**CHANGES AFTER THE REVISORS COMMENTS**

**Editor comments:**

The requested type for the body text and formulae is Garamond. Please provide a character change.

Answer:

I’m sorry, but I had a wrong template.

**Revisor A**

**Comment:**

The English usage should be re‐checked carefully; the current version is so poor that the technical content is difficult to understand

Action

The English in the document has been re-checked, and we re-wrote the document in order to be easier to understand.

**Comment**

Several acronyms are used without any explanation

Action

All acronyms have been explained and detailed.

**Comment**

A lot of significant results are presented as plain statements without any discussion or comment

Action

We tried to explain all results with common sense.

**Comment:**

Some figures are presented before they are quoted in the text

Action

All figures are presented after that the figures are quoted.

List of comments:

1) Description of the problem, including existing information about the phaenomena and physical quantities under study and, when available, formal representations including models. This content is only briefly sketched in the paper.

Answer 1. We extended the introduction to accomplish this comment.

2) Presentation and discussion of the existing proposals to solve the problem.

This content is almost missing.

Answer 2. Same as Answer 1.

3) Presentation of the author's proposals with the highest possible clarity, by adding any context information that could be unknown to a reader without specific experience in the field. This means not using acronyms without explanations and adding any useful information about the nomenclature.

This content has been provided in the manuscript with the following limitations:

3.1. ‐ many findings have been presented without enough discussion, only a list of statements

3.2. ‐ the calibration procedure is not clearly presented

3.3. ‐ the reproducibility of the proposed calibration has not been assessed or even discussed

3.4.‐ in Sec. 2.5 the level he has not been defined, nor the measurement method for he and hr has been provided

3.5.‐ Sec. 3.2 lacks a lot of details about the adopted symbols and acronyms

3.6.‐ the estimated uncertainties have been calculated using the propagation formula for uncorrelated quantities, no comment has been provided about their possible correlation

3.7.‐ the estimated uncertainty for the receiver takes in account only the resolution of the quantizer, no contribution is provided about probes and analog pre‐processing

3.8. ‐ the estimated uncertainty of the generator depends on unspecified Ug and kg (formula 12)

3.9.‐ after a very generic formula (13) no calculation has been provided for the uncertainty of the environment

3.10. ‐ in (15) the speed of sound, c, seems depending on the sensitivity, S

Answer 3.

3.1. All the results are explained, and the approximations too.

3.2. In Procedure, we increase the information to clear the procedure

3.3. In the Introduction has been explained the difficulties in the reproducibility in the real sea water.

3.4. In section 2.5. we included the equipment used to measure he an d hr, and a reason for only use the hr

3.5. The text has been increased to detail all symbols and its meaning.

3.6. In section 4 is included the explanation of the uncorrelated variables

3.7. The equipment is like a black box, when a stimulus generates counts out. In fact the hydrophone is integrated equipment, and for this reason does not provide the pre-processing.

3.8. Included a phrase to clear the origin of these values.

3.9. All results are detailed in section 5.2, 5.3 and 5.4

3.10. This mistake has been corrected.

4) Description of the experiment validating the authors' proposal. This content has been provided with the same lacks as the previous one. In particular:

4.1.‐ it is not clear how the "nylon semicircle" has been used to estimate the direction of emission;

4.2.‐ it is not clear which correction of results of tab.2 led to tab.3;

4.3.‐ why the uncertainty on distance is 0,03 m;

4.4.‐ why the uncertainty on the spreading factor is 0,67 (or 0,34 as reported in 5.4)

Answer 4:

4.1. The section 2.4. has been increased to explain the function of the nylon semi-circle.

4.2. The difference is in the position; the finality of the table is to show a difference between with and without correction.

4.3. The result is obtained with the approximation of rectangular distribution of probability with 1 metre of width. The approximation width is obtained with the analysis of the quality factors of the correction using the RTK. The value showed before is a mistake.

4.4. The mistake has been corrected.

5) Discussion of the results achieved by the authors.

This content is somewhat missing. Only a table and a final result have been provided.

The meaning of the text "rel 1 V/μPa" should be guessed by the reader as it is not explained in the text.

Answer 5.

The section 5.6 and 6 are extended to explain and discuss the result, and included an example.

6) Comparison of the results provided by the authors with those achieved by means of alternate proposals.

This content seems missing in the paper.

Answer 6:

In section 6 our result is compared with other calibrations realized in laboratory. Out of laboratory we don’t find any result or literature

**Revisor B**

**Comments**

List here your suggestions for revisions::

1. Improvement of text and wording is required (Pag.1, row 3 after 2.“geometricalstudy, study”; many joint words – without spaces ‐; row after Fig. 7 “pulse with a frequency of 10 kHz”,probable “pulse repetition frequency”; and so on).
2. Explain abbreviations (pag.1, row 2 after 2.1. “GNSS receiver”; DUT; RTK….)
3. Figures 1, 2, 3 are irrelevant and can be omitted.
4. Equations are difficult to follow (even (1) and the next row...)
5. Inaccurate references (row2 after (2)....).
6. Improvements of results presentation are advised (clarify Table, Figures and explications).

Answers:

1. Right, the text has been changed.
2. The abbreviations have been detailed.
3. The figures 1,2 and 3 have been joined in one figure.
4. The text has been increased to improve and make easier the equations understanding.
5. The references have been corrected.
6. The results and conclusion have been increased.