



## Call for candidate for the convensorship of CEN/CENELEC TC5/WG8 (SBAS L1 receiver performances for maritime applications)

### 1. INTRODUCTION

#### 1.1. Background

This proposal addresses part of the responsibilities of CEN/CENELEC TC5/WG8 regarding the implementation of the M/496 ("Mandate addressed to CEN, CENELEC and ETSI to develop standardization regarding the support for GALILEO will continue through applications research and a coherent system evolution programme. In order to provide safe and guaranteed applications, the necessary framework in terms of certified services and products, global standards and interference monitoring capabilities has to be implemented". Also, mandate M/496 stressed European standards organizations to make assessment of necessary future standardization in support of GALILEO). Through resolution BT C121/2011, and D140/C011 to C013, CEN and CENELEC technical boards accepted M/496 standardization mandate addressed to CEN, CENELEC and ETSI for standardization related to space industry. In response to the mandate M/496, CEN and CENELEC BTs following the President Committee's decision, agreed on the creation of the CEN/CENELEC TC5 "Space". Established in 1991, CEN (European Standardization Committee) operates on a decentralized system covering a network of 32 national members with a central secretariat, the CEN/CENELEC Management Center (CCMC). CEN is a business facilitator in Europe, removing trade barriers for European Industry and consumers. Its mission is to foster the European economy in global trading, the welfare of European citizens and the environment. Through its services, it provides a platform for the development of European Standards and other technical specifications. AFNOR is the French member of the National Standardization Bodies represented at the European and International level. As a monopolistic subcontractor of AFNOR, BNAE is the French standardization office for Aeronautics and Space standardization.

#### 1.2. Context of the work

##### 1.2.1. Satellite Based augmentation systems (SBAS)

Satellite Based Augmentation Systems complements the existing satellite navigation services provided by GPS. There are several SBAS developed or under development, such as:

- European Geostationary Navigation Overlay Service (EGNOS)
- Wide Area Augmentation System (WAAS) in USA,
- Multi-functional Satellite Augmentation System (MSAS), in Japan,
- System for Differential Corrections and Monitoring (SDCM), in Russia,
- the GPS and GEO Augmented Navigation (GAGAN) system in India,
- Satellite Navigation Augmentation System (SNAS) in China, and
- Korea Augmentation Satellite System (KASS) in Republic of Korea.



To guarantee seamless and worldwide system provision, the existing systems meet common standards and interoperability requirements. SBAS broadcasts on the GPS L1 frequency a GPS-like signal with embedded corrections, providing improved accuracy over GPS and are being fully interoperable with each other. In addition, they provide integrity information in real-time, providing information on the health of the GPS constellation. Although widely used for Safety of Life application in Aviation, SBAS are not yet formally used in maritime.

In maritime, SBAS SiS<sup>1</sup> provide a complementary service to marine radio beacon DGNSS for the provision of enhanced accuracy and integrity information. Vessels sailing under the IMO SOLAS Convention are currently unable to consider SBAS as a candidate for augmentation system to be conform to IMO requirements (A.1046), however mariners exempt from SOLAS (predominately leisure craft) can use SBAS.

Therefore, part of maritime users has de-facto been using SBAS for several years, and nowadays SBAS functionality is supported by most of the maritime GNSS receivers used in the recreational and professional (both unregulated and regulated) sectors.

As milestones to reach an SBAS compliance for IMO SOLAS Vessels there are at least two key points needs to be addressed:

- SBAS Service provision compliant with maritime requirements
- SBAS Standard for shipborne SBAS/GNSS L1 Maritime Receivers

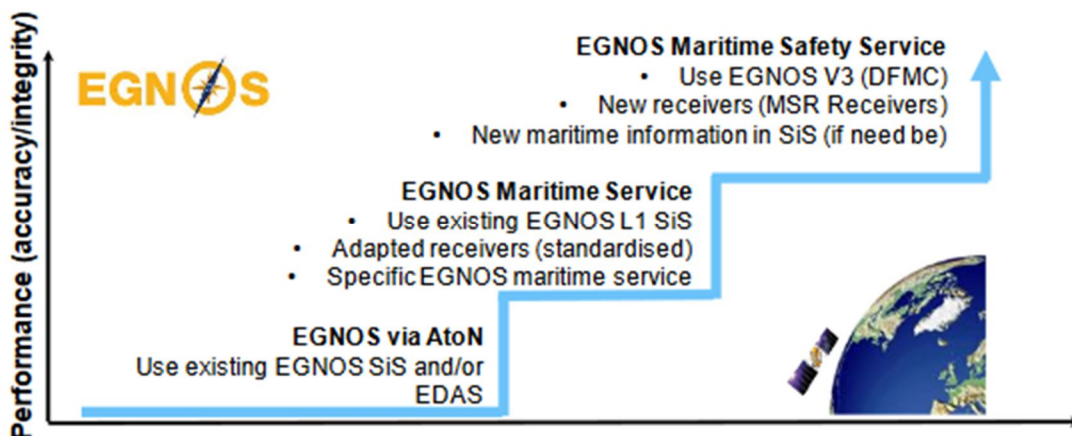
This project aims at providing the technical content needed to develop an SBAS receiver performance standard, which can be used in the Maritime domain.

### 1.2.2. SBAS services compliant with Maritime: status & expectations

In Europe, EGNOS aims to provide in few years an SBAS L1 Maritime Service compliant with maritime requirements. This service will use existing EGNOS V2 signal processed by IEC standardized receivers onboard the vessels. The EGNOS maritime service will be defined in a Service Definition Document (SDD). Notice to mariners and navigational warnings will be made available to mariners to inform about predicted EGNOS outage and relevant performances degradations.

On 3 April 2019, the service concept review organised by EC/GSA for the potential provision of a new service for maritime based on SBAS L1 was passed successfully. The service requirements review is planned in Q2 2020. The Service declaration is expected in 2022.

Such EGNOS V2 Maritime Service is the second phase of a three-step process conducted by Europe (GSA) to foster usage of SBAS in Maritime. The first step, using EGNOS data as an input to be broadcasted over Maritime terrestrial DGPS by Aids to Navigation operators is already available to be implemented and compliant with international maritime requirements (See IALA Guideline G1129). The second step is not yet being enabled for maritime community but some stakeholders including national & coastal authorities already consider that SBAS would contribute to maritime (See IALA Guideline G1152). The third step would be the development of an EGNOS V3 dual frequency multi-constellation-based service for Maritime.



<sup>1</sup> Unless mentioned otherwise, SBAS refers to SBAS Signal in Space



Although the EGNOS maritime service project is likely the most advanced initiative among SBAS providers to declare a maritime service, it is expected in the future from other SBAS providers to make available SBAS Maritime compliance services in their coverage area. This would enlarge the benefits of such services to maritime stakeholders the most globally, as it is for aviation SoL SBAS services.

### 1.2.3. Need for maritime GNSS L1/ SBAS Standardized receivers

Standardisation of shipborne receivers remains a prerequisite for SBAS services to be safely and formally used by mariners, mainly IMO SOLAS Vessels. Such a standard will further enable vessels to benefit from SBAS when sailing in an area covered by the service.

There are milestones remaining to reach an integrated cost-effective SBAS L1 receiver ready to market, and both institutional and industrial stakeholders could participate to this innovation. Finally, the SBAS L1 receiver innovation activities could also be linked to the development of multi-system multi constellation PNT receivers, as it will contribute as a part of the future solution.

SBAS L1 introduction in maritime GNSS receiver is challenging both in the field of innovation and regulations. In the field of innovation in relation to the GNSS/SBAS L1 shipborne receiver, it is worth noting the following activities:

- **SBAS L1 Guidelines** for shipborne manufacturers: EC/GSA/ESA with the support of ESSP and GMV prepared Guidance material for the implementation of SBAS L1 in shipborne receivers. The Guidelines defined the minimum set of SBAS messages that have to be used in order to fulfil the operational requirements in IMO resolution A.1046.
- **EGUS project:** Implemented Guidelines in a software receiver (gLab), defined tests specifications and executed the tests. The project verified that tests are well defined so that it is possible to check whether an implementation is ok or not ok. In the same project the Guidelines were updated with the definition of the tests and included at the end of the document.
- **Fundamental Elements:** “SBAS Maritime Receiver Development, Test and Validation”. Main objectives are to implement SBAS following Guidelines for manufacturers already discussed in RTCM, perform a testing campaign and to support the standardisation process within IEC. Deliverables received: Analysed the current Guidelines, discussed how to integrate together SBAS and IALA DGNSS, and proposed the next steps in standardisation at IEC and its inclusion in MED. More details in Annex 1.

Considering all the above, there is a strong need to get a standard for SBAS Maritime GNSS L1 receiver that would benefit the whole Maritime community.

### 1.2.4. Market considerations

SBAS are operating or being developed all around the world and are fully interoperable. Hence, Maritime GNSS/SBAS L1 receiver will be finally requested and compatible for all the ships. European manufacturers that first get ready to market SBAS L1 receiver can take benefits of this technologies out of Europe boundaries.

Introduction of SBAS L1 in maritime standards would also lead to an opportunity for receiver manufacturers to increase their sale streams. Indeed, it is very likely that shipowners would replace their receivers in the following years after the standard issue to comply with these new standards and get benefits on the SBAS L1 for their applications.

### 1.2.5. Social & environmental benefits expected

The improvement of accuracy allows a better efficiency of the vessel route that can on one hand, reduce the duration of the trip from berth to berth. This contributes to the improvement of the efficiency of the supply chain. On the other hand, it is also good for environment by decreasing the fuel consumption, therefore decreasing SO<sub>x</sub>, NO<sub>x</sub>, CO<sub>x</sub> emissions.

Further than accuracy, SBAS usage will also improve integrity and mitigate some threats related to usage of GNSS standalone. The coverage of SBAS is wider than terrestrial DGNSS systems that already provides augmentation services. Therefore, it can be expected an improvement of maritime safety leading to decrease the



number of accidents (grounding, collisions for instance). This will directly benefit by reduce human injuries or lost and pollution disasters.

#### 1.2.6. Challenges to be overcome to reach a standard

SBAS were originally design for aviation Safety of Life applications where standardization of integrity algorithms has been a core subject for decades. Moreover, there are also more stringent requirements on the standardisation of navigation equipment carried by aircrafts. For instance in maritime, DGNSS receiver is not a carriage requirements for IMO SOLAS Vessels.

Although **it is recognized by the maritime community for years that SBAS standard would be a key benefits**, there were for now **some challenges that slow down the process from now and other to overcome** to get it:

#### **SBAS regulations:**

In Maritime, the common DGNSS source is terrestrial IALA DGPS Beacon shore stations that are design for coastal navigation compliant with IMO resolution A.1046. This DGPS signal is commonly processed by a specific receiver that is interfaced with the GPS receiver providing enhanced accuracy and integrity warnings. This usage has been considered for years in the IMO regulations and standardized for both service provision and receiver sides.

However, since SBAS are known to deliver a satisfying DGNSS service to aviation, Maritime receiver manufacturers widely consider SBAS as a signal of opportunity to be used and already implement SBAS capability in their devices out of any standard nor specific maritime SBAS Services.

It appears recently Guidelines at IALA on how maritime shore authorities can consider SBAS for maritime use and also in IMO there are some work in progress regarding multi-system multiconstellations shipborne receivers on which SBAS is considered to contribute.

#### **SBAS service provision:**

Maritime User needs are very different than in aviation and SBAS should be proved to be compliant with prior to **develop a maritime SBAS standard receiver that is also compliant with specific maritime requirements**. In maritime, the current requirements consider integrity at system level and defines some required performances for key parameters (Availability, Continuity, Accuracy, Integrity...). In addition, there are also other specific needs like Maritime safety Information broadcasting to inform users on expected or unplanned service outages.

These service provision challenges had been considered for years and a several works has been carried out in IALA and EMRF but also within different projects funded and managed by Europe (ESA, GSA,ESSP).

These should lead to **a maritime service available in Europe in 2022 then the availability of a standard for maritime SBAS receiver became even more valuable**.

#### **SBAS algorithms processing:**

**In Maritime, there is no international authority that is committed to type approved processing algorithms for navigation receivers**. IMO requirements defined the performances expected for DGNSS receivers and for DGNSS Service but not defined the way that signal should be processed.

As we set before, maritime needs are not similar than aviation needs. So **specific algorithms should be developed to process SBAS in maritime receivers and proved to result in performances compliant with maritime requirements**. These algorithms are also expected to be approved by the maritime community and also but it is challenging since there is not a single organisation to do so.

Again, European GNSS stakeholders mainly GSA, fostering EGNOS adoption in Maritime by leading some activities and discussions groups to gather user needs, advices and opinion on the way to process SBAS in maritime receivers. The outcomes of such consultation was mapped into a guideline for SBAS processing in receivers that is implemented to perform some tests on real data. These **tests campaigns highlights that an SBAS maritime compliant receiver is achievable. This pave the way to start a work to an IEC performance standard that could certify some receivers**.

#### **Remaining concerns to explore:**

Considering all the above mentioned that are already addressed, at least partially. There are some remaining technical points to be explored when aiming to develop a standard for maritime SBAS receiver:

- How to comply with IMO receiver performances standards including the mutli-system radio-navigation shipborne navigation receiver approach.



- How to deal with other differential and integrity methods already implemented on receivers as RAIM and DGPS.
- Consider the tests results and not the implemented algorithms
- Consider to develop a solution that is cost effective to be finally sustainable to the ship-owners
- How to push the European related outcomes to an international level mainly IEC.
- Don't forget to consider the real cases implementation & equipment installation on-board that are not always "perfect" as record & replay.

#### 1.2.7. Current work at IEC

The IEC is one of three global sister organizations (IEC, ISO, ITU) that develop International Standards for the world. Founded in 1906, the IEC (International Electrotechnical Commission) is the world's leading organization for the preparation and publication of International Standards for all electrical, electronic and related technologies. All IEC International Standards are fully consensus-based and represent the needs of key stakeholders of every nation participating in IEC work. Every member country, no matter how large or small, has one vote and a say in what goes into an IEC International Standard.

Many thousand experts carry out standardization work in the IEC in TCs (technical committees) and SCs (subcommittees), in hundreds of working groups, project and maintenance teams. IEC TCs and SCs prepare technical documents on specific subjects within their respective scopes.

TC80 Scope thanks to IEC Website is "To prepare standards for maritime navigation and radiocommunication equipment and systems making use of electrotechnical, electronic, electroacoustic, electro-optical and data processing techniques." The customers for TC 80 standards are the manufacturers of the navigation and communication systems, the test houses which provide the test reports and Administrations which use the standards for type approval purposes which is for example required by the IMO International Convention for the Safety of Life at Sea (SOLAS).

From 1996 to now, the IEC TC80 develops a series of standards for maritime GNSS radio-navigation receivers. These IEC 61108-1 to 61108-4 are in force currently and describes performance standards, methods of testing and required test results for GNSS and DGNSS in maritime.

The 61108-1 refers to GPS, the 61108-2 to GLONASS, the 61108-3 to GALILEO and the 61108-4 to DGPS and DGLONASS marine radio beacons. It is worth noted that a project team is currently working on the expected 61108-5 which will add Beidou to the series.

Each of these standards develops a similar approach but address either one specific GNSS or maritime radio DGPS/DGLONASS beacons. It refers to IMO relevant resolutions such as those which define maritime shipborne radio-navigation receiver standards and also resolution on the world wide radio navigation system that describes the requirements for different navigation phases.

The approach followed by the 4<sup>th</sup> standards is quite similar by dividing the standards in two main parts:

- Minimum performance: This part describes the receiver requirements and several specifications to consider for receiver performances such as input/output, signal to process, installation on-board including antennas, electro-magnetic protections...
- Methods of testing and required results: this part includes several information and specifications related to the test sites, sequence, signal and conditions that should be set when carry out standardization test of a receiver. This part also describes in detail the test process and the expected results.

As we already said above, there is a strong need to get a standard for SBAS Maritime GNSS L1 receiver. The operational benefits for mariners will be finally reached when an IEC standard will be issued and implemented in purchasable receivers.

Yet, it is important to note that this project aims to foster SBAS standardization process by gathering and putting in place, at a European level, the material and knowledge that could be promoted further as input for IEC activities. The drafting of the technical content will be executed by the subject matter experts selected in the MARESS project.





## 2. OBJECTIVES

This call aims at the recruitment of the convenor of CEN/CENELEC TC5/WG8 which will coordinate the technical work for the delivery of European inputs to IEC TC80. The tasks of the convenor are described in section 3.2. The expected technical expertise and criteria for selection are described in section 5, 6 and 7.

The timeframe of the project is indicated in section 3.3. Financial support is described in section 4.

The candidates are expected to submit their application according to the requirements laid out in section 8.

## 3. EXECUTION

### 3.1. General

This call for candidate is part of a Specific Agreement (SA 2019/13) signed between the European Commission and CEN/CENELEC under the Framework Partnership Agreement 2014 program. This specific agreement has been signed on the 25<sup>th</sup> of March 2020, which is the starting date for the Specific Agreement.

This call for candidates aims at selecting the convenor who which will coordinate the work programme developed in a secondary project named MARESS (MARitime REceiver Sbas Standardisation). The objective of the MARESS project is the production of 5 Technical Reports and 1 Technical Analysis related to the definition of minimum performances for SBAS L1 receivers for maritime application and the definition of test methods and their implementation.

### 3.2. Tasks of the convenor

The WG Convenor is responsible for the activities of WG8 (SBAS L1 receiver performances for maritime applications) established by CEN/CENELEC TC5. For this purpose, and with the support of BNAE as support secretariat, the convenor will:

- ensure the coordination of the activities of the MARESS project
- review the reports provided by the MARESS project participants according to the timeframe laid out in section 3.3.
- be responsible for the delivery of the interim and final report of the MARESS project according to the Specific Agreement 2019/13 between CEN/CENELEC and the European Commission.

The WG Convenor will also convene WG8 meetings, report to the parent committee (CEN/CENELEC TC5) and ensure proper coordination with IEC TC80 by participating to their meetings in the frame of the development of IEC 61108-x standard described in section 1.2.7.

### 3.3. Time frame

The project shall be finalized within the period starting upon signature of the contract until the 30<sup>th</sup> of March 2022.

### 3.4. Joint offers

A joint offer is a situation where an offer is submitted by a group of tenderers. If awarded the contract, the tenderers of the group will have an equal standing towards AFNOR in executing a supply, service or works contract.

A joint offer shall explicitly specify the different responsibilities of each member of the group with respect to the different tasks described in this document.

AFNOR will not request consortia to have a given legal form in order to be allowed to submit a tender, but reserves the right to require a consortium to adopt a given legal form before the contract is signed if this change is necessary for proper performance of the contract. This can take the form of an entity with or without legal personality but offering sufficient protection of the AFNOR's contractual interests (depending on the Member State concerned, this may be, for example, a consortium or a temporary association).

The documents required and listed in the present specifications must be supplied by every member of the grouping. The offer must be signed by all members of the group.



Each member of the group will have a separate contract with AFNOR covering the tasks he is responsible for in the joint offer. BNAE will be responsible for verifying the correct execution of the contracts.

#### 4. FINANCIAL SUPPORT

The reimbursement rate for accepted experts is to be communicated by the candidates. Travels and lodging costs incurred by the selected candidate in the context of the work of CEN/CENELEC TC5/WG8, the MARESS project or IEC TC80 meetings will be reimbursed up for the entire duration of the project. It is expected that the expert provide a list of travel expenses.

#### 5. CHARACTERISTICS OF THE EXPERTISE AND CRITERIA FOR SELECTION OF CANDIDATES

The convenor shall demonstrate capabilities and/or knowledge in the following areas:

- Technical content and planning of the MARESS project (according to SA 2019/13)
- Capacity to carry on analytical reporting
- Linguistic abilities to draft reports in English Language
- Proven experience in organizing technical and coordination meetings

The foreseen required expertise is as follows:

- System engineering
- Test specifications, test protocols design, test execution
- GNSS signals and receivers
- GNSS positioning
- Maritime Applications
- Signal processing
- Radio-frequency signals
- Mathematics, probabilities and statistics

The candidates must provide a CV which underlines the possession of relevant expertise. Candidate experts must describe in their offer the expertise that they will bring for the convenorship. Selection, follow-up of and retribution of the experts will be done by BNAE and AFNOR, in cooperation with CEN/CENELEC.

#### 6. AWARD CRITERIA

The selection of the experts will be made based on the following criteria:

- i. Practical technical project management skills and technical skills (10%)
- ii. Knowledge within European or International standardization work or in related requirement defining organization in the Maritime Domain (e.g. IMO, IALA...) (10%)
- iii. Experience in the Maritime Domain, on topics related to E-GNSS receivers performances definition and tests (35%)
- iv. Planning and organization of the support in the development and validation of the content of the deliverables of the MARESS project (20%)
- v. Ability to lead meetings at working group level (20%)
- vi. English language skills (5%)

Candidates scoring less than 70% of the overall total points or less than 50% of the points awarded for a single criterion will be excluded from the remaining selection procedure.

The contract will be awarded to the candidacy which is the most cost-effective based on the ratio between the total points scored and the price/1000.

#### 7. EXCLUSION/ELIGIBILITY CRITERIA



The following candidates will be excluded:

- Candidates who are not citizen of the European Union
- Candidates who were the subject of a non-likely judgment or recourse for a professional infringement
- Candidates who are in an irregular tax situation or in an irregular special taxation situation
- Candidates who provide incomplete or erroneous information.

## 8. APPLICATION FORM

Applications shall be made by email to BNAE by 2020-09-15:

Attn: M. Benmeziane Karim (secretariat CEN/TC5/WG8) [karim.benmeziane@bnae.fr](mailto:karim.benmeziane@bnae.fr)

The required information are as follows:

- Contact details of the candidate expert
- CV: the resume shall mention experience in the required areas covered by section 5.
- Any further documents to prove the qualification required in the above section on Selection and Award Criteria
- A signed declaration, by which the candidate(s) certifies not to be subject to one of the exclusion criteria as described in section 7.

Note on the employee status of the selected candidate:

- For the entire duration of the project the selected candidate shall remain an employee of the contractor (organization for which the candidate is an employee) and shall not be deemed to be an employee of either CEN/CENELEC, AFNOR or BNAE.





ANNEX I: GENERAL TERMS OF THE CONTRACT BETWEEN AFNOR and the CONVENOR's ORGANIZATION (hereafter the "CONTRACTOR")

**Article 1. Subject matter**

AFNOR hereby engages the Contractor, which accepts, to perform, in accordance with a performance requirement, the project management of all the operations needed to complete the tasks assigned to it and which are set out in appendix 1 of the SA and the invitation to tender (hereinafter referred to as the "Services").

**Article 2. Obligations of the Contractor**

**2.1.** The Contractor agrees to use its best efforts in performing the Services in accordance with the SA and the best practices of its profession.

**2.2.** The Contractor agrees to:

- comply with a general obligation to give advice, information and warning regardless of AFNOR's expertise or level of knowledge;
- assign qualified staff with the time and resources needed to perform the Services perfectly;
- give AFNOR the name and job title of the person directly responsible for the performance of the Services;
- send AFNOR all the deliverables set out in the SA within the set time limits;
- draw up and send AFNOR, at each of the key stages of the project set out in the appendix of the SA, a report setting out the state of progress of the services performed, i.e. an interim report and a final report drafted in accordance with the requirements set out in the SA;
- draw up and send AFNOR a progress report regarding the Services on 31 December of each year;
- notify AFNOR of any modification pertaining to the organisation and performance of the tasks such as changes to the structure or the people responsible for the performance of the contract.

**2.3.** The Contractor agrees, under penalty provided hereof, to comply with the agreed deadlines in accordance with the calendar set out in the SA.

**2.4.** Given that this contract forms part of a programme of the European Commission, the Contractor agrees to be audited regarding the performance of the services and the use of the sums paid by AFNOR. It consequently agrees to allow AFNOR and/or an audit company appointed by AFNOR and/or the European Commission to enter its premises and consult any documents dealing with the performance of the contract, on request.

**2.5.** The Contractor must maintain and keep, for a period of 7 years from the last payment received, a file including the reports, minutes of the tasks undertaken within the context hereof, the time sheets of the person/people involved in the performance of the service, the assignment's expenses statement and the payments made to any authorised sub-contractors.

**Article 3. Obligations of AFNOR**

AFNOR shall give the Contractor the information needed to effectively fulfil the Services.

AFNOR shall appoint a primary point of contact in order to maintain dialogue throughout the different stages of the services entrusted.

Should the SA be modified by an amendment, AFNOR agrees to notify the Contractor of such an amendment.

**Article 4. Remuneration**

The price and payment terms are set out in Appendix 2 ("Financial Terms") hereof.

**Article 5. Penalties**



When the Contractor fails to meet a contractual deadline or in the event of a serious failure attributable to the Contractor, the latter shall incur, simply by virtue of the lateness or failure being observed, financial penalties the amount of which will be set by the European Commission in proportion to the seriousness of the lateness or the failure concerned. The maximal rate applied when setting these penalties is equal to 20% of the total pre-tax amount hereof.

The penalties shall be applied independently of any other sanctions arising from the lateness or failure, including the possible termination of the contract and the terms set out in article 6 without the exclusion of a claim for damages.

## **Article 6. Term – Termination**

### **6.1. Term**

This contract shall take effect on [\*DATE DE DEBUT DU SA\*] and shall end on the date set out in appendix 1 of the SA (Art. 6.3).

### **6.2. Termination**

This contract may be automatically terminated early by either Party by recorded letter with acknowledgement of receipt, in the following instances:

- in the event of a serious failure of either Party to fulfil its obligations without remedy within fifteen (15) calendar days of the reception of the notification of the failures in question sent by recorded letter with acknowledgement of receipt, the other Party shall automatically be entitled to terminate the contract without prejudice to any claim for damages.
- in the event of the Contractor going into receivership without the contract being pursued by the receiver or the termination of its commercial activities, this contract shall automatically be terminated on the date of the adjudication of the receivership of the assets or on the day of the effective termination of the commercial activities if this contract is not pursued by the receiver;
- in the event of the termination of the SA by the CEN or the European Commission.

## **Article 7. Intellectual Property**

Pursuant to the FPA (art. II.8.3), the CEN must transfer to the European Commission all the intellectual property rights pertaining to the results arising from the Services, regardless of their nature, format or medium (hereinafter referred to as the "Results") such that the latter will be free to use them as it wishes.

To this end, the Contractor shall transfer all the intellectual property rights held for the Results to AFNOR that the latter will subsequently exclusively transfer to CEN as and when they are created. Accordingly, the Contractor shall transfer the following rights to AFNOR:

- use for its own needs
- reproduction in whole or in part for any use whatsoever by any process whatsoever and on any medium whatsoever;
- representation, circulation or publication of any kind whatsoever on any medium whatsoever;
- adaptation, modification, correction, development, integration, transcription and translation.

This transfer shall be concluded for the entire world and shall produce its effects throughout the entire legal term of the protection of the intellectual property rights. The remuneration set out in this contract includes the transfer of the intellectual property rights.

The Contractor warrants and represents that AFNOR has free, full and undisturbed use of all easements of the transferred rights against any disturbances, claims and evictions. In particular, the Contractor warrants and represents that it has obtained the prior transfer of the intellectual property rights regarding the Results from its employee(s) or any authorised agents.

## **Article 8. Non-disclosure**



Each party agrees not to disclose the data, information and various documents sent by the other party or to which it becomes exposed, even by coincidence, in the performance hereof. Each party agrees to enforce these provisions upon its agents and employees.

The data, information and various communicated documents to which the Parties are exposed may not be used for any other purposes than for the due and proper performance hereof.

This clause shall survive the termination or expiration of this contract and shall apply to the parties throughout the term of the contract and for an additional five (5) years.

## **Article 9. Transferability and sub-contracting**

This contract is entered into by virtue of the personality of the other party. The Contractor shall not, without the prior express written consent of AFNOR, entrust the completion, in whole or in part, of the Services, for which it is responsible, to a third party. In any case, the Contractor shall be exclusively responsible for paying the sub-contractor and shall assume full responsibility for any failure attributable to this sub-contractor, without AFNOR incurring any liability whatsoever.

## **Article 10. Liability, Insurance, Compliance with legislation**

**10.1** The Contractor shall assume full liability for the performance of all the obligations entrusted to it by this contract and shall indemnify AFNOR for any losses caused by itself, its employees or any of its agents.

**10.2** The Contractor warrants and represents that it has taken out a business liability insurance policy with a well-known reputable company, whose certificate, which is valid for the year on which the contract is signed, shall be sent to AFNOR. AFNOR reserves the right to request a valid insurance certificate for each year during which the contract is performed.

**10.3** Whatever the circumstances, the Contractor shall act in accordance with currently applicable laws and regulations.

**10.4** The Contractor shall provide AFNOR with the following information pursuant to article D 8222-5 of the French employment code:

- documentary evidence of the company's registration on concluding the Contract: e.g. an extract of the registration with the Trade and Companies Register (K or K bis); an identification card proving registration with the directory of trades; a receipt for the submission of a declaration to a business formalities centre for natural persons or legal entities whose registration is in progress;
- on concluding the Contract and for an additional six (6) months, a certificate from the social welfare authorities for the recovery of contributions declaring that the corporate declarations have been submitted and the Social Security contributions have been paid;
- on concluding the Contract, the list of the names of the foreign employees requiring work permits assigned to carrying out the Services within Europe. This list shall provide the following information for each employee concerned: recruitment date (1st), nationality (2nd), type and order number of the work permit document (3rd).

## **Article 11. Miscellaneous provisions**

### **11.1. Legal nature of the agreement**

The relationship formed between the parties and that of independent and autonomous businesses. None of the clauses in this contract may be construed as granting either party the power to govern the activities of the other party. Nothing in the form or intention of this contract shall imply the constitution of a company de jure or de facto.

### **11.2. Invalidity**

Should any of the causes of this contract be deemed contrary to applicable regulations, it shall be deemed invalid, but shall not lead to the invalidity of the rest of the contract. Each party shall strive to replace the clause with a similar provision that does not modify the economic balance of the contract.



### **11.3. Modification of the contract**

This contract may only be modified by a written amendment that is signed by the representatives of the parties who have been duly authorised to this end.

Consequently, if the SA is modified by an amendment, the parties shall agree to sign a corresponding amendment.

### **Article 12. Governing law and the settlement of disputes**

This contract, along with all the acts resulting from it, is governed by French law. In the event of a dispute arising from the interpretation, formation or execution of the contract, the parties undertake to seek an amicable solution. If such a solution cannot be reached, the dispute will be brought before the exclusive jurisdiction of the courts of Bobigny, including in the event of the introduction of third parties, several defendants or summary proceedings.