PM
27	no opinion	Apr 2, 2012 2:31 AM
28	Because of notations and concepts, lot of people I've met think that the Gum is not based on correct statistical rules. In the other hand, some statisticians think that such a document is quite useless, as the statistics rules are defined for a long time in so many books ! Could the guidance given in the GUM focus on: "Applying GUM, it's just applying correct statistical rules, to estimate uncertainty" ? Examples should be taken in different fields, for basic measurements (not for "national calibration devices")	Mar 26, 2012 8:55 PM
29	There are engineering models that need to be calibrated and validated using measurements, and it does not seem like the GUM is fully up to this task, mostly for reasons related to part a of this question.	Mar 22, 2012 6:31 PM
30	Do not know enough to express an opinion	Mar 21, 2012 2:13 PM
31	Fully agree, especially regarding the fields of biological measurements and social sciences.	Mar 20, 2012 2:55 PM
32	The true is the GUM is very oriented in the field of mechanical metrology and electrical metrology, but the another areas lack of information about the how GUM his the true tool to use for the uncertainty calculations.	Mar 20, 2012 2:26 PM
33	agree	Mar 20, 2012 5:18 AM
34	Yes, the scope of GUM (in context of different scientific disciplines) is too narrow.	Mar 14, 2012 7:09 PM
35	Do not agree	Mar 14, 2012 12:45 PM
36	The GUM is quite complicate. If I found the uncertainties rules elsewhere I did not use GUM	Mar 13, 2012 5:49 PM
37	For the most part, I have always found it to be relevant and appropriate. In the context of using audits/repeatability to do retroactive quantification of measurement error, I think things could be better standardized.	Mar 13, 2012 12:08 AM
38	thank God	Mar 12, 2012 6:27 PM
39	no opinion	Mar 9, 2012 4:19 PM

Page 3, Q5. e. Inadequacy: Since its publication, the need to evaluate measurement uncertainty has been recognised in an increasing number of scientific disciplines, for which the present GUM does not provide sufficient guidance.

40	Yes. I work with chemists, and they appreciate EURACHEM much more than GUM, and they need to consider many other approaches. It is similar to the situation that we had with VIM 2	Mar 8, 2012 7:01 PM
41	Procedures dealing with measurement uncertainty evaluation of microbiologal enumeration methods should also be covered.	Mar 8, 2012 10:23 AM
42	Not so much in my experience.	Mar 8, 2012 9:45 AM
43	Yes, this is true.	Mar 6, 2012 7:21 PM
44	I do not deal with any fields that this is a problem.	Mar 5, 2012 7:34 PM
45	Agree	Mar 5, 2012 5:44 PM
46	adaption is useful	Mar 3, 2012 12:22 PM
47	UM estimation example for different fields and applications.	Mar 1, 2012 4:45 AM
48	There is a risk here. All disciplines really want a version of the GUM written for themselves with all the examples from their own field. For instance in photometry and radiometry (a long-term standard metrological discipline with a CC of its own) our uncertainties tend to be expressed as relative uncertainties, our measurement equations are multiplicative and correlations with wavelength are very important - it can be hard to "interpret" the GUM for this situation. I suspect that for some other disciplines the step is even harder. But the effort to write the GUM for each community separately is huge. It probably needs collaboration between the GUM people and someone interested in that community.	Feb 29, 2012 4:29 PM
49	Agree	Feb 29, 2012 4:26 PM
50	I agree.	Feb 28, 2012 6:14 PM
51	True	Feb 27, 2012 1:20 PM
52	It has but it remains to be seen whether the chemical and life sciences will continue to use it. There are increasing number of disciplines using the top down approach to uncertainty rather than GUM and these have been accepted by accreditation bodies. In addition there are papers appearing in journals questioning the relevance of GUM to chemical testing in particular and emphasising the usefulness of PT and collaborative testing.	Feb 27, 2012 6:20 AM
53	More examples would be valuable.	Feb 23, 2012 11:54 PM
54	I support this opinion and evaluation of measurement uncertainty for some specific field of measurement and scientific disciplines	Feb 23, 2012 11:12 PM
55	True statement wrt increased profile.	Feb 23, 2012 9:39 AM
56	Good point. Many of us are asked to teach or comment about GUM to scientists, students, engineers, executives. Much of that teaching involves formulas. Most of those formulas are from the late 1800's. These facts support your assertion that GUM is inadequate. The diverse readership is not understanding the important concepts and practical points from the GUM. This may be due to their lack of mathematical felicity, which disrupts	Feb 22, 2012 3:19 PM

Page 3, Q5. e. Inadequacy: Since its publication, the need to evaluate measurement uncertainty has been recognised in an increasing number of scientific disciplines, for which the present GUM does not provide sufficient guidance.

	their understanding of the practical points. That is, the reader is so overwhelmed by partial differential equations, that he or she does not bother considering all the possible sources of uncertainty or error in a measurement. That's a problem.	
57	There is some truth in thois statement. My belief is that the GUM should remain unchanged, and additional Guidance developed for such situations 9eg where there is insufficient knowledge of the system to build a reasonable uncertainty model).	Feb 21, 2012 5:07 PM
58	Good idea to enlarge the GUM readership	Feb 21, 2012 3:29 PM
59	agreed. However, the main benefit of the GUM has been the common language. The classical methods underlying the GUM are obvious enough, and their extensions of multivariate and non-linear systems are obvious enough. Only serious weakeness is errors with asymetric distributions.	Feb 20, 2012 9:49 PM
60	I fully agree	Feb 16, 2012 3:40 PM
61	basic knoledge of the calculation of uncertainty is of high interest but in some cases laboratories do not understand that there is no race for getting the lower uncertainty. this race in some case lead to large undertestimate of the uncertainty.	Feb 16, 2012 2:32 PM
62	As a representative from the industry I can say that we use the basic directions from GUM. However, to make the procedures applicable to everyday life we have set our own requirements for how to handle correlated input quantities and how to handle systematic effects. In a production environment we can not always correct for identified systematic effect, but we have to handle them in relation to the uncertainty statement for the measurement result.	Feb 16, 2012 9:35 AM
63	currently GUM is not widly used in scientific aplications in Belarus thus poses little problem.	Feb 15, 2012 2:37 PM
64	This lack of guidance is what I regard as the biggest issue with respect to the applicability of the GUM. As well as the lack of documented examples how the GUM is applied, for example, to various analytical methods	Feb 15, 2012 12:00 PM
65	I don't think that it's a cause for revision of the GUM. This "inadequacy" can be resolved by working out the supplements for uncertainty evaluation in disciplines which are far away from the conventional ones. At present GUM has wide area of application.	Feb 15, 2012 8:04 AM
66	As the GUM gives a general framework, I do not see any problem. User in specific fields can write their own application note. I do not think that the GUM can cover every fields.	Feb 14, 2012 3:41 PM
67	more practical examples in different scientific disciplines would be helpful	Feb 13, 2012 3:39 PM
68	fgnb	Feb 13, 2012 2:56 PM
69	Fully agree with this, particularly for testing and in forensics.	Feb 8, 2012 7:58 PM
70	The present GUM is already quite complicated, its extension to cover all scientific disciplines is hardly possible, and not justified if no significant	Feb 7, 2012 2:42 PM

Page 3, Q5. e. Inadequacy: Since its publication, the need to evaluate measurement uncertainty has been recognised in an increasing number of scientific disciplines, for which the present GUM does not provide sufficient guidance.

	changes of the present principal concepts are needed. Additional supplements likely are preferable.	
71	-	Feb 7, 2012 2:08 PM
72	yes, indeed the next item	Feb 6, 2012 10:15 PM
73	Agree particularly the use of measurment performance data	Feb 6, 2012 5:31 PM

Page 3, Q6. f. Inadequacy: The present GUM is focused mainly on the situation of a physical quantity which "…can be characterized by an essentially unique value". This has probably inhibited the wide use of the GUM in some scientific disciplines, such as chemistry and biology, in which a definition of the me...

1	My laboratory deals mainly with samples for which an essentially uniquie value is desired.	Jun 15, 2012 9:28 PM
2	We think that in disciplines as chemistry and biology must have specific guidance and must be developed with EURACHEM or another organization	Jun 15, 2012 8:15 PM
3	Certainly merits consideration. The GUM should be as widely applicable as possible, to encourage the adoption of sound metrological principles in all fields. However, the understandability and core framework should not be compromised by an attempt to make the document too general	Jun 15, 2012 1:27 PM
4	Eurachem/Citac, EDQM/OMCL guides can be used for these disciplines.	Jun 15, 2012 1:17 PM
5	Agree. In these "new" fields the concept of present GUM in some cases is not ok. .	Jun 14, 2012 4:20 PM
6	Not really a limitation. The actual limitation often rather is lack of a quantitative model relating the measurand to the relevant input quantities.	Jun 13, 2012 4:11 PM
7	I believe, chemists and biologists deal with physical quantities which "can be characterized by essential unique values" too. The term "physical" ought to be interpreted as characterizing a matter property rather than referring to a specific scientific discipline (physics).	Jun 13, 2012 3:06 PM
8	This critique is true and efforts should be made to improve the GUM in this respect.	Jun 12, 2012 4:44 PM
9	The GUM is too complex for routine use by most chemists and biologists in the field of laboratory medicine. Development of an Annex or Supplement with real-world, fully worked examples would be a useful improvement that would aid in the adaptation of the GUM by practitioners in the Laboratory Medicine field.	Jun 12, 2012 3:07 PM
10	None noted.	Jun 8, 2012 3:25 PM
11	I would add the measurment of quantities which are function of time	Jun 8, 2012 12:44 PM
12	Please see my comment e.	Jun 6, 2012 5:34 PM
13	The claim of inadequacy is often an excuse for not wanting to evaluate uncertainty. However it can be justified if critics maintain that the only way to evaluate uncertainty is in accordance with the examples in GUM not with its priciples. Uncertainty evaluation is now carried out widely in analytical chemistry	Jun 6, 2012 2:48 PM
14	The increasing share of many disciplines of the complexity or chaos dynamics (deterministic but little predictable) can collision to the probabilistic uncertainty approach. In the other extreme industrial applications requires simple straitforward quantifications.	Jun 6, 2012 2:33 PM
15	See answer to e)	May 28, 2012 8:39 PM
16	Agreed. Application to qualitative testing requires more support.	May 17, 2012 6:22 AM
17	Potential to generalize the definition of value.	May 16, 2012 10:33 PM

Page 3, Q6. f. Inadequacy: The present GUM is focused mainly on the situation of a physical quantity which "…can be characterized by an essentially unique value". This has probably inhibited the wide use of the GUM in some scientific disciplines, such as chemistry and biology, in which a definition of the me...

18	Agree, see above	May 16, 2012 1:34 PM
19	For testing pourposes, I believe we often do not have the possibility to perform so many test to have a reasonable confidence on our data. How to deal with it without increasing cost?	May 16, 2012 9:20 AM
20	I use the GUM for the industrial instrumentation metrology and it works just fine.	Apr 24, 2012 2:42 PM
21	None.	Apr 11, 2012 10:01 PM
22	The GUM is very high level and theoretical - it almost takes a laboratory view on uncertainty. In real life in river flow measurement there can be many contributors to uncertainty that the GUM does not address.	Apr 3, 2012 11:32 AM
23	This should be also solved by upgrading the GUM.	Apr 2, 2012 2:31 AM
24	this point is very important !	Mar 26, 2012 8:55 PM
25	An interesting question: How does one use the GUM to characterize a distribution representing an aleatory phenomenon in science/engineering? If the distribution is parametrized, then one can use GUM S2 to state the (possibly joint) uncertainty in these parameters. What if the distribution is non-parametric, however? Does one try to measure a range of percentiles of the unknown distribution's CDF?	Mar 22, 2012 6:31 PM
26	Do not know enough to express an opinion	Mar 21, 2012 2:13 PM
27	No comments.	Mar 20, 2012 2:55 PM
28	agree	Mar 20, 2012 5:18 AM
29	Yes, I agree with it.	Mar 14, 2012 7:09 PM
30	Possibly	Mar 14, 2012 12:45 PM
31	I agree	Mar 13, 2012 5:49 PM
32	Agreed, this is a challenge to encourage traditional "organismal ecologists" to adopt many of the practices contained in the GUM. Sample size is often a challenge as the Central Limit Theorem can not often be invoked to force Gaussian Statistics.	Mar 13, 2012 12:08 AM
33	it is still useless	Mar 12, 2012 6:27 PM
34	no opinion	Mar 9, 2012 4:19 PM
35	Yes.	Mar 8, 2012 7:01 PM
36	This item causes some problems with respect to the expression of e.g. "CFU or colony forming units", which is well known and widely-used in microbiology to express bacterial contamination degrees or "viable counts"	Mar 8, 2012 10:23 AM
37	No experience.	Mar 8, 2012 9:45 AM
38	Unclear, in my view.	Mar 6, 2012 7:21 PM

Page 3, Q6. f. Inadequacy: The present GUM is focused mainly on the situation of a physical quantity which "…can be characterized by an essentially unique value". This has probably inhibited the wide use of the GUM in some scientific disciplines, such as chemistry and biology, in which a definition of the me...

39	I do not know of any measurement that is not related to a measurand.	Mar 5, 2012 7:34 PM
40	Agree	Mar 5, 2012 5:44 PM
41	Would increase practical usage	Mar 3, 2012 12:22 PM
42	Yes, this is important. Also to account for examples where you can't write the measurand as a function of the different effects but the solution is done, e.g. numerically.	Feb 29, 2012 4:29 PM
43	Agree, but care has to be taken that definitons and procedures do nto bacome to complicated, if the cases are basically simple. Perhaps a new GUM should be written for the cases mentioned above.	Feb 29, 2012 4:26 PM
44	I agree. In chemical area, the Eurachem Guide is more used.	Feb 28, 2012 6:14 PM
45	At the moment, this is one of the largest shortcomings of the GUM	Feb 27, 2012 1:20 PM
46	Even in physics the essentially unique value may be stretched. We are talking about an estimate of a the variability in a measurement. That variability in a well defined physical measurement may be ppm or less. For many empirical measurements the variability can be 100 % even using the same method. Definitions are not that relevant.	Feb 27, 2012 6:20 AM
47	Work with EUROCHEM and CITAM and IUPAC for their input.	Feb 23, 2012 11:54 PM
48	Another possible area is in qualitative testing, where the result cannot be expressed numerically but the uncertainties associated with the underlying conditions still have to be evaluated.	Feb 23, 2012 2:39 PM
49	True, rarely primarily used in clinical sciences and I doubt most of my professional colleagues know [or care] of its existence. I do.	Feb 23, 2012 9:39 AM
50	Good point.	Feb 22, 2012 3:19 PM
51	As mentioned above, I propose that the GUM should be left unchanged and additional guidance (possibly in the form of Supplements) developed for those areas where it is difficult to apply.	Feb 21, 2012 5:07 PM
52	Additional guidance for these applications would be welcomed. Problem of inhomogeneity of the sample can also occur in physics.	Feb 21, 2012 3:29 PM
53	No problem.	Feb 20, 2012 9:49 PM
54	yes, is it alweys necessary to give uncertainty when it is far more than 50% in such a case it is better to give a maximum deviation. the calculus of so large uncertainty is meaningless	Feb 16, 2012 2:32 PM
55	The present GUM and the wording in several sections are unfamiliar for a series of disciplines. A document with more examples from e.g. chemistry and biochemical analyses (where the exact definition of the measurand may be a problem) will improve the use in these disciplines. At present, several interpretating guidance documents has been prepared to cope with this.	Feb 16, 2012 9:35 AM
56	not a problem. Why not to use EURACHEM Guide instead?	Feb 15, 2012 2:37 PM

Page 3, Q6. f. Inadequacy: The present GUM is focused mainly on the situation of a physical quantity which "…can be characterized by an essentially unique value". This has probably inhibited the wide use of the GUM in some scientific disciplines, such as chemistry and biology, in which a definition of the me...

57	"GUM can be impossible" not because of an "inadequate" definition of words but because of a lack of guidance on how to do it in a case by case leading by example(s) - pragmatic versus theoretical!	Feb 15, 2012 12:00 PM
58	Propably such disciplines as biology needs partiqular documents, e.g. concerning uncertainty evaluation for ordinal quantites.	Feb 15, 2012 8:04 AM
59	Not concerned by this point.	Feb 14, 2012 3:41 PM
60	does not apply for my background	Feb 13, 2012 3:39 PM
61	gfd	Feb 13, 2012 2:56 PM
62	Fully agree. Clearly defining the measurand in these fields is difficult.	Feb 8, 2012 7:58 PM
63	This quite specific problem obviously needs a special treatment for any particular case. It seems not to be only the problem of term "measurement uncertainty", the term "value" also needs to be clarified at the same time.	Feb 7, 2012 2:42 PM
64	-	Feb 7, 2012 2:08 PM
65	OK	Feb 6, 2012 10:15 PM

Page 3, Q7. g. Ambiguities: Notational and terminological.

1	"Ambiguities: Notational and terminological." is too open ended a question/comment. I have no comment.	Jun 15, 2012 9:28 PM
2	We do not found	Jun 15, 2012 8:15 PM
3	I'm sure there are some, but I've never noticed any practical problems.	Jun 15, 2012 1:27 PM
4	see b) and d) above.	Jun 13, 2012 4:11 PM
5	I do not see significant notational and/or terminological ambiguities.	Jun 13, 2012 3:06 PM
6	no comment	Jun 12, 2012 4:44 PM
7	Not a major issue for Laboratory Medicine.	Jun 12, 2012 3:07 PM
8	None noted.	Jun 8, 2012 3:25 PM
9	What is useful to the practical end user - which is different from the desires of the academic.	Jun 7, 2012 3:31 PM
10	Please keep the notation as simple as possible, keeping in mind the out-of-NMI-metrologists.	Jun 6, 2012 5:34 PM
11	These will always be present and over zealous attempts to overcome them can lead to an unreadable document	Jun 6, 2012 2:48 PM
12	For spread and general use of GUM: Error continues beeing intuitive, while uncertainty in terms of standard deviation is harder to understand.	Jun 6, 2012 2:33 PM
13	Of course ambiguity should be avoided where possible.	May 28, 2012 8:39 PM
14	Agree	May 16, 2012 1:34 PM
15	As I do not know the VIM, I cannot make any comment	May 16, 2012 9:20 AM
16	Different terms and concepts are messed up by the guide.	May 3, 2012 11:15 AM
17	I recommend that the notation must be kept similar in order to made it easier to understand for the ones that already uses the GUM.	Apr 24, 2012 7:33 PM
18	None.	Apr 11, 2012 10:01 PM
19	no opinion	Apr 2, 2012 2:31 AM
20	this point is important (see comments in e.)	Mar 26, 2012 8:55 PM
21	Coverage vs. credible vs. confidence interval. Be very clear about all linearity, normality, and other key assumptions.	Mar 22, 2012 6:31 PM
22	Do not know enough to express an opinion	Mar 21, 2012 2:13 PM
23	Agree.	Mar 20, 2012 2:55 PM
24	Yes, I agree.	Mar 14, 2012 7:09 PM
25	Not sure any are present	Mar 14, 2012 12:45 PM

Page 3, Q7. g. Ambiguities: Notational and terminological.

26	I agree	Mar 13, 2012 5:49 PM
27	waste of time	Mar 12, 2012 6:27 PM
28	consent	Mar 9, 2012 4:19 PM
29	Yes	Mar 8, 2012 7:01 PM
30	Not aware of.	Mar 8, 2012 9:45 AM
31	Always worth getting right	Feb 29, 2012 4:29 PM
32	Do not know	Feb 29, 2012 4:26 PM
33	?	Feb 23, 2012 11:54 PM
34	Insufficient knowledge - but clarity desirable.	Feb 23, 2012 9:39 AM
35	This should be cleared up. Regarding this whole effort: We should consider the audience and the mode of communication here. If this document is going to be used on paper, by metrologists, then the current format may be fine. But if the new GUM will be interactive and electronic, and read by non-metrologists, then there may be better formats. For instance, on a website, mouse-over tips could define technical words or link to simple examples. Redundancy could be included. There is some redundancy in the original GUM, and parenthetical notes. That informality is very helpful as it diversifies the modes of communication.	Feb 22, 2012 3:19 PM
36	I observe no problems here.	Feb 21, 2012 5:07 PM
37	No comment	Feb 21, 2012 3:29 PM
38	none.	Feb 20, 2012 9:49 PM
39	no	Feb 16, 2012 2:32 PM
40	not noticed. Some ambigueities due to translation doesn't influence general understanding.	Feb 15, 2012 2:37 PM
41	?	Feb 15, 2012 12:00 PM
42	I don't see.	Feb 15, 2012 8:04 AM
43	The type A and type B evaluation methods are frequently understood as type A and type B uncertainties. I think that the GUM would be clearer without distinction between the evaluation methods, which is mostly useless.	Feb 14, 2012 3:41 PM
44	as experimental physicists could not find such examples	Feb 13, 2012 3:39 PM
45	ghnb	Feb 13, 2012 2:56 PM
46	-	Feb 7, 2012 2:08 PM
47	No OK	Feb 6, 2012 10:15 PM

Page 4, Q1. a. Clarity of presentation.		
1	Good.	Jun 15, 2012 9:34 PM
2	Very clear	Jun 15, 2012 8:17 PM
3	Important. The document is pretty good at present, and clarity should not be allowed to suffer in the course of making the concepts more generally applicable (easy to say, but not always easy to achieve...)	Jun 15, 2012 1:31 PM
4	GUM should be understandable for all reader.	Jun 15, 2012 1:19 PM
5	Good	Jun 14, 2012 4:23 PM
6	Definitely important. The current Guide is not written in a didactical way, and its revision shall be improved in this respect. In addition, understanding of ideas would be highly facilitated by presenting the modern and coherent Bayesian approach for uncertainty evaluation which already forms the basis of the Supplements 1 and 2 to the Guide.	Jun 13, 2012 4:11 PM
7	I agree, the essense of GUM's approch can be illustrated quite simply (see, for example, I. Szajniak, Decision Rule in a Conformity Assessment Procedure under Measurement Uncertainty / International Seminar "Mathematics, statistics and computation to support measurement quality", St. Petersburg, June, 2012).	Jun 13, 2012 3:07 PM
8	Very important	Jun 12, 2012 4:44 PM
9	Clarity of presentation could be improved by inclusion of relevant examples in the field of laboratory medicine. Current presentation details are often obscured by lack of familiarity or prior knowledge of some of the technical areas that form the basis for the examples or concepts being presented.	Jun 12, 2012 3:12 PM
10	The present GUM seems disorganized in places, and some concepts that would help a reader only become clearer in the appendices. Any changes to improve clarity would be a welcome improvement.	Jun 8, 2012 3:25 PM
11	Good, some formal expressions about probability theory maybe difficult to handle	Jun 8, 2012 12:48 PM
12	An absolute necessity, along with simplicity. Anything that aids ease of understanding and use.	Jun 7, 2012 3:32 PM
13	The presentation is generally correct and clear for NMIs metrologists, but a number of documehts have had to be produced to take the GUM application to the out-of-NMI-metrologists. The decision of who the GUM is aimed to has to be taken, to keep the format as it is in a paper-like one, or changing it to a one that facilitates its understanding,	Jun 6, 2012 5:34 PM
14	Present version suffiiently clear	Jun 6, 2012 2:48 PM
15	Not necessary, but the appendixes for more theoretycal explanations.	Jun 6, 2012 2:36 PM
16	As not familar with the document can not comment	Jun 1, 2012 11:29 AM
17	The GUM is already clear in its presentation. It is very suitable for teaching purposes and can be grasped by laboratory technicians - this would not be the case if a wholesale Bayesian revision was undertaken. This would put uncertainty analysis into the hands of mathematical experts which should be resisted - even if this means that some inconsistency has to be tolerated.	May 28, 2012 8:42 PM

Page 4, Q1. a. Clarity of presentation.		
18	The presentation is more-or-less well structured.	May 20, 2012 11:50 AM
19	Agree	May 16, 2012 1:35 PM
20	I find the document clear.	May 16, 2012 9:26 AM
21	The guide is complicated to apply with too Annex. The examples are necessary to understand the text and application of the guide.	May 3, 2012 11:18 AM
22	This always has been a strong point in the GUM	Apr 24, 2012 7:34 PM
23	The GUM is clear, maybe it could contain more examples along the text (not just in the appendices).	Apr 24, 2012 2:44 PM
24	The clarity will be improved if the inconsistency between bayesian and frequentist statistics is eliminated.	Apr 11, 2012 10:03 PM
25	GUM provides a clear description of uncertainty concept and calculations for people with at least a basic background in statistics and metrology. But, the supplement 1 is more technical and for some collegues with another background (i.e, chemistry, biology) maybe it can be hard to implement (requieres some programming proficiency)	Apr 11, 2012 2:04 PM
26	no opinion	Apr 2, 2012 2:32 AM
27	Yes !	Mar 26, 2012 8:55 PM
28	Hopefully the presentation can be more succinct if the current hybrid Bayesian/frequentist version of the GUM is abandoned.	Mar 22, 2012 6:37 PM
29	Do not know enough to express an opinion	Mar 21, 2012 2:13 PM
30	Irrelevant.	Mar 20, 2012 2:57 PM
31	as clear as possible	Mar 16, 2012 5:33 PM
32	Present GUM is clear, I think.	Mar 14, 2012 7:12 PM
33	Fairly good as is	Mar 14, 2012 12:47 PM
34	It would be a good improvement	Mar 13, 2012 5:52 PM
35	I think some of the "chapters" and appendices/annexes could be combined so as to enhance readability.	Mar 13, 2012 12:09 AM
36	it is unnecesssary	Mar 12, 2012 6:27 PM
37	very good	Mar 12, 2012 6:11 PM
38	Need more examples for specific industries for example ISO 5167 for lfow measurement has an exmaple within it on uncertainty calculations.	Mar 9, 2012 4:22 PM
39	consent	Mar 9, 2012 4:20 PM
40	Yes. It is very important that, although derived documents for the different sectors are provided by different organizations, GUM, as the common source, should be as clear as possible, while being comprehensive, unambiguous and deep enough.	Mar 8, 2012 7:05 PM

Page 4, Q1. a. Clarity of presentation.

41	Important. Maybe a simple cook-book part, and a more theoretical, formal, consistent part. Many people find the GUM difficult to read.	Mar 8, 2012 9:50 AM
42	I think the GUM is prettly well written, and is more practical than I expected it to be.	Mar 5, 2012 7:41 PM
43	Pay attention to basic knowledge necessary to understand concepts. Follw a progressive logical construction on the concept development.	Mar 5, 2012 7:42 AM
44	Could be optimized, but is not bad in the actual form. The examples are very helpful. The first part is very theoretically. Difficult to transfer to other people, needs additional documentation.	Mar 3, 2012 12:34 PM
45	clarity is ok, but sometimes becomes too scientific for the common reader	Feb 29, 2012 4:59 PM
46	This is the most important step. People need to feel they can use it as a tool, rather than admire it as a theoretical document for experts! The GUM is actually easier to read than its reputation suggests and I suspect some minor changes would make a big difference.	Feb 29, 2012 4:32 PM
47	Good.	Feb 29, 2012 4:27 PM
48	Like any aspect of physics or maths the concepts are not that simple. I believe the existing document is clear enough.	Feb 27, 2012 6:23 AM
49	OK now.	Feb 23, 2012 11:56 PM
50	reasonable clarity	Feb 23, 2012 11:19 PM
51	Excellent	Feb 23, 2012 9:39 AM
52	Necessary. The GUM should look familiar to 2015 audience, whoever that intended audience is.	Feb 22, 2012 3:21 PM
53	The GUM is presented in the style of a textbook, rather than a users guide. I have no difficulty wth this.	Feb 21, 2012 5:08 PM
54	Essential	Feb 21, 2012 3:51 PM
55	important	Feb 16, 2012 3:41 PM
56	it is good enough in the present version	Feb 16, 2012 2:34 PM
57	Goes without saying	Feb 15, 2012 12:02 PM
58	I think that it would be achieved by avoiding comparison with "error concept".	Feb 15, 2012 8:05 AM
59	presently o.k.	Feb 13, 2012 3:45 PM
60	hg	Feb 13, 2012 2:58 PM
61	-	Feb 7, 2012 2:09 PM

Page 4, Q2. b. Structure as close as possible to that of the present GUM.		
1	Good.	Jun 15, 2012 9:34 PM
2	GUM has been well structured	Jun 15, 2012 8:17 PM
3	Good Idea. The GUM has a large estabiliehd user base, and a revised version should try to be as compatible with the exisiting version as practical.	Jun 15, 2012 1:31 PM
4	There is no need to big alteration from present GUM	Jun 15, 2012 1:19 PM
5	Structure should be changed if required for clarity or consistency.	Jun 15, 2012 7:37 AM
6	In general the structure of the GUM is ok.	Jun 14, 2012 4:23 PM
7	Desirable, but not mandatory.	Jun 13, 2012 4:11 PM
8	No! No! No! This is in evident contradiction with the declared above principle of "clarity of presentation" (if "presentation" as presentation of a subject is in mind). A new document should combine GUM and its supplements into one guidelines and be based on statistical ideas presented in the Supplement 1.	Jun 13, 2012 3:07 PM
9	Yes, this is very desirable.	Jun 12, 2012 4:44 PM
10	Current structure is fine in principle. Sector specific examples could be included as a series of Annexes or Supplements.	Jun 12, 2012 3:12 PM
11	It is recommendable to have similar structure too the present version in order to maintain user friendiliness to current users.	Jun 12, 2012 2:21 PM
12	Improved clarity should be the priority. I see no reason to strive to maintain the structure.	Jun 8, 2012 3:25 PM
13	I agree	Jun 8, 2012 12:48 PM
14	Not necessary - be flexible in the design. Maybe three sections: the basic principles and practices in plain language; then a set of worked examples for as many fields as practical; and then the in-depth mathematical and academic discussion. The first two will make the guide much easier to use by the people doing the daily work.	Jun 7, 2012 3:32 PM
15	Agree.	Jun 6, 2012 5:34 PM
16	Yes	Jun 6, 2012 2:48 PM
17	As not familar with the document can not comment	Jun 1, 2012 11:29 AM
18	Yes of course	May 28, 2012 8:42 PM
19	YES. The structure shoud be close to the present GUM.	May 20, 2012 11:50 AM
20	Agree	May 16, 2012 1:35 PM
21	The structure seem very good	May 16, 2012 9:26 AM
22	The guide is complicated to apply with too Annex. The examples are necessary to understand the text and application of the guide.	May 3, 2012 11:18 AM
23	Yes, I believe that it is important to keep it familiar to the readers.	Apr 24, 2012 7:34 PM

Page 4, Q2. b. Structure as close as possible to that of the present GUM.		
24	I agree.	Apr 24, 2012 2:44 PM
25	Ok.	Apr 11, 2012 10:03 PM
26	no opinion	Apr 2, 2012 2:32 AM
27	The structure should change, if it can be made more succinct and put on a sound mathematical/statistical footing. Include a section on constructing uncertainty budgets for better understanding of sources of uncertainty and guidance on improving measurements.	Mar 22, 2012 6:37 PM
28	Do not know enough to express an opinion	Mar 21, 2012 2:13 PM
29	Very relevant, to ensure continuity of use.	Mar 20, 2012 2:57 PM
30	similar to the present GUM	Mar 16, 2012 5:33 PM
31	Yes, ok.	Mar 14, 2012 7:12 PM
32	Suits me as it is	Mar 14, 2012 12:47 PM
33	A continuity would be desirable	Mar 13, 2012 5:52 PM
34	Would like to see the appendices folded into the chapters	Mar 13, 2012 12:09 AM
35	waste of effort	Mar 12, 2012 6:27 PM
36	consent	Mar 9, 2012 4:20 PM
37	Yes. A lot of effort has been invested in GUM diffusion, and the new edition should be seen as a non-traumatic improvement.	Mar 8, 2012 7:05 PM
38	Actually, I apply more frequently the EURACHEM/CITAC Guide on Quantifying Uncertainty in Analytical Measurement than the GUM-Guide - The reason is that for my opinion GUM isn`t easy to understand for scientists others than mathematicans or statisticans. A more user friendly structure and presentation made for practicioners would be useful.	Mar 8, 2012 10:23 AM
39	Not so important. Quality of the document is more important. Calculation steps and final uncertainty estimates should be close to that of the present GUM.	Mar 8, 2012 9:50 AM
40	Please no!	Mar 6, 2012 7:22 PM
41	For my use I think it is fine.	Mar 5, 2012 7:41 PM
42	Agree	Mar 5, 2012 5:45 PM
43	Structure is ok.	Mar 3, 2012 12:34 PM
44	current structure is good	Feb 29, 2012 4:59 PM
45	It helps for older cross-references, but not at the expense of an improvement in clarity.	Feb 29, 2012 4:32 PM
46	Good	Feb 29, 2012 4:27 PM
47	Yes	Feb 27, 2012 6:23 AM

Page 4, Q2. b. Structure as close as possible to that of the present GUM.		
48	Yes. Indicate changes in updaed GUM.	Feb 23, 2012 11:56 PM
49	present structure is good	Feb 23, 2012 11:19 PM
50	yes	Feb 23, 2012 8:55 PM
51	Stay with a structure similar to the present version of the GUM	Feb 23, 2012 5:01 PM
52	No concern here as long as a logical structure is used.	Feb 23, 2012 2:40 PM
53	OK	Feb 23, 2012 9:39 AM
54	Not necessary.	Feb 22, 2012 3:21 PM
55	Would be useful for many readers	Feb 21, 2012 3:51 PM
56	does not seem so important to me.	Feb 16, 2012 3:41 PM
57	it is good enough in the present version	Feb 16, 2012 2:34 PM
58	Not necessarily	Feb 16, 2012 9:46 AM
59	Unless an evolution becomes a revolution?	Feb 15, 2012 12:02 PM
60	It's important.	Feb 15, 2012 8:05 AM
61	yes, but include e.g. examples in the main text	Feb 13, 2012 3:45 PM
62	hgn	Feb 13, 2012 2:58 PM
63	-	Feb 7, 2012 2:09 PM
64	Agree	Feb 6, 2012 5:32 PM

Page 4, Q3. c. Level of presentation comparable to that of the present GUM.		
1	Good, however more is not necessarily better. GUM is sometimes more detailed on minor topics then typical and target users need. Concise is often more helpful than addressing every possible detail.	Jun 15, 2012 9:34 PM
2	We think that the level of presentation has been well developed	Jun 15, 2012 8:17 PM
3	The present level is probably about right. It needs to be supplemented by some simple introductory guides for inexperienced users, or those new to metrology, but that is not a problem.	Jun 15, 2012 1:31 PM
4	Revised GUM shouldn't be too complicated to be able to comprehensible.	Jun 15, 2012 1:19 PM
5	More expaining notes, examples and pictures could be used to give better understanding to the contant.	Jun 14, 2012 4:23 PM
6	It is important that the whole framework is presented in a way that is easily understandable. Technical issues should be referred to technical Supplements as much as possible.	Jun 13, 2012 4:11 PM
7	Level of presentation in the general part should be similar. Details should be placed in the appendices.	Jun 12, 2012 4:44 PM
8	Sector-specific examples, annexes or supplements should strive to incorporate terminology and concepts that are generally familiar to the practitioners in the specific fields of interest.	Jun 12, 2012 3:12 PM
9	In some way, the GUM needs to be made more understandable by the average user. Within my company, the most common comment I have received about the GUM is that it is difficult to understand, contains too much math, and is too confusing and daunting overall.	Jun 8, 2012 3:25 PM
10	Ok but formal expressions must be explained, or simplified (or avoided?), also in order to allow a better dissemination to a wider audience	Jun 8, 2012 12:48 PM
11	Needs to be much easier to understand and use. Otherwise, it will not be used in daily work.	Jun 7, 2012 3:32 PM
12	Please see my comment a.	Jun 6, 2012 5:34 PM
13	Yes	Jun 6, 2012 2:48 PM
14	As not familar with the document can not comment	Jun 1, 2012 11:29 AM
15	Yes	May 28, 2012 8:42 PM
16	YES.	May 20, 2012 11:50 AM
17	Agree	May 16, 2012 1:35 PM
18	Fine	May 16, 2012 9:26 AM
19	Yes, I believe that it is important to keep it familiar to the readers.	Apr 24, 2012 7:34 PM
20	I agree.	Apr 24, 2012 2:44 PM
21	Ok.	Apr 11, 2012 10:03 PM
22	no opinion	Apr 2, 2012 2:32 AM

Page 4, Q3. c. Level of presentation comparable to that of the present GUM.

23	Don't be afraid to discuss aleatory variability in a measurement process that generates indications, vs. the epistemic uncertainty that results in our estimates of underlying parameters we are trying to measure.	Mar 22, 2012 6:37 PM
24	Do not know enough to express an opinion	Mar 21, 2012 2:13 PM
25	Relevant.	Mar 20, 2012 2:57 PM
26	possibly easier in the text, referring to the appendices for more details	Mar 16, 2012 5:33 PM
27	Yes.	Mar 14, 2012 7:12 PM
28	Yes, agree	Mar 14, 2012 12:47 PM
29	Improve the presentation	Mar 13, 2012 5:52 PM
30	waste of money	Mar 12, 2012 6:27 PM
31	consent	Mar 9, 2012 4:20 PM
32	Yes. See answer to a)	Mar 8, 2012 7:05 PM
33	see also comment under b,	Mar 8, 2012 10:23 AM
34	No. See a: add a very simple, down to earth, possibly inconsistent part readable for anybody.	Mar 8, 2012 9:50 AM
35	The current GUM can be usefull read ignoring the equations, and thus is a very usable document. I believe that there are adequate presentations of a "simple" GUM (M3003 for example) and a more technical document would be much less useful to me.	Mar 5, 2012 7:41 PM
36	More examples	Mar 5, 2012 7:42 AM
37	I would expect a more modern form of the theoretical part, with some examples for better support of easy learning and transfer to praxis	Mar 3, 2012 12:34 PM
38	additional examples on presentation of uncertainty tables would be useful	Feb 29, 2012 4:59 PM
39	I think this is fine, but that more examples are required.	Feb 29, 2012 4:32 PM
40	Good	Feb 29, 2012 4:27 PM
41	Yes	Feb 27, 2012 6:23 AM
42	Yes.	Feb 23, 2012 11:56 PM
43	More examples for different fields of measurement: chemistry, biology, medicine,...	Feb 23, 2012 11:19 PM
44	yes	Feb 23, 2012 8:55 PM
45	OK	Feb 23, 2012 9:39 AM
46	More diversity.	Feb 22, 2012 3:21 PM
47	Agree	Feb 21, 2012 3:51 PM

Page 4, Q3. c. Level of presentation comparable to that of the present GUM.		
48	yes	Feb 16, 2012 3:41 PM
49	it is good enough in the present version	Feb 16, 2012 2:34 PM
50	?	Feb 15, 2012 12:02 PM
51	yes	Feb 15, 2012 8:05 AM
52	for further widespread use level could be lowered	Feb 13, 2012 3:45 PM
53	hgn	Feb 13, 2012 2:58 PM
54	-	Feb 7, 2012 2:09 PM

Page 4, Q4. d. Better specification of the conditions of applicability.		
1	Good.	Jun 15, 2012 9:34 PM
2	We think that would be good having the largest number of examples	Jun 15, 2012 8:17 PM
3	Not quite sure what this is driving at.	Jun 15, 2012 1:31 PM
4	I hope this also include examples, picutes that can be used for the readers to better understand the purpose of the text..	Jun 14, 2012 4:23 PM
5	Definitely important.	Jun 13, 2012 4:11 PM
6	The best specification should be GUM to be applied at all times and in all places.	Jun 13, 2012 3:07 PM
7	no comment	Jun 12, 2012 4:44 PM
8	This should be addressed in the same fashion as discussed in Item C, above.	Jun 12, 2012 3:12 PM
9	The methodology in applying in various fields of science need to be elaborated accompanied with examples.	Jun 12, 2012 2:21 PM
10	I recommend reinforcing the fact that the GUM presents a statistical approach for evaluating measurement uncertainy, with the primary goal of providing a consistent evaluation approach that allows for a simple method of combining uncertainties(e.g., adding variances). I would reinforce to the user that the mathematical descriptions used, namely normal or normalized distributions of sources of variation, are a convenient way to apply math to the physical phemonena, but do not necessarily represent the underlying laws by which the physical phenomena actually operate.	Jun 8, 2012 3:25 PM
11	I agree. Examples taken from industrial practice would be very appreciated. The industrial field should be generic and as wide possible, not primarily related with metrology.	Jun 8, 2012 12:48 PM
12	Yes, but be careful not to make a situation where unscrupulous people can point at it and claim an exemption.	Jun 7, 2012 3:32 PM
13	Please see my comment e in the previous section.	Jun 6, 2012 5:34 PM
14	Present specification adequate	Jun 6, 2012 2:48 PM
15	Always. The aim of creating a standard of general application for all disciplines can make it tasteless in many fields. The converse approach of an operative document with application in many disciplines (anexes, for instance) can spread it use.	Jun 6, 2012 2:36 PM
16	As not familar with the document can not comment	Jun 1, 2012 11:29 AM
17	Yes - but only modest additions are required.	May 28, 2012 8:42 PM
18	I would recommend sub-volumes or 'collateral standards' type of volumes to acoompany the basic GUM for the different scientific disciplines which use metrology.	May 20, 2012 11:50 AM
19	Agree	May 16, 2012 1:35 PM
20	Yes, this might help.	May 16, 2012 9:26 AM

Page 4, Q4. d. Better specification of the conditions of applicability.		
21	The guide is difficult to apply to all measures, more designed for use in calibration and testing.	May 3, 2012 11:18 AM
22	Yes, in order to make it easy to select the right methodology to estimate uncertainty.	Apr 24, 2012 7:34 PM
23	Nice improvement.	Apr 24, 2012 2:44 PM
24	This would be excellent for accreditation purposes. Accreditation bodies should be aware about the difficulties of this subject.	Apr 11, 2012 10:03 PM
25	no opinion	Apr 2, 2012 2:32 AM
26	Yes !	Mar 26, 2012 8:55 PM
27	Be clear about all assumptions.	Mar 22, 2012 6:37 PM
28	Do not know enough to express an opinion	Mar 21, 2012 2:13 PM
29	Very relevant. Strongly reccommended to cover new knowledge fields.	Mar 20, 2012 2:57 PM
30	agree	Mar 20, 2012 5:19 AM
31	This part requires the maximum effort to extend the understanding and application of the standard	Mar 16, 2012 5:33 PM
32	Yes, should be better than on the present GUM.	Mar 14, 2012 7:12 PM
33	Only where shorfalls are already identitifed	Mar 14, 2012 12:47 PM
34	desirable	Mar 13, 2012 5:52 PM
35	never used.	Mar 12, 2012 6:27 PM
36	consent	Mar 9, 2012 4:20 PM
37	Yes. It needs to have a clear disctinction betwwen GUM and the "GUM framework", and the different conditions of applicability	Mar 8, 2012 7:05 PM
38	Yes, and make a summary page of the GUM and a flow scheme showing when to use which document.	Mar 8, 2012 9:50 AM
39	I think Chapter 3 which points out the usefulness of Measurement Assurance and check standards in place of mathematical methods is good and should be strengthened. ISO 17025, section 5.9.2 requires data that can be used in this manner, and the data based uncertainty could use some formalization that might help accredited laboratories.	Mar 5, 2012 7:41 PM
40	Agree	Mar 5, 2012 5:45 PM
41	Examples are quite formal, should include more practical relation	Mar 3, 2012 12:34 PM
42	??	Feb 29, 2012 4:32 PM
43	Good	Feb 29, 2012 4:27 PM
44	Would be useful particularly if it is intended for other disciplines. There is not a clear understanding that the GUM requires systematic effects to be	Feb 27, 2012 6:23 AM

Page 4, Q4. d. Better specification of the conditions of applicability.		
	removed wherever possible. That means traceability must be established and trueness effects removed.	
45	Yes. Especially how to apply on the "shop floor" or in routine calibrations (like using a Multifunction Calibrator to measure a digital multimeter).	Feb 23, 2012 11:56 PM
46	Yes, there is a need for better specificatio of the conditions of applicability	Feb 23, 2012 11:19 PM
47	yes	Feb 23, 2012 8:55 PM
48	Good	Feb 23, 2012 9:39 AM
49	More diversity of examples and notes. Stress the concepts and practical notes.	Feb 22, 2012 3:21 PM
50	Essential	Feb 21, 2012 3:51 PM
51	I consider that useful	Feb 16, 2012 3:41 PM
52	yes in some case see previous remarks	Feb 16, 2012 2:34 PM
53	As a user of the document we can not always fulfill all preconditions for an uncertainty estimation. Therefore, it is preferred that the revised document also gives guidances for situations where e.g. it is not possible to correct for a systematic effect due to the design of the measurement process.	Feb 16, 2012 9:46 AM
54	Won't hurt, but when it comes to "applicability" what is needed is to lead by example(s)	Feb 15, 2012 12:02 PM
55	I don't see what exactly can be improved here.	Feb 15, 2012 8:05 AM
56	presently o.k.	Feb 13, 2012 3:45 PM
57	hn	Feb 13, 2012 2:58 PM
58	-	Feb 7, 2012 2:09 PM

Page 5, Q1. a. Increased guidance in the evaluation of standard uncertainties associated with input estimates.		
1	Lack expertise to comment.	Jun 15, 2012 9:39 PM
2	Will be the only way to clarify all doubts	Jun 15, 2012 8:18 PM
3	Good idea	Jun 15, 2012 1:32 PM
4	Recommending to associate guidance with one or more examples.	Jun 15, 2012 7:43 AM
5	Very good. Look at developed guidelines like the EA 4/02, M3003 and the calibration guidelines from Euramet.	Jun 14, 2012 4:28 PM
6	Definitely important. For example, current Type A evaluation addresses only the Gaussian sampling distribution. But also available techniques for the elicitation of prior knowledge should be considered. Application of such techniques could yield smaller uncertainties by better utilizing the available knowledge. Employment of Bayes theorem could allow to make coherent use of new data in combination with available prior knowledge.	Jun 13, 2012 4:11 PM
7	I can't agree with the idea that law of propagation of uncertainty should be the central concept of the revised GUM because that law is only a special case of propagation of distributions as stated in the Supplement 1.	Jun 13, 2012 3:38 PM
8	This would be helpeful	Jun 12, 2012 4:45 PM
9	This may need to be addressed, again in Sector-specific documents, where appropriate. For the field of Laboratory Medicine, additional guidance regarding the estimation of standard uncertainties associated with input quantities would be helpful.	Jun 12, 2012 3:15 PM
10	Such guidance will be helpful so as to avoid subjectivity in determining input uncertainties	Jun 12, 2012 2:23 PM
11	If I understand the previous paragraph, it states that the GUM will switch from a frequentist to a Bayesian approach.This is a major and fundamental change, and will require a large amount of increased guidance. The frequentist approach, which should be familiar to a larger number of readers, is already difficult to understand. The new approach will only add to this difficulty. This sounds like it may be going in the wrong direction by making the GUM even more confusingto the average user. I understand that the Bayerist approach may provide a better description of the physical world,but the GUM has to focus on useability, not just mathematical rigor.	Jun 8, 2012 3:25 PM
12	I agree	Jun 8, 2012 12:51 PM
13	Most practical end users don't know what a Bayesian approach is, and don't care. They just want to do their job well and quickly. Most users are looking for more of a "cookbook" presentation.	Jun 7, 2012 3:33 PM
14	Could help but perhaps this is best done in sector specific guides	Jun 6, 2012 2:48 PM
15	As not familar with the document can not comment	Jun 1, 2012 11:30 AM
16	no comment	May 28, 2012 8:47 PM
17	YES	May 20, 2012 11:52 AM
18	Agreed	May 17, 2012 6:24 AM

Page 5, Q1. a. Increased guidance in the evaluation of standard uncertainties associated with input estimates.		
19	Agree	May 16, 2012 1:36 PM
20	Yes, please	May 16, 2012 9:27 AM
21	Ok.	Apr 24, 2012 7:37 PM
22	It is necessary to explain how to evaluate the posterior pdf for each quantity and how to use that information fo the evaluation of the pdf of the output quantity.	Apr 11, 2012 10:10 PM
23	Especially for repeated measurements.	Apr 11, 2012 2:12 PM
24	no opinion	Apr 2, 2012 2:35 AM
25	Yes, with basic examples from various fields.	Mar 26, 2012 8:59 PM
26	Be clear about the trade-off's between computational simplicity resulting from linearity/linearization and the potential loss of accuracy. How is one to know whether to linearize or to use Monte Carlo, because each has potential for loss of accuracy?	Mar 22, 2012 6:42 PM
27	Do not know enough to express an opinion	Mar 21, 2012 2:14 PM
28	Agree.	Mar 20, 2012 2:58 PM
29	Maybe is good idea to develop a example for each magnitude and discipline of metrology to be used has a guide.	Mar 20, 2012 2:28 PM
30	racommended	Mar 16, 2012 5:36 PM
31	Yes	Mar 14, 2012 7:15 PM
32	Do not try to simplify too much, will only allow unqualified people to use it in error	Mar 14, 2012 12:48 PM
33	yes	Mar 13, 2012 5:54 PM
34	This could be useful (but could also be confusing -- care must be taken with the presentation).	Mar 13, 2012 12:10 AM
35	waste of time	Mar 12, 2012 6:28 PM
36	Yes definately	Mar 9, 2012 4:23 PM
37	consent	Mar 9, 2012 4:21 PM
38	Good	Mar 8, 2012 7:06 PM
39	Yes	Mar 8, 2012 10:01 AM
40	Examples are absolutely the most important part of the GUM for many labs that do not have high level scientists available for uncertainty analysis.	Mar 5, 2012 7:47 PM
41	important	Mar 5, 2012 7:44 AM
42	This would be helpful	Mar 3, 2012 12:39 PM
43	That's great.	Mar 1, 2012 4:48 AM

Page 5, Q1. a. Increased guidance in the evaluation of standard uncertainties associated with input estimates.		
44	That will help - though often the "problem" for a beginner is a step earlier, in working out what the input estimates are.	Feb 29, 2012 4:36 PM
45	Good	Feb 29, 2012 4:27 PM
46	Good.	Feb 28, 2012 6:20 PM
47	I would have thought there was enough given the guidance available from accreditation bodies and regional metrology organisations	Feb 27, 2012 6:26 AM
48	Not important.	Feb 23, 2012 11:57 PM
49	Yes	Feb 23, 2012 11:22 PM
50	Good idea	Feb 23, 2012 8:56 PM
51	Useful.	Feb 23, 2012 2:42 PM
52	good	Feb 23, 2012 9:40 AM
53	Good idea. One caution is that following a method can lead to overconfidence. For example, if a distribution is unknown and one makes some hand-waving guess that it is rectangular, and GUM gives official guidance on how to propagate uncertainty from that distribution, one can develop over-confidence in the result. On the other hand, if one asks "could it be normal?" and answers "probably" and makes another estimate, one may be surprised by the comparison of the final result. This overconfidence is manifest in the many reports of 3-digit uncertainties in recent papers. Pre-GUM this did not happen. In fact, those uncertainties - by any interpretation - are not known to 3 digits. But the formality of following a procedure or worksheet with a bunch of formulas can give a false sense of confidence. Again, this comes from formula-grabbing, rather than following the guidance on interpretation, intervals etc.	Feb 22, 2012 3:28 PM
54	This would be useful - but does not require revision of the whole GUM. It would be more convenient to develop additional supplements to address this issue.	Feb 21, 2012 5:09 PM
55	Very useful	Feb 21, 2012 3:51 PM
56	helpful	Feb 16, 2012 3:42 PM
57	yes necessary	Feb 16, 2012 2:35 PM
58	Great!	Feb 15, 2012 12:03 PM
59	Just the question! Associated with input estimates or with input quantities?	Feb 15, 2012 8:05 AM
60	This is of course a main issue but the actual GUM is for me very clear on concepts. The evaluation of standard uncertainties on input estimates can only be done by a person knowing the physics of the specific measurement process and the difficulties of the measurement. Subjective evaluation is sometimes necessary but cannot be formalized in a guide.	Feb 14, 2012 3:50 PM
61	definitely required for the unexperienced reader	Feb 13, 2012 3:48 PM
62	hgm	Feb 13, 2012 3:00 PM

Page 5, Q2. b. Bayesian approach extended to Type A evaluations of uncertainty.		
1	Lack expertise to comment.	Jun 15, 2012 9:39 PM
2	We think that will be hard to top as the Bayesian theory is based on the subjetive interpretation of probability	Jun 15, 2012 8:18 PM
3	Good idea	Jun 15, 2012 1:32 PM
4	Required for coherent treatment of uncertainties, e.g. in order to combine uncertainties determined by type A and type B evaluations.	Jun 13, 2012 4:11 PM
5	O.K., even though this means to knock at an open door. Besides, I would recommend eliminating the concepts of "type-A evaluation" and "type-B evaluation" as confusing.	Jun 13, 2012 3:38 PM
6	Getting rid of degrees of freedom would make things simpler. However, the mathematical formula is the smallest aspect of it. The most important is the motivation for this choice that may be understood by non-mathematicians.	Jun 12, 2012 4:45 PM
7	Not a major issues for Laboratory Medicine.	Jun 12, 2012 3:15 PM
8	My undersdtanding of the application of Bayesian statistics is not strong enough to comment. However, a general comment on treatment of Type A uncertainties: In paragraph 4.2.1 – It is confusing to assume that Type A uncertainties are only associated with measurements for which the normal process consists of taking multiple observations and reporting the average. What about the case of using experimental data, such as from and R&R study, and applying it to measurements in which the normal process consists of taking a single observation as the measurement result? This is alluded to later in the standard, for example, in paragraph 4.2.4 in which the pooled estimate of variance is introduced, but the treatment still focuses on processes that consist of taking multiple observations and reporting the average.	Jun 8, 2012 3:25 PM
9	I agree, with examples explaining the differences with a frequentistic approach. I would avoid the presentation of these views as conflictive.	Jun 8, 2012 12:51 PM
10	If needed, please frame the discussions on the Bayessian approach to distinguish it in the GUM process to estimate uncertainties. Provide examples where the differences between the frequentist and Bayessian approaches lead to significantly different results.	Jun 6, 2012 5:34 PM
11	Yes	Jun 6, 2012 2:48 PM
12	As not familar with the document can not comment	Jun 1, 2012 11:30 AM
13	No Bayesian is too subjective and does not reflect classical measurement situations - eg a normal distribution IS what you get when you do repeated measurements. Rather type B evaluations should either be left as they are - or if possible made consistent with frequentist approach.	May 28, 2012 8:47 PM
14	Perhaps a draft for a Bayesian approach should be released and evaluated by end-users,	May 20, 2012 11:52 AM
15	Agreed	May 17, 2012 6:24 AM
16	Extension or exclusive approach?	May 16, 2012 1:36 PM
17	??	May 16, 2012 9:27 AM

Page 5, Q2. b. Bayesian approach extended to Type A evaluations of uncertainty.		
18	I'm not certain we should be focusing so heavily on Bayesian concepts. Are they really accepted contractually between customers and suppliers?	May 15, 2012 10:24 PM
19	Ok.	Apr 24, 2012 7:37 PM
20	Excellent! If the GUM contemplates this subject, it will become significantly better.	Apr 24, 2012 2:51 PM
21	It would be a great advance to provide some guidance about a sound Bayesian approach to Type A evaluation of uncertainty. Maybe new GUM should give some computational examples by using some pieces of open source software (WinBugs, R o Phyton)	Apr 11, 2012 2:12 PM
22	no opinion	Apr 2, 2012 2:35 AM
23	Yes. Could we imagine to definitively avoid the distinction between "type A" and "Type B" ?	Mar 26, 2012 8:59 PM
24	This is a great idea. See my earlier comments about observation equations vs. measurement equations.	Mar 22, 2012 6:42 PM
25	Do not know enough to express an opinion	Mar 21, 2012 2:14 PM
26	Agree.	Mar 20, 2012 2:58 PM
27	Is good idea	Mar 20, 2012 2:28 PM
28	racommended	Mar 16, 2012 5:36 PM
29	Yes	Mar 14, 2012 7:15 PM
30	Agree	Mar 14, 2012 12:48 PM
31	yes	Mar 13, 2012 5:54 PM
32	Will be excellent	Mar 13, 2012 12:10 AM
33	waste of time	Mar 12, 2012 6:28 PM
34	consent	Mar 9, 2012 4:21 PM
35	Very important	Mar 8, 2012 7:06 PM
36	This might risk to be to different from common practice in some cases and most people don't change easily. Rather show that current practice is in most cases good enough, i.e.< 20% off from consistent Bayesion type A evaluation, and give guidance to Bayesian type A approach for information and the cases where it is really needed.	Mar 8, 2012 10:01 AM
37	I don't see how this is overly helpful. Uncertainty is, in fact, uncertain. For example, the uncertainty in the standard deviation of 10 measurements is about 25%. Most physical measurements do not have even 10 measurements, so any change in uncertainty from the use of Bayesian methods would need to be significantly larger than in the examples I have seen.	Mar 5, 2012 7:47 PM
38	Good.	Mar 1, 2012 4:48 AM

Page 5, Q2. b. Bayesian approach extended to Type A evaluations of uncertainty.		
39	I'm not completely sure what this means! It is useful to do lots of measurements and take a standard deviation, is that not a Bayesian method? There needs to be guidance on the "degrees of freedom" associated with Type B evaluations - cf book by Kirkup and Frenkel, I'd never realised that they were anything other than infinity until recently.	Feb 29, 2012 4:36 PM
40	Good	Feb 29, 2012 4:27 PM
41	Good.	Feb 28, 2012 6:20 PM
42	Maybe. Are we going to add anything given my earlier comments?	Feb 27, 2012 6:26 AM
43	Yes, this is the new area that needs to be covered.	Feb 23, 2012 11:57 PM
44	Bayesian statistics is a difficult concept to understand. Its going to take some explaining.	Feb 23, 2012 8:56 PM
45	Interesting; I'd like to see how this is to be done before commenting further.	Feb 23, 2012 2:42 PM
46	OK	Feb 23, 2012 9:40 AM
47	Yes.	Feb 22, 2012 3:28 PM
48	This would be useful - but does not require revision of the whole GUM. It would be more convenient to develop additional supplements to address this issue.	Feb 21, 2012 5:09 PM
49	Detailed guidance and explanation of the concepts will be essential if you want that users accept this change. In addition, it is important to know, in an uncertainty evaluation, whether the uncertainty of a given input quantity is based on measurements, on prior knowledge or on an educated guess. This should be part of the uncertainty report.	Feb 21, 2012 3:51 PM
50	Actually this is point of concern. The Type A approach adopted in S1 is objective Bayesian whereas the Type B approach is subjective Bayesian. These two approaches are every bit as conflicted as Bayesian and frequentis, indeed I would say the result is much worse.	Feb 20, 2012 9:51 PM
51	interesting but meaningless for the commom users	Feb 16, 2012 2:35 PM
52	Great!	Feb 15, 2012 12:03 PM
53	It 's the main point for revision of present GUM.	Feb 15, 2012 8:05 AM
54	No need to complicate a generally simple task. Wo cares in the real life?	Feb 14, 2012 3:50 PM
55	questionable	Feb 13, 2012 3:48 PM
56	hgm	Feb 13, 2012 3:00 PM
57	-	Feb 7, 2012 2:09 PM

Page 5, Q3. c. Increased number of examples, with applications taken from biology, chemistry etc.		
1	User friendly and practical examples are always good.	Jun 15, 2012 9:39 PM
2	That will be expected. These exampels will be helpful	Jun 15, 2012 8:18 PM
3	Good idea	Jun 15, 2012 1:32 PM
4	At the AnnexH, new examples from optics,acoustics,pressures, mass calibration and biology, chemistry should be added	Jun 15, 2012 1:23 PM
5	In favor.	Jun 15, 2012 7:43 AM
6	This will make the use of measurement uncertainty in these areas much more easier and theefor better in use.	Jun 14, 2012 4:28 PM
7	Important and helpful. Fully worked out examples can be used as template solutions for related problems. It should, however, be considered to put these examples into a supplementary document.	Jun 13, 2012 4:11 PM
8	Very good, these areas often still lack decent uncertainty evaluation.	Jun 12, 2012 4:45 PM
9	Definitely a need in the field of Laboratory Medicine. As stated above, this can be addressed in section-specific annexes or supplements.	Jun 12, 2012 3:15 PM
10	More emphasis needs to be given in testing	Jun 12, 2012 2:23 PM
11	Please do not limit the examples to biology and chemistry. Even the "easier" areas of dimensional metrology would benefit from increased examples.	Jun 8, 2012 3:25 PM
12	Ok. But above all an increased numebr of examples from engineering, specifically from mechanical engineering, biomedical engineering (sorry, but this is my field of expertise).	Jun 8, 2012 12:51 PM
13	Yes, and also more examples from electronics, mechanics, dynamic, & so on. Especially valuable would be real-world guidance for practical MU calculation for multi-function multi-range instruments.	Jun 7, 2012 3:33 PM
14	Agree	Jun 6, 2012 5:34 PM
15	Could help but perhaps this is best done in sector specific guides	Jun 6, 2012 2:48 PM
16	OK	Jun 6, 2012 2:37 PM
17	As not familar with the document can not comment	Jun 1, 2012 11:30 AM
18	examples are very important to understand the procedure how to count the uncertainty in different fields	May 30, 2012 12:52 PM
19	Not required. However maybe a GUM supplement should be written from a frequentist perspective that can address uncertainty analysis in these areas. The GUM isn't broken it works and it shouldn't be made over complicated because of issues in particular disciplines - instead they should be accomodated through supplements.	May 28, 2012 8:47 PM
20	Yes an increased number of examples would be good. Most ISO 17025 laboratories will need to apply the GUM to their routine work.	May 20, 2012 11:52 AM
21	Fully supported	May 17, 2012 6:24 AM

Page 5, Q3. c. Increased number of examples, with applications taken from biology, chemistry etc.		
22	Agree	May 16, 2012 1:36 PM
23	Please, yes	May 16, 2012 9:27 AM
24	Good!	May 15, 2012 10:24 PM
25	In general, the examples are much needed to understand the guide. It would be interesting to include examples of different disciplines.	May 3, 2012 11:23 AM
26	Examples from ionizing radiation metrology and dosimetry will may improve the result of the revision	Apr 29, 2012 10:21 AM
27	And please, consider also to include engineering examples, such: antenna measurements	Apr 24, 2012 7:37 PM
28	As I have said, I use the GUM for industrial instrumentation application and it works just fine. Since examples are the best way of learning, it would be interesting to add some examples concerning the measurement of fundamentals variables in industry (temperature, pressure, flow and level).	Apr 24, 2012 2:51 PM
29	In chemistry it woud be very useful to give some examples about calibration (least squares, bracketing, one-point calibration, etc.)	Apr 11, 2012 2:12 PM
30	It is always better to have more examples.	Apr 2, 2012 2:35 AM
31	Yes. … and from "basics" measurements.	Mar 26, 2012 8:59 PM
32	A standard set of examples, especially for verifying and benchmarking computation software for GUM problems, would be very useful.	Mar 22, 2012 6:42 PM
33	Do not know enough to express an opinion	Mar 21, 2012 2:14 PM
34	Agree.	Mar 20, 2012 2:58 PM
35	yes is good idea	Mar 20, 2012 2:28 PM
36	agree	Mar 20, 2012 5:19 AM
37	racommended	Mar 16, 2012 5:36 PM
38	Yes	Mar 14, 2012 7:15 PM
39	To help these topics, agree	Mar 14, 2012 12:48 PM
40	it will be good	Mar 13, 2012 5:54 PM
41	Would also be helpful.	Mar 13, 2012 12:10 AM
42	waste of time	Mar 12, 2012 6:28 PM
43	other disciplines too	Mar 9, 2012 4:23 PM
44	consent	Mar 9, 2012 4:21 PM
45	Important	Mar 8, 2012 7:06 PM
46	That would be very useful and desirable.	Mar 8, 2012 10:23 AM

Page 5, Q3. c. Increased number of examples, with applications taken from biology, chemistry etc.		
47	Yes	Mar 8, 2012 10:01 AM
48	This is important. Laboratory accreditation is moving into new fields constantly and the requirements for uncertainty cause significant anxiety and lead to costly consultants for uncertainty.	Mar 5, 2012 7:47 PM
49	Agree	Mar 5, 2012 5:52 PM
50	important	Mar 5, 2012 7:44 AM
51	Not only increased numbers but also more pratical content	Mar 3, 2012 12:39 PM
52	That's a good idea.	Mar 1, 2012 4:48 AM
53	It could be recommendable, because ilustrates the concepts given.	Feb 29, 2012 4:49 PM
54	Yes. More examples the better. Ideally it would be written with examples in separate documents - one from each of several disciplines, written in combination with experts from that field (for physics - experts from each CC, for biology/chemistry, the equivalent). A reader wants examples from his/her own field only!	Feb 29, 2012 4:36 PM
55	Perhaps	Feb 29, 2012 4:27 PM
56	I agree. I work in chemical metrology and people needs examples related with your area.	Feb 28, 2012 6:20 PM
57	Very important!	Feb 27, 2012 1:21 PM
58	Unless there is a commitment from those disciplines to use it I feel this would be wasted. The battle may be already lost.	Feb 27, 2012 6:26 AM
59	Yes. This is vey useful.	Feb 23, 2012 11:57 PM
60	Yes, I support increasing of the number of examples	Feb 23, 2012 11:22 PM
61	Yes	Feb 23, 2012 8:56 PM
62	Good idea, although there are some good examples already in the Eurachem guide.	Feb 23, 2012 2:42 PM
63	Excellent - and should include rationale of why applicable to clinical lab testing/measurement - which is poorly accepted in my circles.	Feb 23, 2012 9:40 AM
64	Yes. I find that having more, simple, examples is better than fewer, complicated ones. That way, the reader can understand the various possibilities and then combine them as needed.	Feb 22, 2012 3:28 PM
65	This would be useful - but does not require revision of the whole GUM. It would be more convenient to develop additional supplements to address this issue.	Feb 21, 2012 5:09 PM
66	In case of a large number of examples, a classification would be useful to find out the example that we are looking for.	Feb 21, 2012 3:51 PM
67	OK. But lets see them done properly this time.	Feb 20, 2012 9:51 PM
68	yes very interesting but see the previous remarks on the meaning of large	Feb 16, 2012 2:35 PM

Page 5, Q3. c. Increased number of examples, with applications taken from biology, chemistry etc.		
	uncertainty values	
69	YES, please And with examples of practical use from the industry as well (not only in calibration but also in production process monitoring measurements.	Feb 16, 2012 9:48 AM
70	The more the better!	Feb 15, 2012 12:03 PM
71	I am not sure that the GUM shoul be extended to include uncertainty evaluation in biology.	Feb 15, 2012 8:05 AM
72	definitely yes, as stated already elsewhere above	Feb 13, 2012 3:48 PM
73	hnhhn	Feb 13, 2012 3:00 PM
74	Much needed examples of these types.	Feb 8, 2012 7:59 PM
75	-	Feb 7, 2012 2:09 PM

Page 5, Q4. d. Links to GUM Supplements where appropriate.		
1	Good	Jun 15, 2012 9:39 PM
2	Would be nice	Jun 15, 2012 8:18 PM
3	Good idea	Jun 15, 2012 1:32 PM
4	It can be given links to 3 GUM Supplements to be able to provide integrity.	Jun 15, 2012 1:23 PM
5	In favor.	Jun 15, 2012 7:43 AM
6	The Guide should be much better aligned with the supplements. It should be the central document, explaining the underlying framework and principles. Its supplements should then address specific situations and technical issues.	Jun 13, 2012 4:11 PM
7	I don't agree. GUM should be revised together with its supplements.	Jun 13, 2012 3:38 PM
8	yes	Jun 12, 2012 4:45 PM
9	This would be a nice-to-have feature, but not essential.	Jun 12, 2012 3:15 PM
10	it will be advantageous to have online expert forums and additional resources on the subject matter.	Jun 12, 2012 2:23 PM
11	This would be useful.	Jun 8, 2012 3:25 PM
12	Right	Jun 8, 2012 12:51 PM
13	Yes.	Jun 7, 2012 3:33 PM
14	Please take into account my comment e, section 3.	Jun 6, 2012 5:34 PM
15	Yes	Jun 6, 2012 2:48 PM
16	Always adecuated.	Jun 6, 2012 2:37 PM
17	As not familar with the document can not comment	Jun 1, 2012 11:30 AM
18	very useful	May 30, 2012 12:52 PM
19	Not required.	May 28, 2012 8:47 PM
20	YES	May 20, 2012 11:52 AM
21	Agreed	May 17, 2012 6:24 AM
22	Agree	May 16, 2012 1:36 PM
23	Yes, it would be helpfull	May 16, 2012 9:27 AM
24	These are necessary for the understanding of the guide.	May 3, 2012 11:23 AM
25	Such as the Supplement 3 that is being prepared	Apr 24, 2012 7:37 PM
26	Do you mean electronic links (as presented in the JCGM 104 supplement) or textual links? Either way they are both great, but I have found the electronic links inserted in the 104 supplement really useful.	Apr 24, 2012 2:51 PM
27	Good idea.	Apr 2, 2012 2:35 AM

Page 5, Q4. d. Links to GUM Supplements where appropriate.		
28	Yes.	Mar 26, 2012 8:59 PM
29	This would be preferable, esp. if it can keep the respective documents shorter.	Mar 22, 2012 6:42 PM
30	Do not know enough to express an opinion	Mar 21, 2012 2:14 PM
31	Agree.	Mar 20, 2012 2:58 PM
32	yes	Mar 20, 2012 2:28 PM
33	racommended	Mar 16, 2012 5:36 PM
34	Yes	Mar 14, 2012 7:15 PM
35	Agree	Mar 14, 2012 12:48 PM
36	no opinion	Mar 13, 2012 5:54 PM
37	Always welcome	Mar 13, 2012 12:10 AM
38	waste of time	Mar 12, 2012 6:28 PM
39	Yes	Mar 9, 2012 4:23 PM
40	consent	Mar 9, 2012 4:21 PM
41	Very much needed	Mar 8, 2012 7:06 PM
42	improves applicability	Mar 8, 2012 10:23 AM
43	Yes.	Mar 8, 2012 10:01 AM
44	Links to other documents related to the GUM would also be good.	Mar 5, 2012 7:47 PM
45	Agree	Mar 5, 2012 5:52 PM
46	important	Mar 5, 2012 7:44 AM
47	Very nice	Mar 3, 2012 12:39 PM
48	Good.	Mar 1, 2012 4:48 AM
49	Yes	Feb 29, 2012 4:36 PM
50	Good	Feb 29, 2012 4:27 PM
51	Okay. This is an important subject.	Feb 28, 2012 6:20 PM
52	Maybe although most people familiar with the GUM would know these exist.	Feb 27, 2012 6:26 AM
53	Of course.	Feb 23, 2012 11:57 PM
54	Yes	Feb 23, 2012 11:22 PM
55	Good idea.	Feb 23, 2012 2:42 PM
56	Good	Feb 23, 2012 9:40 AM

Page 5, Q4. d. Links to GUM Supplements where appropriate.		
57	Past supplements? Let's make an entirely new guidance. It should be completely open, it should be the first return from a google search of "GUM" "uncertainty".	Feb 22, 2012 3:28 PM
58	Of course	Feb 21, 2012 3:51 PM
59	very helpful	Feb 16, 2012 3:42 PM
60	yes necessary	Feb 16, 2012 2:35 PM
61	Great!	Feb 15, 2012 12:03 PM
62	yes, it's useful	Feb 15, 2012 8:05 AM
63	agreed	Feb 13, 2012 3:48 PM
64	hn	Feb 13, 2012 3:00 PM
65	-	Feb 7, 2012 2:09 PM

Page 6, Q1. What is your view on this timescale?

1	Acceptable, but I would also comment that at age 59 and 1/2, I am planning for other activities if your schedule slide to much beyond the this window. :)	Jun 15, 2012 9:46 PM
2	We think that the timescale is prudent	Jun 15, 2012 8:19 PM
3	Sounds reasonable.	Jun 15, 2012 1:32 PM
4	This work needs to time. Therefore 2014 is logically date to final draft.	Jun 15, 2012 1:24 PM
5	Realistic (although at first glance it seems distant).	Jun 15, 2012 7:46 AM
6	To long but it is better that the new version is correct and approved by the users before being published.	Jun 14, 2012 4:36 PM
7	A circulation of a final draft within 2013 is desirable.	Jun 13, 2012 4:11 PM
8	Unrealistic.	Jun 13, 2012 3:45 PM
9	Would be good, but sounds ambitious	Jun 12, 2012 4:46 PM
10	While the stated timescale for revision to the GUM primary document is acceptable, the availability of worked examples in sector-specific fields such as laboratory medicine would have the greatest impact on specialized sectors. For the field of laboratory medicine, it would also be very helpful if a timescale could be established for development of an appropriate Supplement, with availability scheduled in a similar timeframe (i.e. end 2014).	Jun 12, 2012 3:19 PM
11	2014 seems long. Mid 2013 ias a reasonable project timescale.	Jun 12, 2012 2:29 PM
12	This sounds aggressive and I commend the committee for setting this timeline to have a draft available is a relatively short time.	Jun 8, 2012 3:26 PM
13	Good point	Jun 8, 2012 12:55 PM
14	Aggressive but achievable	Jun 7, 2012 3:34 PM
15	It seems fine.	Jun 6, 2012 5:39 PM
16	Adequate	Jun 6, 2012 2:49 PM
17	Probably adecuated if there are a medium consensus in the additions/modifs to the GUM	Jun 6, 2012 2:38 PM
18	As not familar with the document can not comment	Jun 1, 2012 11:31 AM
19	I was hoping it would be earlier, like 2013.	May 20, 2012 11:53 AM
20	Adequate	May 17, 2012 6:24 AM
21	Very good!!!	May 16, 2012 9:28 AM
22	The timescale is appropriate for the objectives.	May 3, 2012 11:24 AM
23	This timescale is feasible	Apr 29, 2012 10:22 AM
24	I believe it is fair, if the public dicussion of it starts at least 1 year after.	Apr 24, 2012 7:38 PM

Page 6, Q1. What is your view on this timescale?		
25	It is a reasonable time to produce an excellent draft. Not that you have asked, but I am really looking forward for to JCGM 103: Evaluation of measurement data — Supplement 3 to the “Guide to the expression of uncertainty in measurement” — Modelling.	Apr 24, 2012 2:55 PM
26	seems a bit long.	Apr 23, 2012 8:04 AM
27	It´s fine.	Apr 11, 2012 10:10 PM
28	It's a long timescale, but in my experience this is the usual timescale in metrology.	Apr 11, 2012 2:19 PM
29	looks good	Apr 5, 2012 6:08 PM
30	no opinion	Apr 2, 2012 2:45 AM
31	Ok for me. There is a lot of work to write the examples.	Mar 26, 2012 9:01 PM
32	Does "everyone" agree to try settle on a Bayesian approach?	Mar 22, 2012 6:44 PM
33	Do not know enough to express an opinion	Mar 21, 2012 2:14 PM
34	Reasonable timescale.	Mar 20, 2012 3:00 PM
35	Is good to know that the first draw is near	Mar 20, 2012 2:28 PM
36	agree	Mar 20, 2012 5:20 AM
37	it is possible	Mar 16, 2012 5:38 PM
38	I think is ok, but it is a long perspective.	Mar 14, 2012 7:16 PM
39	Acceptable	Mar 14, 2012 12:48 PM
40	it's a didfficult task	Mar 13, 2012 5:55 PM
41	This sounds realistic. If an extra year is needed, I would find it understandable.	Mar 13, 2012 12:11 AM
42	waste of time and money	Mar 12, 2012 6:28 PM
43	consent	Mar 9, 2012 4:21 PM
44	I am waiting for it	Mar 8, 2012 7:06 PM
45	sounds reasonable	Mar 8, 2012 10:03 AM
46	I have no problems with the date. Documents this basic to a field should not change very much or very often.	Mar 5, 2012 7:50 PM
47	OK	Mar 5, 2012 5:52 PM
48	it seems a fairly long time	Mar 5, 2012 7:45 AM
49	ok	Mar 3, 2012 12:39 PM
50	This timeline is too late, hope this may early to end of 2013.	Mar 1, 2012 4:53 AM

Page 6, Q1. What is your view on this timescale?

51	seems appropriate	Feb 29, 2012 5:02 PM
52	About normal, but likely to be ambitious!	Feb 29, 2012 4:36 PM
53	O.k.	Feb 29, 2012 4:28 PM
54	I agree. Because discussions on the topics should be wellcome.	Feb 28, 2012 6:24 PM
55	Acceptable	Feb 27, 2012 3:12 PM
56	Realistic	Feb 27, 2012 1:21 PM
57	No comment	Feb 27, 2012 6:27 AM
58	2-3 years is OK.	Feb 23, 2012 11:58 PM
59	This is acceptable	Feb 23, 2012 11:24 PM
60	OK	Feb 23, 2012 8:57 PM
61	Good goal for timescale	Feb 23, 2012 5:02 PM
62	Seems reasonable.	Feb 23, 2012 2:42 PM
63	Fine	Feb 23, 2012 9:41 AM
64	That sounds ambitious, but I am not sure of the present state of affairs, or of the relevant politics.	Feb 22, 2012 3:30 PM
65	2014 seems extremely ambitious. This is further reason for my review that the focus should be additionla Supplements, not on a full revision at this stage.	Feb 21, 2012 5:10 PM
66	There is no hurry. Better to take time and produce a better document	Feb 21, 2012 3:51 PM
67	OK, probably tight given the serious issues you must address.	Feb 20, 2012 9:59 PM
68	corect i can sork with the present version	Feb 16, 2012 2:36 PM
69	OK	Feb 16, 2012 9:49 AM
70	realistic	Feb 15, 2012 2:43 PM
71	Takes time thus take your time	Feb 15, 2012 12:04 PM
72	It's too optimistic, isn't it?	Feb 15, 2012 8:06 AM
73	Too long.	Feb 14, 2012 3:56 PM
74	ambitious timescale, proper preparation and discussion with interested parties has priority	Feb 13, 2012 3:51 PM

Page 6, Q2. This is the end of the survey. If you have any additional remarks, please provide them here:		
1	This survey was very abstract compared to the VIM survey. I wish you success in your efforts. I have great value for what has already been developing in the current and past generations of GUM. My focus is more on implementing at the working level and ensuring the customers understand what they are getting, including: regulators, legistators; managers, accountants, and other stakeholds. I believe that the ESARDA is working hard to implement and educate the nuclear community on GUM and its value.	Jun 15, 2012 9:46 PM
2	NO	Jun 15, 2012 8:19 PM
3	A working group including people from the accreditation organizations. like ILAC, should also be involved in this updating work. It is very critical to make this new version more understanding to common calibration/testing/chemistry laboratories around the world. If this work fails the use of additional developed branch documents will continue.	Jun 14, 2012 4:36 PM
4	Filled out by Presidential Office of PTB after internal discussions. Statements given here represent view of PTB.	Jun 13, 2012 4:11 PM
5	In my opinion, the way of revision aligned with the structure of GUM:1995 looks erroneous.	Jun 13, 2012 3:45 PM
6	Please note that the responses in this survey have been provided by a metrology expert. Upon receipt of the ILAC call to members to participate in the survey, SADCAS circulated the survey questionnaire to a number of metrologist and only one response was received. The information contained therein represents the views of the expert and not necessarily SADCAS views.	Jun 12, 2012 2:29 PM
7	I commend the writers of the GUM for their efforts to create a document with technical rigor to provide a methematicalfoundation for evaluating measurement uncertainty. I recommend that any revisions place the highest priority on improving the understandability of the document, and place a lower priority on further refining the technical aspects of the standard.	Jun 8, 2012 3:26 PM
8	Thank you very much for your efforts. Please remember that the key-note of success of all these documents is to be widespread all over the world, in all kind of human scientific and technical activities. As a university professor I know how is difficult to express a concept in easy-to-understand words, it takes a long time to prepare a good lesson. Thank you again and keep up this great work!	Jun 8, 2012 12:55 PM
9	A very common impression is that the GUM is written by academics and senior professionals in various fields - but the people who are expected to actually understand the GUM are the much lower level technicians and junior engineers who are actually doing the day to day work of meeting customer requirements while complying with laws, regulations, quality and environmental management systems, measurement management systems and so on. Is should always be written to be understandable to and usable by those end users.	Jun 7, 2012 3:34 PM
10	GUM has become crucial for metrology. It should be understood and applied by ALL metrology users regardless of the metrological level of the organization they are in, all of them are important. Please work on a reference document for all of them without losing the correctness of its content. If that is not viable, take provision to produce interpretation documents of the reference document.	Jun 6, 2012 5:39 PM

Page 6, Q2. This is the end of the survey. If you have any additional remarks, please provide them here:		
11	It is essential that the basic principles are not changed, the concept that the uncertainty gives information about the distribution of values attributable to the measurand must be maintained. The use of the term "true value" must be avoided, it caused endless problems and much futile discussion before the clarification of the concept of uncertainty that was introduced by GUM	Jun 6, 2012 2:49 PM
12	Thank you	Jun 6, 2012 2:38 PM
13	Standard such as this are not used in every day engineering practice-	Jun 1, 2012 11:31 AM
14	I would stress again - the GUM as it is is a very successful tool. It has facilitated a uniform analysis of uncertainties around the world - precisely because it is relatively straightforward to use. This is a great gain and this should not be sacrificed to get increased consistency,	May 28, 2012 8:49 PM
15	Type B estimates are generally poorly developed and often do not match what would have been found with Type A estimates for the same measurement. If the GUM focused primarily on Type A estimates it would be a much better (and more respected) guide.	May 21, 2012 1:01 PM
16	As already mentioned, I would support the application of GUM in ISO and CEN committee. Any movement in this direction, it will be much appreciated.	May 16, 2012 9:28 AM
17	Proposed to be included in a new GUM -- Generalized Gaussian Error Calculus Michael Grabe, Germany, 38104 Braunschweig, Am Hasselteich 5, michael.grabe@gmx.net Abstract – Uncertainty assessments include the differences between the true values and the expected values of estimators as caused by unknown systematic errors which, on there part, are constant in time. To this end, the common practice to randomize systematic errors should be abolished. This proceeding and a new treatment of random errors, resolving a misinterpretation of old regarding the alleged interchangeability of theoretical and empirical moments of second order, forges ahead what may be addressed as "Generalized Gaussian Error Calculus". The formalism issues reliable uncertainties being up to localize the true values of physical quantities. Index Terms – Generalized Gaussian error calculus, localization of true values, measurement uncertainties. I. INTRODUCTION In view of modern metrology, the classical Gaussian error calculus is obsolete. Firstly, Gauss himself deliberately ignored so-called unknown systematic errors, these being errors constant in time and unknown with respect to magnitude and sign. Without doubt, metrological traceability is a must. Hence, in my view, experimenters are asked to treat unknown systematic errors as biases. At the same time, this way of proceeding would cause the classical Gaussian fomalism to break down – entailing, incidentally, the end of the analysis of variance as well -- may we like it or not. Apart from the omission of biases in the past, error calculus still suffers from a sore point scarcely ever addressed. To evaluate measurements, experimenters are used to adopting, without further ado, a formalism created by mathematicians. However, while mathematicians are in a position to freely preset theoretical and empirical moments of second order (i.e. variances and covariances), metrologists have nothing but empirical moments at their disposal and the common metrological practice to substitute empirical moments for theoretical ones is prone to spoil their formalism. Thus, there is an abyss of old separating mathematical and metrological applications. As will be indicated, an appropriate metrological processing of empirical moments of second order presupposes the ostensibly trivial concept to refer to equal numbers of repeated measurements. II. MAIN BODY As much as we assume the laws of physics to be true, we expect the constants of physics to possess true values. In this sense, it should be the mission of	Apr 27, 2012 3:02 PM

Page 6, Q2. This is the end of the survey. If you have any additional remarks, please provide them here:

experimenters to localize the true values of measurands via properly specified uncertainty intervals. Unfortunately, neither the GUM's "1 standard uncertainties" nor its "expanded uncer-tainties" are up to localize the true values of measurands. An unknown systematic errors shifts the bulk of repeated measurements as a whole, thus introducing a permanent, time-constant difference between "the center of gravity" of the repeated measurements and the true value of the quantity aimed at. Repeated measurements take place not until this fixed difference has been established experimentally, i.e. over the course of the setting up of the components of the measuring device. Obviously, this being done, there is no longer anything random about the aforesaid difference. But as traceability asks us to reckon with any possible value, I propose to resort to biassed estimators and to subsequently submit suchlike biases to worst case assessments. Indeed, this proceeding would map the basic working principle of stationary measuring devices. Textbooks on the statistical treatment of empirical data are used to allocating ample space to Student's distribution density, to the Student-factor and, eventually, to confidence intervals. Remarkably enough, these discussions are regularly confined to just one measured quantity and no hint is given as to proceed in case of two or even more variables or how to handle possible dependences between measured quantities. Given the measured data are to be considered normally distributed, or at least approximatetely so, the distribution density of the empirical moments of second order reveals, amazingly enough, a depence between the empirical variances and the empircal covariances, be the variables themselves dependent or not. Obviously, just this tells us not to ignore empirical covariances, even if the considered variables happen to be independent. At the same time we should strive for equal numbers of repeated easurements, as otherwise empircal covariances turn out to be undefined. After all, the crucial point is that considering consistently empirical covariances, be the implied variables dependent or not, we may generalize the idea of confidence intervalls according to Student. And this, indeed, will be well worth the effort However, at present, in regard to error propagation, to ask for equal numbers of repeated measurements, seems to be outside of common practice. If we are willing to comply with the properties of the multidimensional model of normally distributed variables, we are put in a position to define confidence intervals in error propagation. This covers, in principle at least, arbitrary many variables up to the mechanisms of least squares.This perspective appears exciting in regard to the attempt to localize the true values of measurands. The idea to ask for equal numbers of repeated measurements put experimenters in a position to shape their formalim outside the common practice, namely to start with theoretical moments and to afterwards substitute empirical moments for the theoretical ones. As an example, let us consider a set of independent variables. Here, the theoretical covariances are set to zero, leaving over the theoretical variances. In hindsight, however, when metrologists insert their empirical variances, as they have nothing else at their disposal, the empirical covariances are tacitly left behind which, in fact, spoils the formalism. After all, equal numbers of repeated measurements, allowing to introduce complete sets of empirical variances and covariances, establish a well-structured methodology of data evaluation. This proceeding would stipulate measurement uncertainties in terms of linear sums of confidence intervals and appropriatley designed worst-case estimations. Should the underlying error model apply, the associated uncertainty intervals would localize the true values of the measurands. With respect to the method of least squares, non-randomized systematic would errors abrogate the Gauss-Markoff theorem, which, as is known, specifies the weighting matrix. As weighting factors shift the adjusted parameters and shrink their uncertainties

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	the fundamental property of the error model discussed here reads: Regardless of the choice of weighting factors, the sums of confidence intervals and appropriately designed worst-case estimations yield uncertainties being up to localize the true values of the LS-estimators [4,5]. III. CONCLUSION Taking recourse to the legendary panel discussion of 1971 by P. L. Bender et al.: Should least squares adjustments of the fundamental constants be abolished?, [3], it seems reasonable to suppose: For the tangly contradictions within the then bulk of measuring results not the method of least squares was to be blamed but rather the error model colleagues referred to. Starting from [1] – [2], I would like to propose an essentially new, self-contained draft of error calculus proposed to be termed Generalized Gaussian Error Calculus, its intrinsic properties being to localize the true values of measurands and thus to safeguard traceability. This should be the core of the new GUM. REFERENCES [1] Eisenhart, C., "The Reliability of Measured Values – Part I Fundamental Concepts", Photo¬grammetric Engi-neering, vol. 18, pp.543-561, 1952. [2] Grabe, M., „Über die Fortpflanzung zufälliger und systematischer Fehler", Seminar über die Angabe der Messunsicherheit, 20. Und 21. Februar 1978; Physikalisch-Technische Bundesanstalt Braunschweig. [3] Bender, P.L. et al., „Should least squares adjustments of the fundamental constants be abolished?" NBS Special Publications 343, 1971, United States Department of Commerce, Washington D.C. [4] Grabe, M., "Measurement uncertainties in Science and Technology", Springer-Verlag Berlin, Heidelberg 2005. [5] Grabe, M., "Generalized Gaussian error calcu¬lus", Springer-Verlag Berlin, Heidel¬berg 2010.	
18	Thank you for your valuable work,	Apr 24, 2012 7:38 PM
19	I don't know how the process of commenting the JCGM's draft works, but I am at full disposal to comment on it as a simple user of the GUM and it's supplements (not as a metrology specialist).	Apr 24, 2012 2:55 PM
20	Annex H.1 has needs revision. In the corrent version: H.1.3.3 gives 2*10^-6/sqrt(3) for the uncertainty of the thermal expansion coefficient. H.1.3.5 gives 1*10^-6/sqrt(3) for the uncertainty of the difference in thermal expansion coefficients. However, these don't make sense because normally it is expected that the uncertainty of difference of quantities haveing rectangular probility distribution will be a triangular distrubution with it half width being 2 times teh half width of the rectangular distribution. Thus, it would make sense if: H.1.3.3 gives 1*10^-6/sqrt(3) for the uncertainty of the thermal expansion coefficient, H.1.3.5 gives 2*10^-6/sqrt(6) for the uncertainty of the difference in thermal expansion coefficients.	Apr 2, 2012 2:45 AM
21	Thanks for asking my opinion!	Mar 22, 2012 6:44 PM
22	Do not know enough to express an opinion	Mar 21, 2012 2:14 PM
23	Perhaps an electronic version (.html, with hyperlinks) could be produced. The same idea applies to the revised VIM.	Mar 20, 2012 3:00 PM
24	No comments	Mar 20, 2012 2:28 PM
25	no.	Mar 14, 2012 7:16 PM
26	Thank you for this survey	Mar 14, 2012 12:48 PM
27	the whole process should be canned. it is a waste of time and money	Mar 12, 2012 6:28 PM

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28	no remarks	Mar 9, 2012 4:21 PM
29	Make sure that people will accept and use the document by extensive prior consultation	Mar 8, 2012 10:03 AM
30	I think the GUM is a pretty good document. It is reasonably practical and can be used by most metrologists at some level. ILAC has a number of uncertainty examples, and perhaps the editors of the GUM might have a website that specialized in uncertainty examples that have been approved as competent.	Mar 5, 2012 7:50 PM
31	There is still some confusion/reluctance to follow the GUM and Type A and Type B versus random and systematic. A supplement to the GUM that would be useful would be a continuing discussion on why one should follow Type A and Type B instead of random and systematic. If there were an example showing the differences (pros and cons) it would be easier to explain to others.	Feb 29, 2012 5:02 PM
32	Unfortunatly, my knowledge in the GUM is not as deep as needed in this survey.	Feb 29, 2012 4:49 PM
33	It is important not forget the goal: a practical GUM, accessible to all.	Feb 28, 2012 6:24 PM
34	I am not convinced there is a need to change it.	Feb 27, 2012 6:27 AM
35	Thanks for asking the metrology community for their input. It also keeps us informed about the JCGM's activities and focus.	Feb 23, 2012 11:58 PM
36	No	Feb 23, 2012 8:57 PM
37	Nope. Thanks for asking.	Feb 23, 2012 9:41 AM
38	I look forward to the result. I'd be happy to be involved further, if that would help. This is an important project.	Feb 22, 2012 3:30 PM
39	Suggestion: produce a detailed document entitled "why to change the GUM" before the publication of the GUM revision, in order to prepare the public to this event. Good luck	Feb 21, 2012 3:51 PM
40	Coinicdentally, as Chairman of CCT WG3 (Uncertainty in contact thermometry), I am preparing a working document summarising some of the issues associated with the change from Frequentist to Bayesian statistics - this should be of interest to you. I agree that there are some small problems with the GUM, which are actually easily ironed out, but the Bayesian approach represented by the S1 is a recipe for disaster. S1 has all the hall marks of a forced religious conversion without any regard for the consequences - and there are several serious consequences. If the GUM is to be redeveloped it is an absolute must that you have (i) expert practicing metrologists represented on the committee, and (ii) statisicians that actually understand both philosophies fully. There is no place for do-good computer scientists who have no expert knowledge of either (as evident in S1).	Feb 20, 2012 9:59 PM
41	thank you for reading my remarks	Feb 16, 2012 2:36 PM
42	How can we follow the revision? Will draft documents only be commented in the authoring organisations?	Feb 16, 2012 9:49 AM
43	Thanks!	Feb 15, 2012 12:04 PM

Page 6, Q2. This is the end of the survey. If you have any additional remarks, please provide them here:		
44	good luck	Feb 15, 2012 8:06 AM
45	I spent so much time to make people use the GUM that I would be very sorry if a big change is made to its philosophy. This is for me a reasonable and consensual document, not perfect but very useful in practice, based on clear concepts. Metrology and evaluation of uncertainties is too important to be left to statisticians!	Feb 14, 2012 3:56 PM