I. PUBLIC SUPPLY CONTRACT No KPS-314
SPECIAL PART
(*the public contract is concluded with respect to Integrated Maritime Surveillance System*)

3 October 2017
Vilnius

The Lithuanian Armed Forces, represented by Cpt. (N) Arūnas Mockus, acting under the order of the Chief of Defence No. V-1190 dated August 26, 2016 (hereinafter referred to as the **Purchaser**), and **Navielektro Ky**, legal entity code 0684382-6, represented by Asser Koivisto , acting as the Chief Executive Officer and the owner of the company (hereinafter referred to as the **Supplier**) *(in case of a group of economic operators, specify relevant data on each partner),* hereinafter collectively referred to as the "Parties" and individually as the "Party", in accordance with the Law on Public Procurement of the Republic of Lithuania, have entered into the present public supply contract, hereinafter referred to as the "Contract", and agreed on the terms and conditions set out below.

1. **Subject-matter of the Contract**
1.1. Subject to the procedure and terms laid down in the Contract and the annexes hereto, the **Supplier** shall sell the Sea Surveillance Information System software and its modules (hereinafter referred to as the goods or the software), which are in conformity to the technical specification "Technical Specification for the Upgrade of the Sea Surveillance Information System and Technical Surveillance Device System" (hereinafter referred to as Annex 1 or technical specification) provided in Annex 1 hereto. The Purchaser does not undertake to buy the whole software listed in Annex 3 "Rates of Sea Surveillance Information System and Its Modules" hereto (hereinafter referred to as Annex 3) throughout the period of the Contract.
1.2. The **Purchaser** shall pay for the software which is supplied, installed and conforms to the requirements laid down in Annex 1 hereto in accordance with the procedure stipulated herein.
1.3. The Supplier shall train the **Purchaser's** employees as laid down in Annex 1 hereto.

2. The rates of the software are listed in Annex 3 hereto. The rates of the software are provided with due regard to all the requirements indicated in the software technical specification and are inclusive of all the **Supplier's** costs which may be incurred in the execution of the Contract.
2.1. The rates of the software shall not be changed throughout the period of the Contract.
2.2. A preliminary value of the software purchased by the **Purchaser** under the Contract shall be EUR **3.023.195,00** (*three millions twenty three thousands one hundred ninety five euros 00 ct*) without value-added tax (hereinafter referred to as VAT). The Purchaser does not undertake to purchase the goods for the value laid down herein.
2.3. The risk of foreign currency fluctuation and the change of manufacturer prices shall be borne by the **Supplier**.

3. Place, Terms and Conditions of Delivery and Installation of Goods
3.1. The Supplier shall install, configure and test the software purchased hereunder under normal (not factory) operating conditions at the addresses Naujoji uosto St. 24 Klaipėda, Vytauto St. 9 Palanga, Žaliojo kelio St. 1, Neringa, Kuršių St. 1, Neringa or at the address specified in Annex 2 " Sea Surveillance Information System Software Order Form" hereto (hereinafter referred to as Annex 2):
3.2 The term of installation shall be 9 (nine) months from the contract signature or from the day of sending the order prepared under the form provided in Annex 2 hereto.
3.3. The **Supplier** shall deliver and install the software listed in Annex 3 hereto under the orders placed by the **Purchaser** *(if any)*. Orders shall be sent by: fax: +35822437733 or e-mail: info@navielektro.fi.

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3.4. By signing this Contract the **Purchaser** shall order and the **Supplier** shall install the main Sea Surveillance Information System software in accordance to Annex 1 Clause 3.2 for EUR **962.870,00** (*nine hundreds sixty two thousands eight hundreds seventy euros 00 ct*), without VAT, at the addresses laid down in Clause 3.1 of the Special Part hereof .
3.5. The **Purchaser** shall acquire the right to use the software installed after both Parties sign the taking-over certificate. The taking-over certificate for the goods shall be signed when all the goods (fully completed, quality, accompanied by the required documents and in conformity to the requirements laid down in the Contract and Annex 1 hereto) are installed at the software installation site specified in Clause 3.1 of the Special Part hereof and meet the requirements set forth in Annex 1 hereto.

4. Payment Procedure:
4.1. The **Purchaser** shall pay the **Supplier** following the procedure laid down in Clause 4.1 of the General Part hereof after both Parties sign the taking-over certificate.
4.2. An advance payment amounting up to 30 (thirty) per cent of the order price can be paid at the choice of the **Purchaser**.
4.3. In the event of advance payment, the provisions of the General Part hereof pertaining to advance payment which are set out in clauses 4.3-4.7 and other clauses of the General Part hereof shall apply.

5. The **Purchaser** shall be entitled to terminate the Contract unilaterally following the procedure and terms laid down in Clause 9.2.1 of the General Part hereof:
5.1. In case it turns out that the **Supplier** has lost its organisational or technical capacity to install the software following the term laid down in Clause 3.2 of the Special Part hereof. Including the fact if the ISO 9001 accredited certificate or an equivalent quality management system standard accredited certificate submitted by the **Supplier** is not extended, is suspended or withdrawn;
5.2. if the **Supplier** is late to fulfil its obligations for more than 30 (thirty) days, improperly fulfils them or fails to fulfil at least one of the obligations laid down herein;
5.3. The Contract also shall be unilaterally terminated by following the procedure and terms laid down in Clause 9.2 of General Part hereof

6. The quality of the **Goods** shall comply with the requirements set out in the Contract and the annexes hereto.

7. The quality warranty period for the software supplied and installed by the Supplier is laid down in Annex 1 hereto.
7.1. If any defect in the software becomes apparent during the quality warranty period, the **Supplier** shall eliminate the defects of the software after the **Purchaser's** written notice thereof following the terms laid down in Annex 1 hereto.
7.2. The quality warranty period for the software installed by the **Supplier** shall be calculated from the signature of the taking-over certificate and shall not be shorter than specified in Annex 1 hereof.
7.3. The **Supplier** shall appoint the following representative(s) responsible for the quality of the software being installed: Mats Koivisto, Chief Technical Officer, Phone: +358-2-2437711, E-mail: mats.koivisto@navielektro.fi and Miika Koivisto, Chief Technical Officer, Phone: +358-2-2437711, E-mail: miika.koivisto@navielektro.fi.
7.4. The **Purchaser** shall appoint the following person(s) responsible for control of fulfilment of the Contract: LCDR Andrejus Golubevas, Lithuanian Navy Sea Surveillance Service, Head of Maritime operations centre, phone. no.: +370 46 391304, e-mail: andrejus.golubevas@mil.lt and Lt (N) Vadimas Masijauskas, Lithuanian Navy Sea Surveillance Service, S3/S6/S7 CIS maintenance officer, phone. no.: +370 46 391303, e-mail: vadimas.masijauskas@mil.lt

8. Guarantee of Performance of Contractual Obligations:
8.1. The amount secured by a bank guarantee or a surety bond issued by an insurance company shall be EUR 211.623,65 (*two hundreds eleven thousands six hundreds twenty three euros 65 ct*) (7 % of the preliminary value of the goods purchased under the Contract as provided for in Clause 2.2. hereof). The term of validity of a bank guarantee or a surety bond issued by an insurance company shall be at

least two months longer than the term of validity of the Contract. A bank guarantee or a surety bond issued by an insurance company shall meet the requirements laid down in clauses 12.1, 12.2 and 12.3 of the General Part hereof.

8.2. The liquidated damages agreed by the Parties under Clause 11.4 of the General Part hereof shall be EUR 211.623,65 (*two hundreds eleven thousands six hundreds twenty three euros 65 ct*) (7 % the preliminary value of the goods purchased under the Contract as provided for in Clause 2.2).

9. Miscellaneous:

9.1. In case the **Supplier** is late to install the software within the term laid down in Clause 3.2 hereof, the **Supplier** shall pay the **Purchaser** the liquidated damages agreed upon by the Parties – 0.2 % of the preliminary value of the goods purchased under the Contract set forth in Clause 2.2 hereof for each day so delayed and cover all the losses incurred by the **Purchaser** due to the **Supplier's** non-performance or improper performance of the Contract. The **Supplier** shall pay the liquidated damages within the term set forth in the invoice or the request for payment.

9.2. Pursuant to Clause 9.1.2 of the General Part hereof, a 30 day period of occurrence of *force majeure* circumstances shall be established.

9.3. **Annexes to the Contract:**

9.3.1. Annex 1 "Technical Specification for the Upgrade of the Sea Surveillance Information System and Technical Surveillance Device System", with annexes, 67 pages;

9.3.2. Annex 2 "Sea Surveillance Information System Software Order Form", 1 page;

9.3.3. Annex 3 'Rates of Sea Surveillance Information System and Its Modules", 1 page;

9.3.4. Annex 4: Supplier's tender, Supplier's explanations presented in the course of procurement procedure.

10. The Contract shall be in force for 36 months from the effective date of the Contract; with respect to financial and guarantee obligations, the Contract shall be effective until full performance of contractual obligations.

11. The Contract is made in Lithuanian and English languages in four copies, two copies for each Party. In the event of any discrepancies in the interpretation of the Contract, the text in the English language shall prevail.

11. **Purchaser's Details**	12. **Supplier's Details**
Lithuanian Armed Forces code **188732677** VAT identification number **LT887326716** Address **Šv. Ignoto 8, LT-01144 Vilnius** Settlement account **LT48 7300 0100 0246 0179** Bank **„Swedbank", AB** Contact person: LCDR Andrejus Golubevas phone +370 46 391304 , andrejus.golubevas@mil.lt	Navielektro Ky Business ID 0684382-6 VAT identification number FI0684382-6 Address P. O. Box 137 (Hallimestarinkatu 11), 20781 KAARINA, FINLAND phone +35822437711, fax +35822437733 Settlement account: FI67 5319 3520 0161 96 Bank: Lounais-Suomen Osuuspankki Contact person: Mats Koivisto phone +358-2-2437711, E-mail: mats.koivisto@navielektro.fi

PURCHASER:
Lithuanian Armed Forces
Commander of Lithuanian Armed Forces Navy
CPT (N) Arūnas Mockus

(signature)
L.S.

LIETUVOS KARIUOMENĖ
LIETUVOS RESPUBLIKOS KRAŠTO APSAUGOS MINISTERIJA

SUPPLIER:
Navielektro Ky
Chief Executive Officer
Asser Koivisto

(signature)
L.S.

Navielektro
Working Partnership in Vessel Traffic Systems
Hallimestarinkatu 11, 20780 Kaarina, Finland
Phone +358 2 2437711 Fax +358 2 2437733

CONTRACT FOR THE PURCHASE AND SALE OF GOODS

GENERAL PART

30 October No. KPS-314
Vilnius

1. Definitions

1.1. For the purposes of this Contract, the following definitions shall apply:
1.1.1. Contract shall mean the General Part and the Special Part of this Contract for the Purchase and Sale of the Goods and the annexes to the Contract for the purchase and sale of Goods.
1.1.2. Parties shall mean the **Purchaser** and the **Seller**:
1.1.2.1. **Purchaser** shall mean the Party with the details specified in the Contract which purchases the Good under the terms and conditions laid down in this Contract;
1.1.2.2. **Seller** shall mean the Party with the details specified in the Contract which sells the Good under the terms and conditions laid down in this Contract.
1.1.3. **Recipient** – unit of the Purchaser, to which the Goods are delivered, indicated in the Special Part of the Contract or Annex(s) hereto.
1.1.4. Third Party shall mean any natural person or legal entity (including the state, public authorities, municipality, municipal authorities), which is not a party to this Contract.
1.1.5. Licences shall mean all licences and/or permits required for the performance of the Contract.
1.1.6. Object of the Contract shall mean the goods and all services relating to the selling thereof (personnel training, installation, delivery, etc.) agreed upon by the Parties in the Special Part hereof and corresponding to the requirements of stated by the Purchaser.
1.1.7. Minimal losses agreed by the Parties in advance shall mean an undisputable amount established in the Contract or calculated under the procedure set forth in the Contract which the **Seller** undertakes to pay to the **Purchaser** in the event of non-performance or improper performance of the obligation.
1.1.8. Rules of Marketing shall mean the price determined in the Contract or the rules of calculation and correction of the contract price.
1.1.9. Consignment of Goods shall mean the quantity of goods delivered at one time.
1.1.10. Lot of Goods shall mean consignments of goods manufactured from the same lot of material.
1.1.11. Lot of Materials shall mean a certain amount of material produced from the same raw materials obtained from the same **Seller** following the same technology and under the same terms and conditions. A certificate of conformity shall be considered a proof of the quality of a lot of material concerned.
1.2. The calculation of the minimal losses agreed by the Parties in advance shall commence as of the following day of the term of payment and expire upon the performance of obligations by the Party (the day of performance of the obligations shall be considered the final day of calculation).
1.3. The headings of the parts and articles of the contract are for convenience only and may only be used in the interpretation of the Contract as an additional tool.
1.4. Unless otherwise set out in the Contract, the duration and other terms of the Contract shall be calculated in calendar days.
1.5. Should the payment term coincide with public holidays and days-off in the Republic of Lithuania, the payment term under the Contract shall be the following business day.
1.6. If required by the context, words in the singular may include the plural and vice versa.
1.7. Where the meaning expressed in words differs from the meaning expressed in numbers, the verbal meaning shall prevail.

2. Contract Price/Rates

2.1. Contract price/rates shall mean the amount that the **Purchaser** undertakes to pay to the **Seller** in accordance with the procedure and terms stipulated in the Contract.

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2.2. Contract price/rates are stable and shall not be changed throughout the validity period of the Contract, unless the VAT/excise rate applicable to the goods changes after signing the Contract. The recalculated price/rates shall be executed by a written agreement of the Parties and applicable to the goods delivered after the day of entry into force of such agreement signed by the Parties (*if the Special Part provides for such a condition).*
2.3. The rates of the goods shall be changed in accordance with the rules of marketing established in the annex to the Contract. The recalculated price/rates shall be executed by a written agreement of the Parties and applicable to the goods delivered after the day of entry into force of such agreement signed by the Parties (*if the Special Part provides for such a condition).*
2.4. The Contract price shall be inclusive of the price of the goods, any costs and taxes. The rates of the goods shall be inclusive of all costs and taxes relating to the sale of the goods (*applicable if the Contract does not provide for the Contract price*). The **Seller** shall add all costs relating to the supply of the goods into the Contract price, including but not limited to:
2.4.1. Costs of logistics (transportation);
2.4.2. Packing, loading, transit, unloading, unpacking, check-up, insurance and other costs relating to the supply of the goods;
2.4.3. All costs relating to the issue and provision of the documents required by the **Purchaser**;
2.4.4. Costs of on-site assemblage and/or launch into operation, and/or maintenance of the goods delivered;
2.4.5. Costs of supply with the tools required for the assemblage and/or maintenance of the goods delivered;
2.4.6. Costs of providing the use & care guides stipulated in the Technical Specification;
2.4.7. Warranty repair costs of the goods.
2.5. The risk of foreign currency fluctuations and changes in manufacturers' prices shall be assumed by the **Seller**.

3. Terms and Conditions for the Supply of the Goods
3.1. The goods shall be delivered in accordance with the terms and procedure provided for in the Special Part of the Contract (or the annex(s) to the Contract).
3.2. The **Seller** shall deliver the goods at its own risk without additional payment. The **Purchaser** shall acquire the ownership right to the goods upon signing the Delivery and Acceptance Certificate by both Parties which shall only be signed in case the goods are of high quality and comply with the requirements set forth in the Contract and the annex(s) hereto (*if signed*). If the delivered goods are qualitative and corresponds to the requirements stated in the Contract and annex(s) hereto (*if signed*) the Delivery and Acceptance Certificate shall be signed within 30 days except when laboratory tests are carried out for the goods.
3.3. The **Purchaser** shall not pay for the goods supplied in excess of the amounts specified in the applications/orders.
3.4. If the **Seller** shall deliver consignment of the goods which is less than it is specified in the Contract /applications/orders, the **Purchaser** shall return the consignment of the goods to the **Seller**, it shall be deemed that the goods have not been delivered, and the penalties provided in paragraph 11.1 of the General part of the Contract shall be applied to the Seller (in case the delivery term of the goods is missed).
3.5. The **Seller** shall after the entry into force of the Contract carry out the following actions set out in the Special Part hereof under the terms established:
3.5.1. prepare, produce, agree with the **Purchaser** and approve the working reference samples of the goods purchased (2 copies; one to the **Purchaser** and one to the **Seller**) in compliance with the requirements established in the Contract or the annex(s) hereto (*if the Special Part provides for such a provision*);
3.5.2. agree with the **Purchaser** and submit the plan for assurance of quality of goods to be provided prepared in accordance with the Recommendations of Preparation of the Plan for Assurance of Quality to

be Provided or the standards laid down in the Special Part hereof (*if the Special Part provides for such a condition*);
3.5.3. agree the use & care guide for the good which shall accompany each good with the **Purchaser** (*if the Special Part provides for such a condition).*
3.6. The **Purchaser** shall return the working reference samples of the goods specified in Clause 3.5 hereof and the accompanying samples of the main and auxiliary materials used in the production of the goods to the **Seller** as soon as the **Seller** performs all contractual obligations, including warranty obligations.
3.7. If during the validity period of the Contract the manufacturer of the good changes/upgrades the model of the good purchased hereunder specified in the annex(s) to the Contract, the **Seller** shall have a right to deliver the goods of a new model upon negotiating and signing of an additional agreement with the **Purchaser**. The goods of a new model shall comply with the requirements for the purchased goods set forth in the Contract or the annex(s) hereto for the same price and their technical data may not be inferior to the technical data of the goods which constitute the subject-matter of the Contract. The goods of a new model shall match with other goods purchased hereunder and with the goods disposable by the **Purchaser**.

4. Terms and Conditions of Payment
4.1. The **Seller** shall be paid when the object of the Contract in conformity with the requirements established in the Contract and the annex(s) hereto is handed over to the **Purchaser** upon signing the Delivery and Acceptance Certificate by both Parties (*if signed*) within 30 (thirty) days of signing the Delivery and Acceptance Certificate (*if signed*) and receipt of the invoice (the invoice shall be also send by electronic means). If another payment terms are determined they shall be indicated in the Special Part of the Contract.
4.2. After delivery of the goods by the **Seller**, the **Purchaser** shall have the right to decide within 3 (three) days as to whether laboratory tests will or will not be performed in respect of the Goods (lot and/or consignment of the goods concerned) delivered by the **Seller** in order to make sure that the goods are in compliance with the requirements set out in the Contract and the annex(s) hereto. Should the **Purchaser** decide that laboratory tests will not be performed in respect of the goods, the goods in conformity with the requirements set forth in the Contract and the annex(s) hereto shall be accepted and the **Purchaser** shall pay the **Seller** for the goods accepted within 30 (thirty) days of receipt of the invoice. Should the **Purchaser** decide that laboratory tests in respect of the goods are required, the payment for the goods shall be made within 30 (thirty) days of receipt of the results of laboratory tests and confirmation that the goods meet the requirements set out in the Contract and the annex(s) hereto (*if the Special Part provides for such a condition*).
4.3. Where the **Purchaser** decides to pay for the goods in advance, the **Seller** shall be notified thereof and shall submit bank guarantee or security bond from an insurance company for advance payment for the amount of the advance payment paid by the **Purchaser** (the guarantee shall be valid 2 (two) months longer than the term for the delivery of the goods) and an invoice for advance payment within 5 (five) business days of receipt of the notice.
4.4. Record certifying that the guarantor shall irrevocably and unconditionally undertake to pay the **Purchaser** an amount not exceeding the amount indicated in the bank guarantee/security bond by transferring the money to the Purchaser's account within 14 (fourteen) days after receipt of written notice from the **Purchaser,** confirming termination of the Contract, shall be written in the bank guarantee or in the security bond.
4.5. It cannot be stated that the guarantor is liable only for compensation of direct damages. Any terms or conditions which would oblige the **Purchaser** to prove the guarantee or surety bond issuing company that the Contract with the **Seller** was terminated legally or otherwise shall allow the guarantee or surety bond issuing company not to pay (or delay payment) the amount secured by the guarantee or surety bond, cannot be specified.
4.6. Advance payment bank guarantee or insurance company surety bond not corresponding to the requirements stated in the Articles 4.3-4.5 of the General Part of the Contract shall not be accepted. In this

case, it will be assumed that the **Seller** failed to provide an advance payment bank guarantee or surety bond from the insurance company Article 4.1 of the Contract shall be applied.

4.7. The **Purchaser** shall pay the advance payment within 10 (ten) days of receipt of a bank guarantee for advance payment and an invoice for advance payment (*if the Special Part provides for such a condition).*

5. Quality of the Goods

5.1. The goods shall comply with the requirements set forth in the Contract and the annex(s) hereto.
5.2. The **Seller** agrees that in compliance with the requirements of LKS STANAG 4107, the Government Quality Assurance Representative in Lithuania may apply to a relevant subdivision of the Government Quality Assurance of a NATO member country or organisation in the **Seller's** country to ensure the performance of supervision of the Government Quality Assurance during the validity period of the Contract (*if the Special Part provides for such a condition*). If the **Seller** is not a manufacturer, the said requirement shall be included into the contract between the **Seller** and the supplier manufacturing the goods by notifying the **Purchaser** thereof (*if the Special Part provides for such a condition*).
5.3. In case the non-conformity of the goods with the requirements laid down in the Contract and the annex(s) hereto is identified at the time of acceptance of the goods, the **Seller's** representatives shall be immediately invited, the certificate shall be issued in their presence, the goods shall not be accepted and the **Seller** shall be subject to contractual liability (in this case, the contractual liability shall apply if the term of delivery of the goods has already expired).
5.4. If a conflict over the quality of the goods cannot be resolved by mutual agreement of the Parties, the Parties shall reserve the right to invite independent experts. All costs relating to the work of experts shall be borne by the non-prevailing Party.
5.5. If in accordance with Clause 4.2 of the General Part hereof the **Purchaser** decides to carry out laboratory tests in respect of the goods from the consignment of the goods selected, the amount of the goods indicated in the Special Part hereof the compliance to the requirements set forth in the Contract and the annex(s) hereto of which will be tested shall be selected in the presence of the **Seller's** representative (*if the Special Part provides for such a condition*).
5.6. If laboratory tests inspecting the compliance of the goods with the requirements set out in the Contract and the annex(s) hereto reveal that the good does not comply with the said requirements, a certificate shall be executed, the remaining goods (lot and/or consignment) shall not be accepted and the total amount of goods shall be returned to the **Seller**. The payment for the goods shall not be made and it shall be deemed that the goods were not delivered, and the **Seller** shall be subject to the sanctions provided for in Clause 11.1 of the General Part hereof. If the laboratory tests reveal non-conformity of the goods with the requirements laid down in the Contract and the annex(s) hereto, the **Purchaser** shall not cover the costs of the goods used for testing purposes, while the **Seller** shall bear the cost of the laboratory tests and pay the **Purchaser** the liquidated damages of 10% of the value of the defective lot, which shall be intended to cover administrative costs of the **Purchaser** incurred through arrangement of laboratory test procedures. In such a case, the **Seller** shall replace the goods in non-conformity with the requirements established in the Contract and the annex(s) hereto returned to it with new goods in conformity with the requirements provided for in the Contract and the annex(s) hereto. The replacement of the goods shall be carried out in accordance with the procedure established in the Special Part hereof (*if the Special Part provides for such a condition*).
5.7. If the laboratory tests conducted in respect of conformity of the Goods with the requirements set out in the Contract or the annex(s) hereto reveal conformity of the goods with such requirements, the **Purchaser** shall cover the cost of the laboratory tests, while the **Seller** shall replace the goods used for the purpose of laboratory testing with new goods free of charge.

6. Quality Guarantee Period of the Goods

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6.1. The goods shall be covered by a quality guarantee period /useful life laid down in the Special Part of the Contract (or the annex hereto).
6.2. The **Seller** shall within the term specified in the Special Part of the Contract during the quality guarantee period replace the defective good by a new good in compliance with the requirements set out in the Contract or the annex(s) hereto for a period of elimination of defects at its own cost (*if the Special Part provides for such a condition*).
6.3. The **Seller** shall within the term specified in the Special Part of the Contract during the quality guarantee period of the goods remove the defects of the goods at its own cost or, if the defects cannot be removed, replace the defective good with a new good in compliance with the requirements set out in the Contract or the annex(s) hereto at its own cost / the **Seller** shall within the term specified in the Special Part of the Contract during the useful life replace the goods with the goods in conformity with the requirements set forth in the Contract or the annex(s) hereto at its own cost (*if the Special Part provides for such a condition*).
6.4. The **Seller** shall be notified of any defects of the goods identified during the quality guarantee period /useful life in writing (by fax or mail). Quality claims shall be accepted throughout the warranty period/useful life.
6.5. The Purchaser may decide to carry out laboratory tests in respect of the goods from the consignment of the goods selected or from each lot of the goods (if the consignment consists of several lots) during the quality guarantee period, the amount of the goods indicated in the Special Part hereof the compliance to the requirements set forth in the Contract and the annex(s) hereto of which will be tested shall be selected in the presence of the **Seller's** representative (*if the Special Part provides for such a condition*). If the laboratory tests reveal non-conformity of the goods with the requirements laid down in the Contract and the annex(s) hereto the whole consignment/lot shall be rejected as defective and the Seller shall cover all the costs of laboratory tests.
6.6. In case the good is replaced with a new good, it shall be covered by a new quality guarantee period specified in the Special Part of the Contract which shall be calculated as of the day of signing the taking-over certificate of a new good.
6.7. The quality guarantee period of the goods which the **Purchaser** could not use during the period of elimination of defects shall be extended for a period equal to the period of elimination of defects.
6.8. The warranty specified in the Special Part of the Contract (or the annex hereto) shall not apply if the **Seller** is able to prove that the defects of the goods originated due to incorrect or improper conduct of the **Purchaser** or the third parties, or *force majeure*.

7. *Force Majeure*
7.1. The Party shall be released from responsibility for the non-performance of any contractual obligations if it can prove that such non-performance was due to unusual circumstances which the Parties could not control or reasonably foresee or prevent the occurrence of such circumstances or the consequences thereof. For the purposes of this Contract, *force majeure* shall be considered to be the circumstances defined in Article 6.212 of the Civil Code of the Republic of Lithuania and the Rules Governing the Release from Liability in the Event of *Force Majeure* approved by Government of the Republic of Lithuania Resolution No. 840 of 15 July 1996. In identifying *force majeure* circumstances, the Parties shall follow Resolution No. 222 of the Government of the Republic of Lithuania of 13 March 1997 "On the Approval of the Procedure of the Issue of Certificates Testifying the Presence of *Force Majeure* Circumstances" or the regulatory legal acts replacing it. In the presence of *force majeure* circumstances, the Parties shall be exempted from liability for the non-performance of the contractual obligations, partial non-performance or improper performance thereof in accordance with the procedure established in the legal acts of the Republic of Lithuania, and the term for the performance of obligations shall be extended.
7.2. The Party requesting a release from liability shall notify the other Party of the *force majeure* circumstances in writing immediately but no later than within 10 (ten) business days of the day of the occurrence or discovery of existence of such circumstances by providing evidence to all reasonable

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precautions taken by it and to every possible effort made by it to reduce the costs or negative consequences, as well as communicate the expected term for the performance of obligations. The notice shall be also required upon the expiry of the grounds for the non-performance of obligations.

8. Codification

8.1. The **Seller** shall within 5 (five) days of entry into force of the Contract submit a signed copy of the Contract accompanied by the information required for identification of the goods purchased in accordance with the forms "List of Tangibles to be Codified" and "Information about the Manufacturer or the Supplier" provided in the annex hereto to the address specified by the **Purchaser**. The **Seller** shall provide the completed and signed forms in electronic or paper form *(if the Special Part provides for such a condition*).

8.2. At the **Purchaser's** request, the **Seller** shall within 5 (five) days submit the additional technical documentation required for codification free of charge (e.g. technical characteristics, drawings, photographs, catalogues, links, etc.).

9. Termination of the Contract

9.1. The Contract may be terminated:

9.1.1. By written agreement of the Parties;

9.1.2. If force majeure circumstances persist for a longer period than the number of days indicated in the Special Part of the Contract (depending on the specific characteristics of performance of the Contract a particular period from 14 till 60 days may be indicated in the Special Part of the Contract) and the Parties have not executed any agreements to amend the Contract permitting the Parties to continue the performance of their contractual obligations.

9.2. The **Purchaser** may terminate this Contract unilaterally by a prior 7 (seven) day written notice to the **Seller** if:

9.2.1. The **Seller** is late to deliver the goods by the term specified in the Special Part hereof;

9.2.2. The **Seller** is in delay to provide (or informs that will not provide) the goods in accordance with the contractual obligations;

9.2.3. The **Seller** increases the prices/rates of the goods, except for the case set forth in Clause 2.2 of the General Part of the Contract;

9.2.4. The **Seller** fails to comply with or improperly complies with the warranty obligations set forth in Clause 6 of the General Part of the Contract;

9.2.5. The **Seller** fails to perform the obligation laid down in Clause 12.4 of the General Part of the Contract (*in case the performance of the Contract will be secured by a surety bond or a bank guarantee*);

9.2.6. The quality of the goods delivered by the **Seller** is in non-conformity with the requirements established in the Contract and the annex(s) hereto;

9.2.7. The **Seller** fails to provide a bank guarantee for advance payment valid for a period not shorter than the period specified in Clause 4.3. of the General Part of the Contract in due time (*if the terms and conditions of the Contract provide for advance payment*).

9.2.8. The **Seller** is under liquidation procedure or applied to the court for bankruptcy or restructuring proceedings, or is the subject of bankruptcy or restructuring proceedings, or judicial decision on the initiation of bankruptcy proceedings was decreed.

9.3. Upon termination of the Contract, the **Seller** shall within 10 (ten) days of termination of the Contract return the advance payment paid for the goods that were not delivered to the **Purchaser** (if the advance payment was paid).

10. Dispute Settlement Procedure

10.1. The Contract is concluded and shall be interpreted in accordance with the law of the Republic of Lithuania.

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10.2. All disputes or disagreements arising between the Parties in relation to the Contract shall be solved by way of negotiations; if the Parties fail to solve the dispute, it shall be examined in accordance with the procedure established by the legal acts of the Republic of Lithuania at the courts of the Republic of Lithuania in respect of the domicile of the **Purchaser** (or if the Purchaser is not a legal person but the unit of the Lithuanian Armed Forces - "according to a legal person's - the Lithuanian Armed Forces").

11. Liability

11.1. In the event of delayed delivery of the goods by the term specified in the Special Part hereof, the **Seller** shall pay the **Purchaser** the liquidated damages of 0.2 % of the amount of the value of undelivered goods for each day/hour of delay (applied depending on the term of the obligation indicated in a special part of the contract), the payment of which shall not release the **Seller** from the obligation to cover all the losses incurred by the **Purchaser** in relation to the **Seller's** failure to perform or improper performance of the Contract. The **Seller** undertakes to pay the liquidated damages within the period specified in the invoice or the claim.

11.2. Where the **Seller** fails to fulfil its obligations set out in the Article 6.2 of General Part of the Contract within the term indicated in the Special Part of the Contract the **Seller** shall pay the **Purchaser** the liquidated damages agreed by the Parties in advance, which shall make up 0.2% of the value of the goods which are not replaced for each day/hour of delay, the payment of which shall not release the **Seller** from the obligation to cover all the losses incurred by the **Purchaser** in the event of the **Seller's** failure to perform or improper performance of it obligations relating to the warranty/useful life of the goods.

11.3. Where the **Seller** fails to fulfil its obligations set out in the Article 6.3 of General Part of the Contract within the term indicated in the Special Part of the Contract during quality guarantee/useful life period, the **Seller** shall pay the **Purchaser** the liquidated damages agreed by the parties in advance, which shall make up 0.2% of the value of the goods which are not replaced for each day/hour of delay, the payment of which shall not release the **Seller** from the obligation to cover all the losses incurred by the **Purchaser** in the event of the **Seller's** failure to perform or improper performance of its obligations relating to the warranty/useful life of the goods.

11.4. Where the Contract is terminated on the grounds specified in Clauses 9.2.1, 9.2.2, 9.2.3, 9.2.5, 9.2.6 (9.2.7. (*if advance payment is provided for in the terms and conditions of the Contract*)), or the reason mentioned in Clause 5.2 of the special part of the Contract, the **Seller** shall within 14 (fourteen) days (as of the day of termination of the Contract) pay the **Purchaser** the liquidated damages, which equal to 7 (seven) % of the contract price (or the total tender price (including VAT – *in case VAT is included into the contract price)* (a specific percentage or specific fixed amount indicated in the Special Part of the Contract)) which shall not exceed the total value of all outstanding obligations under the Contract. The payment of the liquidated damages shall not release the **Seller** from the obligation to cover all the losses incurred by the **Purchaser** due to non-performance or improper performance of the Contract by the **Seller**.

11.5. If the Contract is terminated on the grounds provided for in Clause 9.2.4. of the General Part hereof, the **Seller** shall within 7 (seven) days (as of the day of termination of the Contract) pay the **Purchaser** the liquidated damages equal to the purchase value of defective goods which shall not exceed the total value of the outstanding obligations hereunder. The payment of the liquidated damages shall not release the **Seller** from the obligation to cover all the losses incurred by the **Purchaser** due to non-performance or improper performance of the Contract by the **Seller**.

11.6. Other cases of application of contractual liability to the **Seller** are specified in the Special Part hereof.

11.7. Delayed financing from the budget shall be deemed the grounds for absolute release of the **Purchaser** from civil liability and payment of default interest on overdue payment.

12. Validity of the Contract

12.1. The Contract shall take effect from the signature of both Parties (*this condition shall apply if the performance of the Contract will not be secured by a security bond or a bank guarantee*) and submission

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of the Contract performance guarantee of a bank or the security bond of an insurance company by the **Seller** to the **Purchaser** which guarantees the payment of the amount indicated in Clause 11.4 of the General Part hereof (if the **Purchaser** terminates the Contract on any grounds listed in Clauses 9.2.1 – 9.2.7 or any other grounds listed in Special Part of the Contract, the guarantor/surety shall pay the amount indicated in Clause 11.4 of the General Part hereof). The guarantee or the security bond indicating that the guarantor or the surety is liable only for indemnification of direct damages shall not be accepted as the guarantor or the surety must undertake to indemnify the specific Contract performance amount indicated in Clause 11.4 hereof) (*in case the contract performance will be secured by a security bond or a bank guarantee*).

12.2. The guarantor/surety shall irrevocably and unconditionally undertake to perform the duty and pay the amount undertaken by transferring the amount to the **Purchaser's** account within 14 (fourteen) days of a written notice confirming the termination of the Contract at the **Seller's** fault on the grounds provided for in the Contract (*in case the contract performance will be secured by a security bond or a bank guarantee*).

12.3. The **Seller** shall within 5 (five) business days of signing the Contract submit the Contract performance guarantee of a bank or the security bond of an insurance company specified in Clause 12.1 of the General Part hereof to the **Purchaser** which shall be valid two months longer than the term of delivery of the goods provided for in the Special Part hereof. Payment of the amount specified in the Contract Performance Guarantee of a bank or the security bond of an insurance company shall not be deemed to constitute full compensation of damages incurred by the **Purchaser** and shall not release the **Seller** from the obligation to cover such damages in full (*in case the performance of the contract will be secured by a security bond or a bank guarantee*).

12.4. If the legal entity which has issued the Contract performance guarantee (a bank or an insurance company) is unable to perform its obligations in the period of validity of the Contract, the **Seller** shall within 10 (ten) days provide a new Contract performance guarantee under the same terms and conditions. If the **Seller** fails to provide a new Contract performance guarantee, the **Purchaser** shall have the right to terminate the Contract under the procedure stipulated in Clause 9.2.5 of the General Part hereof.

12.5. The Contract Performance Guarantee shall be returned within 10 (ten) days of expiry of the performance guarantee upon a written request of the **Seller**.

12.6. The provisions of the Contract may not be amended during the validity term of the Procurement Contract, except for the provisions of the Contract which, if amended, would not constitute a breach of the principles and objectives stipulated in Article 3 of the Law on Public Procurement and provided that such amendments to the provisions of the Contract have been authorised by the Public Procurement Office. Correction of the provisions of the Contract under the circumstances provided for herein, if such circumstances are clearly and unequivocally defined and stated in the Terms and Conditions of Tender, shall not be deemed to constitute amendments to the provisions of the Contract.

12.7. Should the Parties identify technical oversights or spelling mistakes (false transfer of provisions from a tender or the procurement terms and conditions, etc.), the persons responsible for the performance of the Contract or the details of the Parties specified herein change during the period of validity of the Contract, the Parties may by a written agreement correct the provisions of the Contract without applying to the Public Procurement Office. Such correction of the provisions of the Contract shall not be considered a change of the provisions of the Contract.

12.8. The Contract may be extended under the terms and conditions laid down in the Special Part hereof.

12.9. The expiry term of the Contract provided in the Special Part of the Contract shall not end the obligations of the Parties indicated in the Contract and shall not release from civil liabilities in the event of breach of the Contract.

13. Correspondence

13.1. The notices in the Lithuanian/English languages (*applicable where the contract is executed in English*) delivered between the **Purchaser** and the **Seller** shall be executed in writing. The notices

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between the Parties shall be sent by mail, e-mail, fax or delivered in person. The notices shall be sent to the addresses and numbers specified in the details of the Parties in the Special Part hereof. If the sender requires an acknowledgement of receipt, the sender shall indicate such a request in its notice. In case any deadline of reply to a written notice is established, the sender should include a request of acknowledgement of receipt of a written notice.
13.2. The Parties shall within 3 (three) business days notify one another in writing of the change in the contact details of the Party specified in the Special Part hereof. Either Party failing to notify of the change of its details in a timely manner shall not be entitled to file any claims in respect of any actions performed by the other Party following the details of the Party provided in this Contract.

14. Confidentiality
14.1. The Parties shall ensure that the information communicated by one Party to another will be used for the purposes of the Contract exclusively and shall not be used in such a way that would inflict harm on the Party communicating the information.
14.2. The Parties shall ensure the confidentiality of all information known to them and/or entrusted to them throughout the validity of the Contract, upon expiry or termination hereof.
14.3. Unless otherwise provided for in the legal acts of the Republic of Lithuania, the **Seller** shall not use the information entrusted to it by the **Purchaser** either in its personal interest or in the interest of any third parties or disclose such information to other parties without a prior written agreement of the **Purchaser.**

15. Final Provisions
15.1. The Contract has been executed in the Lithuanian and the English languages in four counterpart copies (two copies to each Party). Both texts are equally authentic and legally binding. In the event of any discrepancies between the texts in the Lithuanian and English languages, the text in English shall prevail (applicable where the contract is concluded with a foreign seller in the Lithuanian and English languages).
15.2. The Contract is constituted of the General Part and the Special Part, as well as the annex(s) hereto. All annexes to this Contract shall constitute an integral part hereof.
15.3. Neither Party shall be entitled to assign its rights and obligations under the Contract to any third party without a prior written consent of the other Party.
15.4. Unless otherwise provided in the Special Part of the Contract the **Seller** shall pay the **Purchaser** the minimum losses agreed upon by the Parties in advance to an extent of 5 percent of the of the contract/tender price for breach of obligation stated in the Article 15.3 of the Contract.
15.5. The **Seller** warrants that it has all licences required for the performance of the Contract. The **Seller** shall cover the **Purchaser**'s losses in case any claims are put forward to the **Purchaser** or proceedings brought regarding the violations related to the patents or licences concerning the Contract or committed in the period of performance of the Contract.
15.6. The Parties hereby confirm that when entering into the present Contract they did not exceed or breach their competence (articles of association, regulations, statute, any resolution, decision, order of the managing body of the Party (owner, incorporator or other competent entity), any binding legal act (including local, individual), transaction, court decision (ruling, judgement), etc.).
15.7. The person/persons appointed by the **Seller** who act on behalf of the **Seller**, accept and confirm the orders for the goods placed by the **Purchaser**, the estimate for the goods supplied, participate in the meetings with the **Purchaser** and carry out other actions required for the proper performance of the Contract are specified in the Special Part hereof.
15.8. The person/persons appointed by the **Purchaser** who act on behalf of the **Purchaser,** place orders for the goods, the estimate for the goods to the **Seller**, participate in the meetings with the **Seller** and carry out other actions necessary for the proper performance of the Contract are specified in the Special Part hereof.

PURCHASER:
Lithuanian Armed Forces
Commander of Lithuanian Armed Forces Navy
CPT (N) Arūnas Mockus

(signature)

L.S.

SUPPLIER:
Navielektro Ky
Chief Executive Officer
Asser Koivisto

(signature)

L.S.

Navielektro
Working Partnership in Vessel Traffic Systems
Hallimestarinkatu 11, 20780 Kaarina, Finland
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TECHNICAL SPECIFICATION
FOR THE UPGRADE OF THE SEA SURVEILLANCE INFORMATION SYSTEM AND TECHNICAL SURVEILLANCE DEVICE SYSTEM

This specification describes the requirements for the upgrade of the Sea surveillance information system (hereinafter – the "SSIS") owned by the Lithuanian Navy (hereinafter – the "Navy") and Technical Surveillance Device System (hereinafter – the "TSDS") owned by the Coast Guard District (hereinafter – the "CGD") of the State Border Guard Service under the Ministry of the Interior (hereinafter – the "SBGS").

The core purpose of the SSIS and the TSDS is to enable the Navy and the SBGS to compile maritime situation picture through processing of the information received from various sources (radars, other sensors, interacting information systems) and to provide the respective authority with decision support functionality in the form of automated analysis, resource management and alarm indication services. In addition the SSIS shall be capable to share processed information with other governmental agencies of Republic of Lithuania as well as international cooperating agencies.

Each of aforementioned system shall consist of independent operations centre with attached network of connected sensors. The structure of the SSIS and the TSDS shall ensure creation of a Common Information Sharing Environment and seamless integration of both operation centres so that the information generated by any of these is made available and usable on each operator's workstation in the other operation centre. An operator within the SSIS and the TSDS shall be capable to utilize the services of all key sensors and data sources regardless of which agency (Navy or SBGS) operates required sensor or data source. In addition, the SSIS and the TSDS shall be capable of autonomous operation in a case of failure of communication system.

Both operations centres shall consist of several different application servers, where each server runs predefined tasks or software services and workplaces for operators.

Detailed requirements for upgrade of the SSIS are described in Part I of this specification. Detailed requirements for upgrade of the TSDS are described in Part II of this specification.

Part I

1. **General requirements:**

1.1. The SSIS shall be based on open and service oriented architecture and shall allow future expansions through addition of new software components, sensors and connections to external information systems, in order to achieve required functionality, operational

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objectives and level of maritime situational awareness. In addition, the Supplier shall be capable to provide Software Development Kit or equivalent software development tool that will allow future expansions of the SSIS through addition of software components made by third party. The provision of Software Development Kit shall not be included to the scope of supply but the Supplier shall be ready to provide it to the Purchaser on request.

1.2. The SSIS shall be provided with a set of documentation in either English or Lithuanian including but not limited to:

1.2.1. Overview description of the SSIS including diagrams of hardware and software structure and diagrams of data exchange between SSIS software components.

1.2.2. Detailed description of the system architecture and drawings of hardware and software structure and connections, inventory lists, configuration data and/or files and etc. for all SSIS installation sites.

1.2.3. User guides and technical manuals of provided software and hardware.

1.2.4. Maintenance manuals of provided software and hardware. These manuals shall provide procedures and instructions in detail sufficient of performing required maintenance tasks by the Purchaser's staff.

1.3. All of the SSIS software shall not be dependent on certain operating system and shall be able to run on at least Microsoft Windows (version Windows Server 2008 R2 / Windows 7 or later) and Linux operating systems.

1.4. The language of the graphical user interface of provided SSIS software and operating systems shall be either English or Lithuanian.

1.5. The Supplier shall train at least 4 (four) future operators and at least 2 (two) future administrators of the SSIS identified by the Purchaser. All of the training shall be performed in either English or Lithuanian in the work place of the identified personnel not more than one month after the system had been deployed, but before Site Acceptance Test. The training shall be designed to provide the operators with sufficient knowledge and understanding to operate the system and administrators to maintain and manage it.

1.6. The Supplier shall install the hardware and software at its own cost and expense, using its materials and any other necessary means. Detailed information necessary for installation (free space available in equipment racks, power supply and etc.), connection and configuration could be obtained during site survey before submitting proposal.

1.7. The Supplier shall provide all necessary equipment racks if existing space is not sufficient. If the equipment racks are provided by the Supplier, they shall have grounding bus, integrated fan cooling unit including thermal sensor and be of the same height and depth as the existing ones. The installation place of new racks (if supplied) has to be confirmed by the Purchaser in advance.

1.8. Each equipment rack and unit of installed equipment including cables shall be marked to ensure their easy identification. All markings shall be either in English or Lithuanian language.

1.9. The Supplier shall ensure that the operation of the current surveillance information system of the Navy will not be interrupted during the installation works.

1.10. Unless indicated otherwise, the supply voltage of the hardware provided by the Supplier shall be 230 V (+/-10%), 50 Hz (+/-3 Hz) with a plug used in the continental Europe (CEE 7/4).

1.11. Unless indicated otherwise, the hardware shall operate without interruptions, where temperature regime at the hardware installation premise is not narrower than from +10°C to +30°C, where relative air humidity is no higher than 70%.

1.12. The Purchaser will provide data transmission network for transferring information provided by sensors, system components, etc., interface – Ethernet (100BASE-TX). Throughput between the Maritime Operation Centre (hereinafter – MOC) and the each sensor site is not lower than 10 Mbps. Throughput at the Navy MOC location – 100 Mbps. The Supplier at its own cost and expense has to install any additional communication lines, equipment

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cabinets and computer network equipment at the software and hardware installation places if existing network is not sufficient enough to fulfil the requirements of this specification. If the network equipment is provided by the Supplier, it shall be compatible with Cisco IOS, shall support 100/1000BASE-TX network, VLANs, Trunks and packet prioritization and shall be certified as EAL4 or higher in accordance to ISO/IEC 15408 Common Criteria's.

1.13. The Supplier to the scope of supply (price of the tender offer) shall include licences of all software necessary to operate the SSIS in accordance with requirements of this specification; the following requirements shall apply to the licences provided by the Supplier:

1.13.1. Shall be perpetual and have any other necessary permits for use of software.

1.13.2. Shall not have a certain pre-set period of expiry. Their period of validity should be without end date, notwithstanding the fact, whether the Purchaser acquires or not technical maintenance services of the licenses.

1.13.3. Shall be irrevocable, acquired under ownership right, but not granted on lease or similar legal basis.

1.14. Licencing policy of the SSIS shall allow (proposal shall include all required licences) full connection of at least: 7 workstations, 15 radars, 20 CCTV's, 3 AIS base station, 10 radio direction finders and 5 meteorological stations.

1.15. The Supplier shall perform all SSIS software and hardware installation and configuration works. The time schedule of works and installation documents including drawings and necessary calculations for each SSIS site shall be submitted to the Purchaser for agreement no later than 30 calendar days before the performance of the first estimated works. The Purchaser will analyse provided documents and give his conclusion within 15 calendar days.

1.16. When delivering the software and the hardware intended for final use the Supplier shall in the presence of the Purchaser perform a site acceptance test confirming the capability of the software and hardware delivered to perform the functions required. A site acceptance test procedure shall be agreed on with the Purchaser in advance.

1.17. General warranty requirements for SSIS *hardware*:

1.17.1. The Supplier shall ensure at least 24-month warranty period to the hardware provided by the Supplier (from the date of the SSIS handover to the Purchaser). The Supplier shall ensure that all hardware repairs during the warranty period shall be carried out by the manufacturer or by certified technicians. Certification documents shall be provided to the Purchaser.

1.17.2. During the warranty period the Supplier shall replace (in the place of installation within the territory of Republic of Lithuania) the defective hardware (a set of hardware) with an equivalent one for the duration of the repairs, not later than within 5 business days as of the receipt of the notice about the breakdown. The Purchaser will give the defective hardware for transportation from the installation place to the Supplier (its representative) for repair without hard drive disks (hereinafter – HDD). Any HDD from the defective equipment will be retained by the Purchaser.

1.17.3. The repairs under warranty shall not last longer than 45 calendar days. The Supplier shall replace the defective equipment with a new equivalent if it is not repaired within aforementioned period.

1.17.4. The Supplier during the warranty period shall perform its works at its own cost and expense, including transportation costs.

1.17.5. In case of failure or defect the HDD they shall be replaced with new ones. A defective HDD shall be properly disposed at the Purchaser's premises and shall not be returned to the Supplier.

1.18. General warranty requirements for the SSIS *software produced by the Supplier*:

1.18.1. The Supplier shall ensure at least 60-month warranty to the software provided by the Supplier (from the handover of the SSIS to The Purchaser date). During the entire warranty

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period the Supplier of the software or its authorised representative shall give advice and assistance by e-mail (in Lithuanian or English) by replying within 48 hours or by phone 5 days per week (business days) for 8 hours (business hours) a day.

1.18.2. The Supplier shall during the entire warranty period at no charge eliminate the SSIS software errors identified by the Purchaser in accordance with requirements listed herein.

1.18.3. The SSIS software error shall be understood as any flaw, failure or fault of any of SSIS software component that results inability to operate entire or part of the system, or causes to produce an incorrect or unexpected result, or to behave in unintended ways. Aforementioned situation shall be understood as SSIS software error only if it is not caused by gross negligence, wilful act or incompetence of the Purchaser's personnel, such as improper configuration of the SSIS, etc.

1.18.4. The SSIS software errors shall be classified by the Purchaser considering the importance and urgency of resolving the error in to the following four categories: fatal, major, minor and other.

1.18.4.1. Fatal SSIS software errors are the errors, which result in the failure of the complete SSIS software system or of a SSIS software component so that no work or testing can be carried out after the occurrence of the error;

1.18.4.2. Major SSIS software errors are the errors, which result in failure of entire SSIS software component, or cause the SSIS to produce incorrect results but there are some processing alternatives, which allow further operation of the SSIS;

1.18.4.3. Minor SSIS software errors are the errors that cause the SSIS to produce incomplete or inconsistent results, but there are measures that SSIS operator is able to use in order to eliminate effect of such defect;

1.18.4.4. Other SSIS software errors are the errors that not covered by either of three above listed categories and do not prevent or hinder SSIS functionality.

1.18.5. The Supplier shall eliminate the SSIS software errors within the following time-periods (counting from the moment of submission of information):

1.18.5.1. Fatal SSIS software error not later than next working day;

1.18.5.2. Major SSIS software error not later than within 5 (five) working days;

1.18.5.3. Minor SSIS software error not later than within 60 (sixty) calendar days;

1.18.5.4. Other SSIS software error not later than within 180 (one hundred eighty) calendar days.

1.18.6. The Supplier shall at no charge update the SSIS software version (provide a respective number of licenses and necessary installation media), if a new version which eliminates fatal and major SSIS software errors identified in the previous version is available. New software version shall meet all of the certification requirements that were applicable for the software provided in accordance with this specification.

1.18.7. The Supplier shall before updating the software provide documentation (in a hard copy or an electronic format) to the Purchaser for agreement on how to migrate the previously installed SSIS software to the new version. The new software version shall meet the requirements set herein and be compatible with all of the data created and saved by the previous version of SSIS software.

1.19. General requirements for the *third party software* warranty services:

1.19.1. The Supplier shall ensure at least 36-month support to the third party software used within SSIS. During this warranty period the Supplier shall supply the upgrades for the operating systems and other third party software used within SSIS if the manufacturer support has ended. New software shall meet all of the certification requirements that were applicable for the software provided in accordance with this specification.

1.19.2. The Supplier shall provide the Purchaser with a document (soft and hard copy), for comments and approval, detailing how the Supplier intends to perform the upgrade of the third party software.

1.20. The Supplier shall provide (include in scope of SSIS supply) and install all of the computer equipment for operators workstations in accordance with following requirements:

1.20.1. Total number of workstations – 7.

1.20.2. Each of the workstation shall be supplied with at least 3 (three) LCD IPS monitors of 24 inch diagonal screen size, of at least 1920x1080 pixels resolution, with VESA mounting capability. Workstation equipment shall be capable of simultaneous work with all 3 monitors.

1.20.3. The workstation equipment shall comply with the TCO'03 or the later relevant TCO standard.

1.20.4. Each workstation shall include the keyboard that shall be of U.S. layout and the mouse that shall be optical with a scrolling wheel.

1.20.5. The workstation equipment shall provide network interface supporting 100BASE-TX and 1000BASE-TX networks.

1.20.6. The workstations shall be tested by the Supplier before the delivery. Workstation performance shall meet the optimal requirements set by the SSIS software manufacturer and third party software manufacturer.

1.20.7. All of the required software shall be installed and configured by the Supplier and ready for use before delivery to the Purchaser.

1.20.8. The efficiency of workstations shall meet the optimal requirements set by the SSIS software manufacturer and installed third party software (e.g. operating system and etc.) manufacturer. When using the full functionality of the workstation (including monitoring the image provided by all integrated video sensors), the CPU usage shall not exceed 30%.

1.20.9. The noise of computers in the idle mode shall not exceed 30 dBA. The Supplier shall provide a manufacturer's noise declaration in accordance with ISO 7779 or ISO 9296, or a noise declaration of a certified test centre in accordance with ISO 7779 or ISO 9296.

1.20.10. All parts of the computer proposed (system unit, motherboard, RAM, monitor, etc., except for chip cards (if applicable), mouse and keyboard) shall be manufactured by the same manufacturer and contain its trademark or it shall be indicated in the technical documentation.

1.20.11. The Supplier shall install the workstations in MOC using currently available furniture.

1.21. The Supplier shall provide (include in scope of SSIS supply) and install the system of SSIS servers in accordance with following requirements:

1.21.1. The system of SSIS servers shall be comprised of several physically individual servers running predefined tasks or software services in order to provide information collection, processing, logging and replaying and dissemination functions.

1.21.2. The Supplier shall design the structure of the system of SSIS servers that ensure redundancy for all core processing services, including but not limited to:
- Radar data management;
- Track management;
- Logging;
- Management of data bases;
- Alarm management;
- Dissemination of processed information into the network.

1.21.3. Individual servers comprising the system of SSIS servers shall be configured to operate in hot standby mode. If one of the individual servers running core processing service fails, the other redundant server shall replace it automatically (without any operator or administrator action) not later than after 5 seconds.

1.21.4. In addition to the aforementioned redundancy, each individual server shall comply with following requirements:
- Shall have not less than 2 hot swappable power supplies. The power capacity of each power supply shall be sufficient for server operation in maximal configuration;
- Shall have not less than 2 hot swappable cooling units. Each cooling unit shall be comprised of at least 2 (two) coolers;

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- HDD and HDD controller shall be Serial Attached SCSI (SAS), supporting at least 6 Gbps interface speed, error correcting code (ECC) and at least RAID 1, 5 and 6 functions. HDD in each server shall be provided and configured by the Supplier to function as RAID 5 array. In addition to installed and configured to work as RAID 5 array, the Supplier shall provide one spare HDD of the same type;
- Shall have at least 2 (two) network interfaces supporting 100/1000BASE-TX local area network;
- Shall have built-in management functionality;
- Shall have VGA interface or DVI interface with DVI/VGA adapter;
- Shall have functionality to automatically regulate power consumption depending on its current workload;
- Servers shall be designed for installation to the 19 inch racks;
- Server performance shall meet the optimal requirements set by the SSIS software manufacturer and installed third party software (e.g. operating system and etc.) manufacturer.

1.21.5. Provided system of SSIS servers shall be tested by the Supplier before delivery.

1.21.6. The Supplier shall provide, install and configure SSIS network boundary protection device (firewall appliance) that shall secure connection between SSIS and TSDS. The aforementioned boundary protection device shall comply with following requirements:
- shall be capable to provide at least 1500 Mbps firewall throughput;
- shall be capable to provide at least 100 Mbps IPS throughput;
- shall have at least 4 (four) network interfaces supporting 1000BASE-TX local area network;
- shall have at least 1 (one) network interface supporting 1000BASE-TX wide area network;
- shall have at least 1 (one) network interface supporting 1000BASE-TX demilitarized zone network;
- shall be certified as EAL4 or higher in accordance to ISO/IEC 15408 Common Criteria's.

1.21.7. The Supplier shall install the system of SSIS servers into the 19 inch racks available in the MOC server room. If space in existing 19 inch racks is not sufficient the Supplier shall follow requirements prescribed in Part I paragraphs 1.6 and 1.7.

1.21.8. The Supplier shall use the networking equipment available in the MOC server room. If existing networking equipment is not sufficient enough to fulfil the requirements of this specification the Supplier shall follow requirements prescribed in Part I paragraphs 1.6 and 1.12.

1.22. The supplier shall install all of the hardware and software after consulting the Purchaser on the specific installation locations.

1.23. The supplier shall provide the system fully installed, configured and tested under ordinary (not factory) operating conditions to prove the required functionality.

1.24. Unless indicated otherwise The Supplier is responsible for resolving all of the questions with regards to interface standards, descriptions and coordination with the operators and manufacturers of the information systems mentioned in this specification.

1.25. Minimum requirement for information security:

1.25.1. Access control: Access to the SSIS and its elements has to be configurable and password protected. Operators have to be granted access to only those SSIS functions and data that administrators allowed.

1.25.2. Audit and Accountability: The SSIS should create, protect, and retain auditing records to the extent needed to enable the monitoring, analysis, investigation, and reporting of unlawful, unauthorized, or inappropriate information system activity; and ensure that the actions of individual SSIS operators can be uniquely traced so they can be held accountable for their actions.

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1.25.3. Identification and authentication: The SSIS must identify operators, processes acting on behalf of operators and authenticate (or verify) the identities of those operators, as a prerequisite to allowing access to System.
1.25.4. Only legal and updated software shall be used in SSIS;
1.25.5. Software and hardware which provide security should support current generation cryptography (SHA-2, AES 256, etc.);
1.25.6. SSIS shall be provided by the Supplier with SSIS fully compatible anti-virus software.

2. **Current situation.**
2.1. **Equipment owned by the Navy:**
2.1.1. In Palanga Sea Surveillance Site (hereinafter – the "SSS"): radar TERMA SCANTER 2001, a radio direction finder R&S DDF 200M, CCTV Bosch LTC-0630/11 and Thermal imaging camera HRC 40x490 (FLIR) mounted on pan tilt MSO-2/B10 (EVPU Defence), video encoders BOSCH VIP X1 XF and VideoJet X10, AIS receiver True Heading SR 162 (including external serial to IP converter), KVM switch ATEN LCD KVM SWITCH CL 5708 M.
2.1.2. In Klaipeda SSS: radio direction finder R&S DDF 200M, Thermal imaging camera HRC 40x490 (FLIR) mounted on pan tilt MSO-2/B10 (EVPU Defence), video encoders BOSCH VIP X1 XF and VideoJet X10, AIS receiver True Heading SR 162 (including external serial to IP converter), KVM switch ATEN LCD KVM SWITCH CL 5708 M.
2.1.3. In Nida SSS: radar TERMA SCANTER 2001, a radio direction finder R&S DDF 200M, CCTV Bosch LTC-0630/11 and Thermal imaging camera HRC 40x490 (FLIR) mounted on pan tilt MSO-2/B10 (EVPU Defence), video encoders BOSCH VIP X1 XF and VideoJet X10, AIS receiver True Heading SR 162 (including external serial to IP converter), KVM switch ATEN LCD KVM SWITCH CL 5708 M.
2.1.4. In Juodkrante radar surveillance post (hereinafter – "RSP") of the Air Force (hereinafter – "AF"): radar TERMA SCANTER 2001, KVM switch ATEN LCD KVM SWITCH CL 5708 M.
2.1.5. In Maritime Operation Center (including Server room): Time Server MEINBERG LANTIME M300, KVM switch ATEN LCD KVM SWITCH CL 5708 M.

3. **SSIS functionality and components:**
3.1. The architecture of the SSIS shall allow future modifications and upgrades providing additional functionality, with full integration with earlier deployed SSIS components. The SSIS architecture shall allow delivery by parts (i.e. components providing functionality described in further relevant paragraphs of Part I of this specification). The Purchaser shall be able to procure main and several additional parts separately.
3.2. The main delivery of the SSIS shall include implementation of requirements listed in Part I paragraph 1 (General requirements) of this specification, connection and integration of the radars, AIS receivers and other relevant equipment listed in Part I paragraph 2 of this specification and following functionality:
3.2.1. On-site radar data processing functionality;
3.2.2. Track management functionality;
3.2.3. Data logging functionality;
3.2.4. Data replay functionality;
3.2.5. Geographical information system (hereinafter – GIS) functionality;
3.2.6. Database management subsystem;
3.2.7. Operator workstations;
3.2.8. Alarms functionality;

3.2.9. Supervisory control and data acquisition functionalities;
3.2.10. Interoperability with other information systems;
3.2.11. Data exchange with TSDS;
3.2.12. Sea Surveillance Co-operation Baltic Sea (hereinafter – SUCBAS) interoperability;
3.2.13. Data exchange with classified systems;
3.2.14. Internet client subsystem;
3.3. Additional SSIS components that shall be available:
3.3.1. Upgrade of AIS subsystem;
3.3.2. Connection and integration of Closed-Circuit Television (hereinafter – CCTV) equipment;
3.3.3. Connection and integration of Radio Direction Finders (hereinafter – RDF);
3.3.4. Search and rescue subsystem;
3.3.5. Data exchange with Latvia;
3.3.6. Filtering subsystem;
3.3.7. Anomaly detection subsystem;
3.3.8. Additional SSIS workstation;
3.3.9. Integration with the Port information system;
3.3.10. Overview screen system
3.3.11. Naval fleet command and control subsystem (ANNEX I to Part I)

4. **Requirements for the on-site radar data processing:**
4.1. Data provided by each radar connected to the SSIS shall be processed by radar data processor (hereinafter - RDP) or equivalent equipment.
4.2. The Supplier shall provide necessary amount of the RDP and all of the additional hardware and software including licenses and connect all radars owned by the Navy (listed in Part I paragraph 2 of this specification) into SSIS.
4.3. RDP shall interface radar to the SSIS and shall be capable of receiving of raw radar video and additional radar signals (such as ACP/ARP, etc.) and processing of received data so that it could be transferred for further processing via a low-bandwidth local area network.
4.4. RDP shall be capable to perform at least following processing: digitization of analogue radar signals, clutter filtering and interference suppression, video masking, target detection and tracking, outputting of processed digitized radar video and tracks to the other components of the SSIS.
4.5. RDP shall provide functionality that enables authorized remote control and monitoring of connected radars, so that authorized operator shall be able to adjust radar controls directly from SSIS workstation, using SSIS workstation GUI, either by automated manner (by applying preprogramed pre-sets/profiles) or manually.
4.6. RDP shall be capable to perform at least 10 bit digitizing of analogue radar video signal at 60 MHz frequency. RDP also shall be capable (without any additional modernization) to process digital radar video signal provided by solid state radars.
4.7. RDP shall be capable to process radar signal using on site configurable clutter map.
4.8. RDP shall be capable of sweep-to-sweep correlation.
4.9. RDP shall be capable of scan-to-scan correlation.
4.10. RDP shall be able to remove white noise.
4.11. RDP shall be capable of adaptive radar signal processing techniques such as Constant False Alarm Ratio (CFAR) or similar that continuously evaluates the static reflections from the underlying surface (clutter) and automatically adjusts processing parameters.
4.12. RDP for authorized operators shall provide means to manually control processing of radar signal using Sensitivity Time Control, Fast Time Constant functions and gain.
4.13. RDP shall be able to define different geographical masks in order to distinguish geographical areas with different processing modes. RDP shall allow to define and manage at least following geographical areas/masks:
4.13.1. Land mask where RDP does not process radar video and do not perform target tracking.

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4.13.2. Auto acquisition area where RDP process radar video and performs target tracking. Both automatic and manual target acquisition is allowed.
4.13.3. Manual acquisition area where RDP process radar video and performs target tracking. Only manual target acquisition is allowed.
4.14. RDP shall be capable to distribute on local area network (for further processing by other SSIS components) digitized and compressed radar video, extracted plots and track data.
4.15. RDP shall include the following information for each transmitted track:
4.15.1. Track bearing and range from radar.
4.15.2. Time of transmission.
4.15.3. Quality of track.
4.15.4. Geographic coordinates.
4.15.5. Estimated speed and course.
4.15.6. Estimated size of track.
4.16. RDP shall be capable of outputting Eurocontrol standard ASTERIX 048/034 radar data using TCP/IP and UDP/IP.
4.17. RDP shall be capable of distinguishing and keeping separate tracks for different vessels even when they are next to each other and make sure that no track "jumps" from one ship to another (anti-swapping).
4.18. RDP shall be capable of processing not less than 500 moving tracks and 250 stationary tracks at any given moment.
4.19. RDP shall be capable of creating of at least 6 different settings profiles corresponding to different metrological or operational conditions.
4.20. RDP shall be capable to perform plot to track association and tracking based on dynamic mathematical models that predicts target behaviour/movements.
4.21. RDP in typical environmental conditions shall be capable of tracking all scale of targets, classified by IALA as target types 1 to 7 (IALA guideline No. 1111 Preparation of Operational and Technical Performance Requirements for VTS Systems, para 2.2.2).
4.22. Performance parameters of the RDP shall comply with parameters listed in table 22 (column "Receiving data from advanced radar sensor) of IALA guideline No. 1111 Preparation of Operational and Technical Performance Requirements for VTS Systems.
4.23. RDP shall be capable of not losing tracks when they temporary disappear due to shadowing. Timing for keeping the track in shadowing conditions must be configurable.
4.24. It shall be possible for system administrator to access the RDP configuration functionality.
4.25. RDP shall contain the means (such as display, keyboard, etc.) for local control and monitoring. The means can be either built-in or separate and shall enable the technical personnel to perform local control and monitoring of RDP and connected radar.

5. **Requirements for track management functionality:**
5.1. The SSIS shall enable collection of track data from various integrated sensors and connected information systems (such as Vessel monitoring system for fishery surveillance, global AIS data and etc.), procession and display of managed track data on chart based background.
5.2. The SSIS shall be capable to process tracks provided by both real-time information sensors (such as integrated radar and AIS) and non-real time information systems (such as Vessel monitoring system for fishery surveillance). The tracks provided by non-real time information systems shall be processed using dead reckoning functionality.
5.3. The SSIS shall be capable of multi sensor fusion and tracking. The Supplier shall ensure that the information provided by all available (Navy, SBGS, Klaipeda State Sea Port Authority and etc.) radars and AIS equipment is processed by the fusion/integration component of the SSIS.
5.4. The Supplier shall ensure that the geographical and recognition information provided by all available sensors and connected information systems (such as Vessel monitoring system for

fishery surveillance, global AIS data and etc.), on the same tracks is rendered at SSIS operators' workstations to one track.

5.5. The SSIS shall be able to process and display tracking information obtained from several sources (sensors, systems, etc.) simultaneously. All data received by the SSIS from different sensors and information systems about single track must be fused and represented on SSIS operators' workstations as a single track.

5.6. The identification of the sensor or information source (e.g. identification of radar or other sensor, short name of information system, etc.) providing the data for fusion must remain associated with the fused track. On SSIS operator's request the SSIS shall be able to display all the components of fused track (i.e. if radar and AIS tracks are fused, the SSIS shall be able to display data of the fused track provided by radar and AIS).

5.7. The SSIS shall allow controlling of the behaviour of the track fusion system with adjustable parameters and enable the SSIS operator using his GUI:

5.7.1. To un-fuse (split) the fused track.

5.7.2. To identify the fused track using identifications from any of the component of which comprises the fused track.

5.7.3. To transfer components between fused tracks.

5.7.4. To observe dynamics (e.g. course, speed) of the fused track.

5.8. The SSIS shall enable the administrator to predefine the time period from the moment when target is no longer tracked (lost/temporary lost) by the SSIS sensors until the system fully drops the track and stops the tracking procedure and deletes the track. In cases when the target was temporary lost by the sensors and afterwards detected again – the SSIS operator shall be able to identify this new track using the identification and tracking information from the lost track.

5.9. The SSIS shall enable the SSIS operator to transfer identification data between two tracks (i. e. the SSIS operator shall be able to correct the situation when different vessels moves next to each other so closely that SSIS sensors are not able to differentiate them and track identification wrongly "jumps" from one object to another).

5.10. The SSIS shall allow modification of AIS information that has been received but contains incorrect information.

5.11. The SSIS shall allow either automatic or manual track creation (acquisition) modes. Both modes have to function independently. The system shall allow administrator to create auto acquisition zones. In automated mode SSIS shall make acquisition of all tentative tracks automatically. The system operator has to have functionality to create the tracks on any SSIS plots from his workstation GUI. The right of manual acquisition must be configurable by the administrator.

5.12. The SSIS shall record in a database at least the following track movement history and identification data:

5.12.1. Unique track number generated by system

5.12.2. Timestamped positions/course/speed of track from acquiring until drop

5.12.3. Data source (e.g. identification of radar, short name of information system, etc.)

5.12.4. Vessels Name

5.12.5. Call Sign

5.12.6. International Maritime Organization Number

5.12.7. Maritime Mobile Service Identity

5.12.8. Ship's flag state

5.12.9. Ship`s type

5.12.10. Other identification data (entered by operator if vessels name, call sign and etc. are not available)

5.12.11. Username of the operator that manipulated (merged, split, dropped, identified, etc.) the track.

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5.13. The SSIS shall provide linkages between the managed track and its data (including video, still images etc.) from databases.

5.14. The SSIS shall be capable of displaying tracks on SSIS operators' workstations either by military or civilian symbols. The system shall enable the operator to choose between these set of symbols:

5.14.1. MIL STD 2525B (or later edition) "Military Standard for Common Warfighting Symbology";

5.14.2. APP-6C (or later edition) "NATO Joint Military Symbology";

5.14.3. VTS symbols in varying opacity.

5.15. The SSIS administrators shall be able to add additional VTS symbols to the existing ones.

5.16. The SSIS operators shall be able to select which types of labels and symbols will represent tracks on chart, as well as adjust the size, colouring and decoration of the symbols. The SSIS operator shall be able to define how the tracks are visualized and to customize the track's view to suit individual needs (i.e. military tracks are to be presented using one of military symbols and civilian tracks with VTS symbols).

5.17. The SSIS shall be capable to define filtered track views, e.g. the SSIS operator shall be able to define filter that allows displaying only those tracks that are of operational interest.

5.18. The SSIS shall enable the operator to select the prediction vector length of the vessel using pre-defined time intervals.

5.19. The SSIS shall be capable to display on a chart vessel dimensions that are calculated from data received by AIS sensors.

5.20. In the case when different information sources provide different track identification data about the fused track – the SSIS shall provide warning (i.e. highlight the track) that there is an ambiguity of data. The SSIS operator shall choose which identification data is superseding (to be used as true) in case of ambiguous data is received. It should be possible to retrieve information earlier overwritten in case of operator mistake.

5.21. It shall be possible to show or hide track history information on the chart. The operator shall be able to select from the following options:

5.21.1. No track history shall be presented

5.21.2. Track history - creating trace plots. Trace plots have to be presented in time intervals selected by operator. It shall be possible to display history for several selected tracks simultaneously.

5.22. The SSIS shall automatically assign each track a unique tracking number from an assigned range of tracking numbers and continue to utilize this identification until the end of tracking (automatically lost by the system after pre-defined time or dropped by the operator).

5.23. The SSIS operator shall be capable to create simulated tracks. It shall be possible to attach simulated tracks to a route and have the simulated track follow the route using dead reckoning. The operator should be capable of updating the simulated track position, course, speed, identification, etc.

5.24. The SSIS shall visualize in exceptional manner the track symbol/label if system detects track anomaly.

5.25. The track management component of the SSIS shall be able to process at least 10000 real time tracks and at least 10000 non-real time tracks.

5.26. The track management component of the SSIS shall be capable of conducting track processing of received sensor information and output it to the workstations without delay.

5.27. The SSIS shall provide operators with functionality that allows assigning of a category and a threat level with corresponding colour to every tracked track. The SSIS shall automatically assign each new track to unknown category and unknown threat level by default.

5.28. Each category shall have a corresponding graphical representation. At least the following categories (and their abbreviations) shall be implemented in the SSIS:

5.28.1. Air (AIR);
5.28.2. Land (LND);
5.28.3. Subsurface (SUB);
5.28.4. Surface (SUR);
5.28.5. Unknown (UNK);
5.28.6. Space (SPC).

5.29. The following threat levels (and their abbreviations) with corresponding colour visualization shall be implemented in the SSIS:

5.29.1. Friendly (FRO) – cyan;
5.29.2. Hostile (HOS) – red;
5.29.3. Neutral (NEU) – green;
5.29.4. Assumed friendly (AFD) – cyan;
5.29.5. Suspect (SUS) – red;
5.29.6. Unknown, Evaluating (UNK) – yellow;
5.29.7. Pending (PND) – yellow;
5.29.8. Joker (JOKER) – red;
5.29.9. Faker (FAKER) – red.

5.30. The SSIS operator should be able to specify one of these Track Identification levels:

5.30.1. 0= PENDING: there is no identity available;
5.30.2. 1= AIS ONLY: the identity is based on received AIS only;
5.30.3. 2= AIS CONFIRMED: the identity is based on received AIS and confirmed by other means;
5.30.4. 3= CERTAIN: the identity is based on visual identification.

5.31. Pending Track Identification level shall be automatically assigned to all new tracks by default.

5.32. The SSIS shall provide operators with functionality that allows assigning of a ship type to every tracked track. The SSIS shall automatically assign each new track to unknown ship type by default.

5.33. Implemented ship types (and their abbreviations) have to correspond to NATO standardization agreement "STANDARD SHIP DESIGNATOR SYSTEM" (STANAG N° 1166) in latest edition.

5.34. The SSIS shall provide authorized operators with functionality to create new tracks, edit existing tracks, track categories, their graphical representation, threat levels, their colour indicators, ship symbols and save them within the system with the functionality to protect them from accidental deletion/alteration.

5.35. The SSIS shall provide SSIS operators with following functionality/means to manage presentation of tracks and their labels :

5.35.1. It shall able to show or hide the operator's defined track groups (by track categories, threat level, source, etc.).
5.35.2. It shall able to show or hide the system unique track number.
5.35.3. It shall able to show or hide the name of the track.
5.35.4. It shall be able to show or hide the current position, course and speed.
5.35.5. It shall be able to show or hide target threat level, target notification level, track identification level.
5.35.6. It shall be able to show or hide the additional information entered by operator as a label.
5.35.7. It shall be able display the type of sensor/origin system (i.e. Radar, AIS, Radar&AIS) of the track associated with the label.
5.35.8. It shall be able to show or hide the Track Identification levels.
5.35.9. It shall be able to conduct track label de-confliction (i.e. be able to automatically move the labels so that they will not overlap with other labels on the screen).

6. Requirements for data logging

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6.1. General requirements:
6.1.1. Data logging must not affect usual functionality of the other SSIS components.
6.1.2. All records must be time stamped by the SSIS time.
6.1.3. Data logging shall be performed on physically separate hardware solution with enough hard drive storage space to store at least 30 days of data listed in Part I paragraphs 6.2 and 6.3 with approximately 200 tracks monitored at any given time.
6.1.4. Data logging hardware solution must be equipped with optical drive supporting CD-R/CD-RW/DVD±R/DVD±RW and dual layer DVD±RW discs.
6.1.5. The system shall allow storage capacity extension using COTS storage solutions without any need for additional software updates/upgrades.
6.1.6. The system shall store the data in partitions organized either per daily, weekly or monthly basis. The system shall store partitions until the disk-space on the designated drive is filled. The system shall be capable to operate in "overwrite" fashion where the system is automatically able to overwrite the oldest information and to continue the logging.
6.1.7. The system shall have possibility to transfer stored partitions to external storage media.
6.1.8. The system shall provide a management tool that enables analysis of traffic density within a certain time-span.
6.1.9. It shall be possible to restrict access to the configuration of the logging parameters only to the administrators.
6.1.10. The system shall allow for redundant data logging, ensuring that all recordable data will not be lost at any case (hardware/software malfunctions, data storage breakdowns, etc.) and will be available for future replay.
6.1.11. The system shall support two types of data logging:
6.1.11.1. Track logging;
6.1.11.2. System event logging.
6.2. Track logging requirements:
6.2.1. The system shall be able to record at least the following data:
6.2.1.1. Radar video.
6.2.1.2. Track data (name, unique tracking number, track acquisition, track recognition, track loss, data source, category, threat level, ship type, etc.).
6.2.1.3. Electro-optical sensors video.
6.2.1.4. Information provided by radio direction finders.
6.2.1.5. Information provided by AIS sensors.
6.2.1.6. Meteorological data.
6.2.2. The system shall be capable of recording the radar video and plot data every N radar antenna rotation, where N shall be configurable by an administrator.
6.3. The system shall be able to record the following system event logging data:
6.3.1. System elements ON/OFF and restart;
6.3.2. operator successful and unsuccessful attempts to logon/logout;
6.3.3. the changes of users/user groups permissions to use system resources;
6.3.4. the logging ON/OFF;
6.3.5. any attempt to change, edit, create or delete the logging records;
6.3.6. any unauthorized attempt to access the system data;
6.3.7. the change of the system date and/or time;
6.3.8. Username of the operator that manipulated the track and sensor and manipulation type (editing the data, changing parameters, etc.).
6.3.9. Alarms described in Part I paragraph 11.
6.4. Each system/network logging event record shall provide at least such data:
6.4.1. The type of event;
6.4.2. Date and time;
6.4.3. Data of the operator;
6.4.4. Event description;

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6.5. System event logging data shall be viewable for the administrative personnel. The administrators shall have the functionality to:
6.5.1. Search and sort the logged data by attributes listed in Part I paragraph 6.2 and 6.3.
6.5.2. Create the reports by earlier performed searches and sorting;
6.5.3. Print, or save the created reports to external media.

7. **Requirements for data replay**
7.1. Logged data replay shall be implemented as a part of SSIS that is able review the logged information for any selected time period.
7.2. The system shall be able to replay at least the following data:
7.2.1. Radar video.
7.2.2. Track data (name, unique tracking number, track acquisition, track recognition, track loss, data source, category, threat level, etc.).
7.2.3. Electro-optical sensors video.
7.2.4. Information provided by radio direction finders.
7.2.5. Information provided by AIS sensors.
7.2.6. Meteorological data.
7.3. The operator GUI shall support the activation of replay of a selected time from any operator workstation.
7.4. It shall be possible for administrators to allow or deny access for operators to replay functions.
7.5. The replay of a logged data shall not affect the logging and usual functionality of the other SSIS components.
7.6. The system shall be able and allow authorized operators to replay recorded partitions stored on external media.
7.7. Replayed data should be displayed on the standard GIS interface, without the functionality for the information to be modified in any way.
7.8. The system shall provide authorized operators functionality to review logged information on tracks in both graphical and text format with the support of data filtering based on fields described in Part I paragraph 6.2 and 6.3.
7.9. The replay GUI shall allow the operators to fast forward, slow down and stop the replay as required. Replay shall enable the use of SSIS navigational functions (CPA, ERBL, etc.,) , use of track visualization options and GIS manipulation (zoom in/out, show/hide radar video) during the replay of the logged data.
7.10. The system shall support the creation of multimedia video-audio clips in order to provide them to the authorities as an evidence of observed situation.
7.11. Be capable of providing printable report of an operator selected moment.
7.12. During the replay an operator shall be able to conduct at least the following queries in the logged information:
7.12.1. Queries defined by a time interval;
7.12.2. Queries defined by track data listed in Part I paragraph 6.2 and 6.3.

8. **Requirements for the GIS functionality**
8.1. The SSIS shall include the component that captures, stores, manages and presents geographical data in order to provide the background for displaying tracks and all other available GIS based information on the SSIS operators' workstations.
8.2. The SSIS shall be capable to process and display GIS data in different layers where any layer of geographical information may be turned on/off depending on the current requirements of the SSIS operator.
8.3. The SSIS operators shall be able to freely decide the presentation order of the chosen GIS data layers.

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8.4. The SSIS shall be capable to simultaneously manage raster images and vector GIS data, allowing both formats of GIS data to be displayed on top of each other. The SSIS operator shall be able to select displaying of vector GIS data either on top or beneath of the raster information.

8.5. The SSIS shall be able to automatically change between different chart scales when the SSIS operator is conducting zooming and panning on the chart.

8.6. The SSIS shall be capable to process Electronic Nautical Chart (ENC) information compliant with International Hydrographic Office (IHO) S-57 v3.1 Transfer standard for digital hydrographic data.

8.7. The SSIS shall to the extent it is considered viable for shore based surveillance utilize the presentation library of IHO S-52 Specifications for Chart Content and Display Aspects of ECDIS.

8.8. The SSIS shall be capable to process encrypted ENC information compliant with IHO publication S-63 IHO Data protection scheme.

8.9. The SSIS shall be capable of operating as client and to consume chart data from other available information sources compliant with OpenGIS Web Map Service Interface Standard (WMS).

8.10. The SSIS shall be able to display geographical coordinates using World Geodetic System 1984 (WGS84). If the SSIS is capable to utilize several geodetic systems, display of geographical coordinates using WGS84 shall be automatically set by the SSIS as default.

8.11. The SSIS shall be capable of importing, processing and displaying of geographical data in formats: ESRI shape, ESRI GDB, GEOTIFF.

8.12. The Supplier is responsible for providing GIS data and its licenses (if required) to display world overview (including boundaries of the countries).

9. **Requirements for the database management subsystem**

9.1. Database management subsystem (hereinafter – DBMS) has to be implemented as a part of SSIS and is meant to provide operator with information from the internal database or connected "on-line" database when requested.

9.2. The DBMS shall be based on well-known commercial of the shelf software solution with an open interface such as Open Database Connectivity (ODBC) or Java Database Connectivity (JDBC).

9.3. The Supplier shall provide all of the required licenses for the provided DBMS solution (if required).

9.4. The DBMS shall be integrated with other components of the SSIS so that any SSIS operator can select a track and bring up the information on that particular track stored in the required database.

9.5. The DBMS shall be capable of exporting of information using open file formats such as HTML, ODF, TXT and other popular text reading/editing formats.

9.6. The DBMS shall enable hardcopy printout of the information contained in the databases.

9.7. View, modification, deletion and creation of data managed in the DBMS shall be restricted to the SSIS operators by access rights.

9.8. The DBMS shall be capable to manage at least these separated (virtually or physically) databases:

9.8.1. Vessel database

9.8.2. Vessel voyages database

9.8.3. Activities journal database

9.9. *Vessel database shall fulfil these requirements:*

9.9.1. Shall support the use of several simultaneous databases for vessels identification and reference purposes.

9.9.2. Shall support several vessel databases in parallel.

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9.9.3. Shall be capable to store at least this information about the ships: name, type, flag, IMO number, international call sign, MMSI number, owner, port of registry, official number, year/data of build, ship builder, length, breath, draught, deadweight, displacement, main engine type, propulsion type, hull type, speed, cargo, IMO chemical class I, IMO chemical class II, IMO chemical class III, picture of the vessel and comments (not less than 300 symbols of free text).

9.9.4. Shall be capable of consuming information provided by the Central Ship Database (CSD) managed by European Maritime Safety Agency (EMSA) and IHS Maritime World Register of Ships.

9.9.5. It shall be allowed to extract/ upload mentioned data from/ to the SSIS vessels database without any additional software using both removable media and INTERNET services.

9.9.6. Shall be capable of consuming information provided by ITU Maritime mobile Access and Retrieval System (MARS).

9.9.7. Shall be capable to conduct searches based on a parameter given by an operator (at least by fields listed in Part I paragraph 9.9.3).

9.9.8. Shall be capable to display the stored image of requested vessel as additional data.

9.9.9. Shall enable SSIS operator to enter and relate special remarks to a vessel in the database.

9.9.10. Shall enable SSIS operator to add/update the image/photo picture of a vessel in the database.

9.10. *Vessel voyages database shall fulfil these requirements:*

9.10.1. Shall enable the presentation of vessel previously recorded voyages data such as:

9.10.1.1. Vessels Name

9.10.1.2. Call Sign

9.10.1.3. International Maritime Organization Number

9.10.1.4. Maritime Mobile Service Identity

9.10.1.5. Ship's flag state

9.10.1.6. Destination port

9.10.1.7. ETA

9.10.1.8. ETD

9.10.2. Shall support the import of vessel voyage data from EMSA SafeSeaNet system using defined XML messages.

9.11. It shall be possible for the SSIS operator to manually enter new and to alter existing data. *Activities journal database shall fulfil these requirements:*

9.11.1. Shall allow the SSIS operator to enter violation or other similar reports about Vessel of Interest (hereinafter - VOI) from the SSIS operator workstation. The entered incident reports must be associated with the particular voyage of the particular ship.

9.11.2. Shall be capable of automatically interact with other relevant SSIS components in order to highlight tracks whose identity correlates with previously stored VOI reports.

10. **Requirements for the operator workstation**

10.1. The SSIS operator workstation software (hereinafter – SSIS workstation) shall be customizable and be able to present tracks, information from the radars, CCTV`s, RDF`s and other information sources on top of the GIS background.

10.2. The SSIS workstation shall be able to run on at least Microsoft Windows (version Windows 7 or later) and Linux operating systems.

10.3. The workstation shall be capable:

10.3.1. Simultaneously manage and display radar image from at least 15 radars.

10.3.2. Process at least 10000 real time tracks and at least 10000 non-real time tracks.

10.3.3. Manage and display information from at least 20 video cameras.

10.3.4. Manage and display information from at least 10 radio direction finders.

10.4. The SSIS workstation shall be capable of multi-window and multi-screen operation and enable the operator to simultaneously monitor situation in separate geographical areas

displayed on separate physical monitors (multi-screen) with different zoom and visualization options.

10.5. The SSIS workstation shall enable the SSIS operator to dock the application windows and it shall be possible to create operator defined window layouts of the docked application windows.

10.6. The Graphical User Interface (hereinafter – GUI) of SSIS workstation shall NOT use dialog boxes (windows) that interrupt the work of the operator. Critical information shall be presented to the operator using a built-in alarm system. The alarms have to be prioritized by the SSIS administrator.

10.7. The SSIS workstation shall support the concept of a workstation role. It shall be possible to assign each SSIS workstation with a specific role that defines the workstation duties and tasks that the workstation may utilize in order to provide the required functionality.

10.8. The SSIS workstation shall be capable of presenting radar plot data originating from all of the available radars. The SSIS operator shall be able to turn ON/OFF presentation of radar plots originating from any of available radars.

10.9. Plots shall be presented in different sizes and shades of colour, they have to be clearly visually displayed when changing daytime colouring scheme of GUI. The size and the shade of the plot shall define its age. The bigger and brighter plots should be newer than the small and faded ones, meaning the plot would slowly fade and decrease in size as it gets older.

10.10. The SSIS workstation shall provide, as a minimum, the following Electro-Optical Equipment (hereinafter – EOE) integration functionality:

10.10.1. Receive and display CCTV and thermal video source stream,

10.10.2. Control Field of View (set Wide. Medium or Narrow);

10.10.3. Display the EOE Field of View (FOV) on the map;

10.10.4. Switch camera on/off;

10.10.5. Control camera focus;

10.10.6. Control camera pan/tilt/zoom;

10.10.7. Moving target video tracking;

10.10.8. The SSIS workstation shall be able to automatically direct, zoom and focus EOE to the system track selected by operator. This function shall be available from SSIS operator GUI. The image received from EOE shall be automatically displayed on the operator's information display screen.

10.11. The SSIS workstation shall be capable to process and display at least the following information layers where any information layer may be turned on/off depending on the current requirements of the SSIS operator:

10.11.1. GIS layers as described in Part I paragraph 8 of this specification;

10.11.2. Processed radar video/plots;

10.11.3. Processed tracks;

10.11.4. Data calculated for search and rescue operations;

10.11.5. Operator definable objects;

10.11.6. Information from integrated video cameras such direction line, elevation, etc.;

10.11.7. Information from integrated RDF such as directions to source of radio signal, etc.

10.12. The SSIS shall allow authorized operators to draw or edit definable objects such as circles, polygons, multi-lines, sectors and arcs complying with following requirements:

10.12.1. Operator defined objects shall be processed as an informational layer with possibility to display them only on required workstations.

10.12.2. It shall be possible to choose specific colour, line type and transparency for different objects.

10.12.3. It shall be possible to assign any operator defined object with a textual remark. It shall be possible to choose font and style of the displayed text.

10.12.4. It shall be possible to assign operator defined object with operational alarms.

10.13. Operator and Workstation Roles

10.13.1. Access to the SSIS functionalities have to be protected with an access rights management mechanism that shall enable the administrator to grant different access privileges to different users/user groups.

10.13.2. The SSIS workstation shall support the change of a workstation role to a different duty or task without reinstallation of the software.

10.13.3. The SSIS workstation's role shall define which pre-defined quick settings are available to the operator as well as which alarms are to be sent to the operator.

10.14. Operator Preferences

10.14.1. The SSIS operator shall be able to customize his working environment.

10.14.2. The SSIS operator shall be able to choose from at least the following colour settings that suits the lighting conditions for the operating environment: day, dusk, night.

10.14.3. It shall be possible to edit the colours in the different display settings.

10.14.4. The SSIS shall support the presentation of track using a variable track symbol size.

10.14.5. The SSIS shall support the presentation of the track label using different fonts.

10.14.6. The SSIS shall enable the operator to define different layouts of the GUI. The layouts shall store the default and pre-selected dimension and position of the various windows and the chart layers selected as active.

10.14.7. The SSIS shall allow the operator to define several pre-selected layouts.

10.14.8. The SSIS shall allow operator to turn ON/OFF various information layers and control the content of each layer.

10.14.9. It shall be possible to zoom and pan on the chart using fast and simple mouse movements.

10.14.10. All charts objects shall be selectable by a mouse click.

10.15. Alarm Management

10.15.1. It shall be possible for an SSIS operator to acknowledge, suspend an alarm and make a query on the alarm information.

10.15.2. Alarming shall be configurable at least by operator roles or workstation role. Operators should receive only those alarms that are relevant for the selected operator role.

10.15.3. It shall be possible for an operator to locate (pan to) the geographical coordinate of the alarm using one key press.

10.16. Tools

10.16.1. The SSIS workstation shall be capable of using bearing / distance line between two targets, between a target and position or between two geographical points. Bearing/distance line should be updated upon each update of the target, if one or both end-points are target-related. Label on bearing / distance lines should specify: angle in degrees, distance between positions (in selected measurement units).

10.16.2. In addition the SSIS workstation shall support the use of range rings that shall originate from the selected active reference object or the track.

10.16.3. The SSIS workstation should be capable of calculating and displaying Closest Point of Approach (CPA) and Time to the Closest Point of Approach (TCPA) between two targets or between a fixed point and a target.

10.16.4. The SSIS workstation should be capable of displaying a predicted track of target on the basis of the target position, bearing and speed for the time-period pre-set by operator.

10.16.5. The SSIS workstation shall support the use of reference object. It should be possible to mark any given point on chart (by cursor on chart or predefine by coordinates) or track as a reference object.

10.16.6. The SSIS workstation should ensure geographical position tool, which enables operator to see the cursor`s: precise coordinates, distance/bearing from selected reference object.

10.16.7. The SSIS workstation should enable the SSIS operator to mark a position (by cursor on chart or predefine by coordinates) on the operator GUI.

10.16.8. The SSIS workstation should be equipped with a positioning tool, which enables an operator to find geographical position by manually entering geographical coordinates or

distance/bearing from predefined reference object. The chart screen shall be centred on exact spot and marked by an easy recognizable symbol.

10.16.9. The SSIS workstation shall support the use of different measurement units such as:

10.16.9.1. Nautical Miles

10.16.9.2. Kilometres, Meters etc.

10.16.10. The SSIS workstation shall support the presentation of latitude, longitude grid coordinate lines that may be activated on top of the chart.

10.16.11. The SSIS workstation shall support the use of pointers that may be transmitted and shared with other selected workstations.

10.16.12. The SSIS workstation shall have "Search" functionality enabling the operator to find: required geographical position, chart text (the text information that exists within of the imported S-57 data) and vessel (using at least any of the following search criteria: vessel name, call sign and MMSI number). It shall be possible to locate a searched vessel within the situation picture.

10.17. Hardcopy Functionality

10.17.1. The SSIS workstation shall support hardcopy printout of the active GUI window using the printing services that are provided by the operating system of the operator workstation.

10.17.2. The SSIS workstation shall enable the SSIS operator to save the active GUI window (print screen functionality) to the image file on the file-system of the SSIS operator's workstation.

10.18. Messaging

10.18.1. The SSIS shall allow the exchange of messages between operators.

10.18.2. Messages shall be stored centrally on the SSIS. There shall be implemented measures that prevent possibilities to modify the stored messages.

10.18.3. The SSIS shall organize the messages into folders for easy management i.e. Inbox, Outbox etc.

10.18.4. The SSIS shall support the address book.

10.18.5. The SSIS shall enable the exchange of the messages between Navy and SBGS operators.

11. Requirements for the alarms functionality

11.1. The SSIS shall have automatic alerting functions to warn the operator when potentially dangerous navigational situation with track occur, in case of system failure or a sensor error. Alarms also have to be created if anomaly with track (as described in Part I paragraph 24) is observed.

11.2. The SSIS shall be able to categorize alarms as:

11.2.1. *operational* - alarms that are raised because the track is breaking the predefined rules set by the operator;

11.2.2. *technical* - alarms that are raised because of malfunctions or errors in the SSIS or its sensors;

11.3. All raised alarms disregarding of their category shall have one of the following status:

11.3.1. Active- if source causing the alarm is active;

11.3.2. Non-active- if condition causing the alarm has been fixed/resolved.

11.4. The status of the alarm information shall be color-coded.

11.5. Alarm information shall be stored within SSIS and available for review later on.

11.6. The stored alarm information shall contain:

11.6.1. the alarm id,

11.6.2. time of the alarm,

11.6.3. alarm text,

11.6.4. time of clearance,

11.6.5. username of operator that acknowledged the alarm.

11.7. It shall be possible to export stored alarm information at least to the text file.

11.8. SSIS operators or operator working positions shall be able to subscribe to selected alarm data based on the operational role of the operator or the pre-defined workstation role.
11.9. Alarm information shall clearly display the source ID of the alarm (i.e. track name, site name, etc.) and if available indicate a geographic position.
11.10. The SSIS workstation's GUI shall be able to clearly indicate the alarm using both audio and visual means. Audio and visual means of indication must be configurable (ON/OFF). Visual indication of the alarm shall be configurable either as pop-ups or separate windows. Pop-up window on the workstation screen has to remain active until the operator's acknowledgement.
11.11. The alarm system shall be able to be configured to sound a continuous alarm.
11.12. The presentation of a track that has an active alarm shall be clearly indicated.

Operational Alarms
11.13. It shall be possible to pre-define warnings for SSIS operators based on different criteria. In general, predefinition criteria as a minimum shall include:
11.13.1. any track movement related to other moving tracks;
11.13.2. track movement related to the operational chart layer;
11.13.3. track data discrepancy.
11.14. It shall be possible to raise alarms based on vessel identifications e.g. alarms may apply only to vessels carrying dangerous cargo.
11.15. The SSIS shall enable the use of route based alarm conditions such as:
11.15.1. Speed low and high
11.15.2. Arrival at a specified Way Point
11.15.3. Sudden change of course
11.16. The SSIS shall enable the use of track based alarms such as:
11.16.1. Anchor alarm
11.16.2. Lost track alarm, etc.

Technical Alarms
11.17. The SSIS shall be able to generate alarms regarding key system components and sensors that are connected to the system. Alarms shall be based on these conditions:
11.17.1. Status of the communication to SSIS component or sensor;
11.17.2. Status of the data provision (e.g. radar video stream, etc.)
11.17.3. Malfunctions in SSIS component (e.g. RDP, etc.);
11.17.4. Status and malfunctions of the sensor;
11.18. Technical alarms shall be indicated in a different fashion within the GUI as other alarms.

12. Requirements for the supervisory control and data acquisition

12.1. It shall be possible to monitor defined infrastructure components using supervisory control and data acquisition system.
12.2. The system shall allow for monitoring of defined SNMP enabled devices such as:
12.2.1. UPS
12.2.2. LAN equipment
12.2.3. Data logging service and etc.
12.3. It shall be possible to define warning conditions for violation of pre-set values.
12.4. The SSIS shall allow storage of data provided by the system components.
12.5. It shall be possible to present the collected data as graphs e.g. bandwidth usage, communication errors etc.
12.6. The SSIS workstation shall enable the presentation of the status of the SSIS components and connections using a GIS. The status information shall be shown using different colours.

13. Requirements for the interoperability with other information systems

13.1. All data received from other information systems by the SSIS has to be visualized on SSIS workstations.

13.2. The Supplier shall implement connection (automated data reception/transmission, data processing in the SSIS and visualization on operators' workstations) of SSIS to the following information systems:

13.2.1. Maritime Safety and Security Information System (managed by the US Department of Transportation's Volpe Center);

13.2.2. Lithuanian national part of Vessel Monitoring System (for monitoring of fishing vessels);

13.3. The SSIS shall be capable to transmit and receive information to/from external information system, using the following data formats:

13.3.1. NMEA 0183 version 4.00 or later;

13.3.2. OTH-T GOLD revision D;

13.3.3. ADatP-3 messages;

13.3.4. IVEF (described in IALA Recommendation V-145 on Inter-VTS Exchange Format Service).

13.4. The functionality mentioned in Part I paragraph 13.3 shall not be subject of licensing or other additional developments. The Purchaser has to remain full rights to implement as many transmission/ receipt connections as required.

14. **Requirements for data exchange with TSDS.**

14.1. SSIS shall be capable to receive/transmit information from/to TSDS owned by Coast Guard District of the State Border Guard Service (VSAT PAR). Information exchange shall be implemented at all levels including but not limited to:

14.2. Sensor data exchange – the raw data of sensors shall be exchanged between the systems. The exchanged data must be processed by the systems as own sensor data, complying with requirements provided within this document.

14.3. Track data exchange:

14.3.1. The SSIS shall enable the seamless exchange (receiving and transmitting) of tracks, so that the SSIS operators at any time shall be able to display (on any of their workstations) entire situation picture processed in the other operation centre.

14.3.2. The exchanged data must be processed by the systems as own systems data, complying with requirements provided within this document.

14.3.3. Operators shall be warned if another institution has different track related data to the same track. In such case the operator shall be able to:

14.3.3.1. Disregard the data owned by another institution and keep own track data.

14.3.3.2. Overwrite own track data with the data owned by another institution.

14.4. System level data exchange:

14.4.1. The information created by the operators, such as tactical drawings, polygons, areas, etc. shall be automatically replicated between both operation centres.

14.4.2. The databases installed in any of operations centre shall be capable of automatic replication (subject to security constraints). In addition, operators of any of institution shall be capable to access the databases (subject to security constraints) installed in other operation centre.

14.4.3. Operators of any of institution shall be capable to communicate using built-in tools for messaging, notifications, etc.

15. **SUCBAS interoperability requirements:**

15.1. The Supplier shall be responsible for provision of technical solution complying with latest version of SUCBAS SOP (Standard Operating Procedures), CONOPS (Concept of Operations) and SUCBAS approved technical documentation.

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15.2. The Supplier shall be responsible for connecting the SSIS to the SUCBAS VPN at its own cost and expense, using its materials and any other necessary means. The connection configuration has to be agreed on with the Purchaser in advance.

15.3. SUCBAS functionalities (exchange information with other SUCBAS Participants), such as Notifications, Web-Dav, Chat and Information discovery shall be enabled on the dedicated SSIS workstation with configured access rights.

15.4. The SSIS shall enable the use of notifications to designated vessels. Authorised operator should be able to send Notification about dedicated vessel to SUCBAS participants from his working interface (without need to use different software or separate log-in). Notification levels shall be determined by the operator as situation dictates. The notification levels shall be:

15.5. Vessel of collection interest (VOCI);

15.6. Contact of interest (COI);

15.7. Critical contact of interest (CCOI);

15.8. Platform in distress (PID);

15.9. Platform responding to distress (PRD).

15.10. Not Notified Vessel (NNV).

15.11. It shall be possible to send Notification either automatically (when ship is tracked by the system) or manually (about the vessel which is not tracked by the SSIS). In case when automatic Notification is possible- system shall fill the Notification data fields about the ship with data from the SSIS. The system shall allow operator to modify all Notification fields manually disregarding whether they were filled automatically or manually.

15.12. The notification shall be furthermore supplemented by one of the below defined notification types:

15.13. Type 1: platform/owner or company possibly associated with terrorism;

15.14. Type 2: platform/owner or company possibly associated with weapon of mass destruction proliferation;

15.15. Type 3: platform/owner or company possibly associated with irregular immigration;

15.16. Type 4: platform/owner or company possibly associated with other illegal activity in accordance with international agreements;

15.17. Type 5: platform having displayed suspicious behaviour;

15.18. Type 6: platform possibly posing an environmental concern;

15.19. Type 7: governmental owned vessels and other platforms as the situation dictates.

15.20. The notification shall be furthermore supplemented by one of the below defined Track Identification levels:

15.20.1. PENDING = 0: there is no identity available;

15.20.2. AIS ONLY = 1: the identity is based on received AIS only;

15.20.3. AIS CONFIRMED = 2 : the identity is based on received AIS and confirmed by other means;

15.20.4. CERTAIN = 3: the identity is based on visual identification.

16. **Requirements for the data exchange with classified systems.**

16.1. The SSIS shall be capable to provide information to classified information systems (i.e. NATO Maritime Command and Control Information system (MCCIS)) through the use of OTH-T GOLD or ADatP-3 (current version) messages.

16.2. The SSIS shall be capable to provide and receive the information about tracks by means of OTH-T GOLD or ADatP-3 (current version) messages. The SSIS shall process and visualize in accordance with system label and symbol configuration all tracks provided by the messages and fill the track data fields by the information contained in the messages. In case when the same track mentioned in message is already present in the system- the SSIS should mark both of the tracks as ambiguous. Then SSIS operator should have ability to

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resolve the ambiguity by either merging the tracks, or by keeping both but with different data, or keeping one and deleting the other.

16.3. The SSIS shall be capable to provide the following information to Naval fleet C2 subsystem:

16.3.1. Track data (static and dynamic) which is associated with the track within SSIS.

16.3.2. Operator definable objects (i.e. circles, polygons, multi-lines, sectors, arcs and etc.).

16.3.3. Data from vessel database.

17. **Requirements for the internet client subsystem**

17.1. The internet client subsystem (hereinafter - webserver) shall be implemented as a separate part of the SSIS that allows reviewing of the maritime surveillance information from remote places without the need of any specific SSIS software. The webserver will be used by the Purchaser to provide near real-time surveillance information (time dependent on page refresh) for the remote users willing to view the situation at sea.

17.2. The Supplier shall fulfil the requirements stated in this paragraph and relevant requirements listed in Part I paragraph 1 "General requirements" of this specification.

17.3. The webserver shall have integrated means to counter major application security attacks listen on web page of Open Web Application Security Project (OWASP).

17.4. The webserver shall provide the following functionality:

17.4.1. It shall be allowed only secure connection of the remote users, using a secure protocol (HTTPS TLS 1.2 or later).

17.4.2. The remote users shall be identified by username and password, provided by the SSIS administrative personnel (not less than 10 symbols, including special symbols and numbers).

17.4.3. The surveillance information provided by the webserver shall not editable by the remote users.

17.4.4. The login/password of a remote user shall be suspended after 3 (three) months of inactivity and automatically deleted after 6 (six) months from last successful logon. The administrative personnel shall be able to view the last successful login information of each remote user (server time of login, originating IP address, up-time, total number of unsuccessful login attempts within predefined period of time (for example – 24/48/ week/month etc.).

17.4.5. SSIS administrative personnel shall have the possibility to apply various information filters to a certain remote user account/group (restricting access to information on certain areas, ship types etc.).

17.4.6. Webserver shall be capable of displaying special zones, lines and other system objects if required by administrative personnel.

17.4.7. The webserver licensing policy shall allow the simultaneous connection of not less than 40 remote users (thus have not less as 40 client licenses).

17.5. The webserver shall allow webserver user to use following functions:

17.5.1. Change the visualization of the surveillance information;

17.5.2. Create personal track colouring filters;

17.5.3. Create pre-defined special areas of interest;

17.5.4. View the track data (name, IMO, MMSI and etc., if applicable).

18. **Requirements for the upgrade of AIS subsystem**

18.1. The subsystem shall enable the SSIS operator using GUI to transmit AIS messages to the ships operating within the range of shore AIS base stations.

18.2. The Supplier shall replace Navy's owned AIS receivers (listed in Part I paragraph 2) to the AIS base stations (uninstall the AIS receivers, install the AIS base stations and supplementing equipment, configure and fully integrate the provided equipment into the SSIS).

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18.3. The Supplier shall fulfil the requirements stated in this paragraph and relevant requirements listed in Part I paragraph 1 "General requirements" of this specification.

18.4. The requirements for the upgraded AIS base stations:

18.4.1. Shall comply with IEC standard 62320-1 for AIS base stations, ITU-R recommendation for AIS M.1371, IALA recommendation on the AIS service A-124, IMO performance standards for AIS (resolution MSC.74(69) Annex 3).

18.4.2. Shall support redundant "Hot Standby" configuration (redundant units shall not be included to the scope of supply).

18.4.3. Shall have built-in web interface (web server) for main remote configuration and monitoring using web browser.

18.4.4. Shall have built-in functionality that allows full remote configuration and monitoring. Configuration and monitoring software shall be included.

18.4.5. Shall be SNMP enabled and allow to be remotely monitored by centralized SNMP based monitoring system.

18.4.6. Shall have at least 2 independent TDMA VHF receivers.

18.4.7. Shall have internal GPS receiver. The GPS antenna, all required cables and mounting materials shall be provided by the Supplier.

18.4.8. Shall be capable of using external timing source.

18.4.9. Shall have at least 2 RS232 or RS422 and 1 LAN (10/100Base-T) interfaces.

18.4.10. Shall be capable of future upgrades and/or functional modifications without any change of hardware.

18.4.11. Working frequency range shall be at least from 156,025 to 162,025 MHz.

18.4.12. Channel bandwidth shall be 25 kHz. In addition AIS base stations shall be ready for future software upgrade that enables them to work on channels spaced by 12,5 kHz.

18.4.13. Shall have capability to select transmitter output power. The possible selections shall be at least nominal and reduced. Nominal output power shall be 12,5 W, reduced output power shall not exceed 2 W.

18.4.14. Sensitivity of the receiver shall be less than or equal of -107 dBm.

18.4.15. Shall be capable of operating in following environmental conditions: temperature range from -15 ° C to +55° C, humidity up to 95 %.

18.4.16. Shall comply with European Union Radio Equipment Directive 2014/53/EU and standard EN 60950-1 Information technology equipment – Safety.

18.4.17. Shall be designed as 19 inch rackmount equipment. All mounting materials, if required, shall be provided by the Supplier.

18.5. For the installation of AIS base stations the Supplier is able to use the existing antennas and bandpass filters that are connected to the existing AIS receivers. In case existing equipment does not fit to the provided AIS base stations, the Supplier shall provide and install new antennas and/or bandpass filters. If the Supplier chooses to use existing antennas – he shall not downgrade conditions to use existing antennas for GMDSS radio station purposes.

18.6. All required cables, connectors, mounting material and etc. shall be provided by the Supplier.

18.7. The AIS base stations provided by the Supplier shall be ready for future software upgrade that enables them to work in secure mode of operation. The secure operating modes shall be at least silent (passive), protected and hybrid:

18.7.1. In silent (passive) operation mode AIS base station shall not transmit any signal on VHF, but be able to receive both standard and encrypted AIS messages.

18.7.2. In protected operation mode communication (receive and transmit) of AIS base station with other Warship AIS systems shall be protected by commercial grade encryption in accordance with requirements listed in Annexes C and D of NATO standard STANAG 4668 Ed2 on an operator selectable frequency (at least any of the VHF P-channels) different from the frequencies dedicated for commercial AIS.

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18.7.3. In hybrid operation mode AIS base station shall be capable of transmitting and receiving both open and encrypted AIS messages.

19. **Requirements for the connection and integration of CCTV equipment**

19.1. The Supplier shall integrate to the SSIS the video and thermal imaging cameras listed in Part I paragraph 2 (hereinafter – video cameras) of this specification.

19.2. The Supplier can use the video encoders listed in Part I paragraph 2 of this specification for receipt and digitalization of video signals provided by the video and thermal imaging cameras. If existing equipment is not sufficient enough to fulfil the requirements of this specification (including requirements listed in Part I paragraph 1 "General requirements"), the Supplier shall include to the scope of supply delivery, installation and configuration all of the required hardware and the software which is needed to ensure the receipt and digitalisation of video information from the video cameras as well as its transfer to the system of SSIS servers for further processing and rendering at SSIS operators' workstations.

19.3. Requirements for the transfer of a video signal sent by the video camera to the SSIS:

19.3.1. video compression standard – H.264 / MPEG-4 AVC;

19.3.2. capability to select resolution from CIF (252 x 288 pixels) to 4 CIF (704 x 576 pixels);

19.3.3. frame rate – 25 frames per second.

19.4. After integration of video cameras the SSIS shall fulfil at least the following requirements:

19.4.1. It shall provide means of controlling (ON/OFF, pan, direction, zoom, focus, etc.) any of integrated video camera using GUI of operators' workstation.

19.4.2. The video signal provided by video cameras shall be displayed in window that is separate to the chart based track display and management window. SSIS operator shall be able to position this video display window to any of workstations' monitor and control its dimensions. The GUI of operators' workstation shall provide means that allow selection and displaying of video signal from any of the integrated video camera.

19.4.3. It shall be able to point any integrated video camera to any position/track on GIS window (windows) using GUI of operators' workstation. In such case the SSIS shall perform all of the required calculations and automatically direct and adjust (zoom, focus etc.) selected video camera to the chosen track or position.

19.4.4. It shall be able to use "follow target/track target" functionality on any of the SSIS track. In such case the video camera must follow the track in the manner that the ship would be seen on video display window of SSIS operators' workstation all the possible time.

19.4.5. It shall be able to visualize in the chart-based track display and management window the azimuth and elevation of the video camera (cameras) selected by the SSIS operator.

19.4.6. It shall be able to visualise in the chart-based track display and management window the area that may be visible to the video camera. The SSIS operator shall be able to switch this visualisation ON and OFF using GUI of operators' workstation.

19.4.7. It shall be able to record and replay video information provided by all or selected integrated video cameras.

19.4.8. The SSIS shall allow making of snapshots of video signal provided by any of integrated video camera.

19.4.9. The SSIS shall allow saving of snapshots to the SSIS vessels database and relate it to the selected vessel.

20. **Requirements for the connection and integration of RDF**

20.1. The Supplier shall integrate to the SSIS the radio direction finders listed in Part I paragraph 2 of this specification and fulfil the requirements stated in this paragraph and relevant requirements listed in Part I paragraph 1 "General requirements" of this specification.

20.2. The Supplier shall deliver and install the hardware and the software capable to ensure the receipt of information provided by the RDF as well as its transfer to the system of SSIS servers for further processing and presentation on SSIS operators' workstations.

20.3. After integration of the RDF the SSIS shall be able to obtain and process information, provided by integrated RDF equipment. The SSIS shall provide at least the following functionality:

20.3.1. It shall provide means of controlling (RDF equipment setup, scanning and active frequencies, etc.) any of integrated RDF using GUI of operators' workstation.

20.3.2. It shall be able to display information obtained from RDF in the chart based track display and management window on top of the other layers.

20.3.3. The RDF information shall be displayed as a layer that may be deactivated and activated by SSIS operator as required.

20.3.4. Information obtained from the RDF equipment shall be presented as lines originating from the location of the RDF equipment to the direction of the radio signals' source.

20.3.5. If two or more direction lines are crossing the intersection shall be visualized in different manner (e. g. using different colour or brighter line).

20.3.6. The lines presenting the directions shall be shown only for a selectable (configurable) amount of time.

20.3.7. It shall be able to display more detailed information (at least azimuth, frequency or number of IMM channel) of selected radio signals' source.

20.3.8. Information obtained from integrated RDF equipment shall be logged in the SSIS component providing logging functionality.

20.3.9. It shall be possible to replay logged direction finding information.

20.3.10. It shall be possible to freeze the display of line representing direction to the current radio signals' source.

21. **Requirements for the Search And Rescue subsystem**

21.1. Search and Rescue (hereinafter –SAR) subsystem is a part of SSIS and is a tool to do all of the calculations required to plan, coordinate and carry out search and rescue operations.

21.2. SAR subsystem has to have modelling mode to simulate different SAR scenarios.

21.3. SAR subsystem should be capable to receive and calculate hydro-meteo data automatically from web. Calculating a possible position/predicted movement of target should be based on updated hydro-meteo data in real time. As a backup SAR system has to have ability to enter hydro-meteo data manually.

21.4. The SAR subsystem shall be capable performing calculations (in accordance with the IAMSAR manual) necessary for search and rescue. That is:

21.4.1. Statistically calculate a possible position/predicted movement of a man over board, boat, life raft or any other object based on wind, weight and current parameters;

21.4.2. Identify and display the position of an object transmitting RF signals through the use of radio direction finders;

21.4.3. Provide authorised operator with the tool for Search Area Determination (SAD) and Search Area Coverage (SAC). SAD should include three points models of datum point, datum line and backtrack SAR planning methodologies also there should be included Monte Carlo particle-based methodology;

21.4.4. Provide functionality to enter and save and graphically display the units SAR related data (ships and/or aircraft) participating in the operation, information on the flow of the operation itself.

22. **Requirements for data exchange with Latvia.**

22.1. Data exchange with Latvia should be implemented by track data exchange using NMEA 183 (version 4.0 or later) or IVEF data format.

22.2. In addition SSIS shall have possibility to exchange the track related data with Latvia by means of OTH-T GOLD and/or ADatP-3 messages.

23. **Requirements for the filtering subsystem**

23.1. The SSIS filtering subsystem shall to enable the information holder to control the output of the system data. The Supplier shall implement SSIS filtering subsystem as an additional module of the SSIS. It shall be compatible with current version and future updates of SSIS.

23.2. The SSIS filtering subsystem has to be delivered as a set of all the licenses, materials and Software programming, integration into the SSIS and configuration, needed to create it and integrate it into the SSIS.

23.3. The Supplier has to integrate the filtering subsystem into the SSIS. The final version of the information filtering subsystem graphical interface and functionality has to be endorsed and commissioned by the Purchaser.

23.4. The SSIS administrative personnel using the filtering subsystem shall be able to create the filtering rules on SSIS tracks transmitted to:

23.4.1. Other information systems;

23.4.2. Users of Internet Client Subsystem;

23.4.3. SSIS operators.

23.5. If the provided SSIS filtering subsystem will have several components all of them shall have the same graphical user interface.

23.6. Tracks shall be filtered at least by following parameters listed in the SSIS track data window:

23.6.1. Vessel name

23.6.2. IMO number

23.6.3. MMSI number

23.6.4. International Radio Call Sign

23.6.5. Ship's Type

23.6.6. Flag

23.6.7. Source/Sensor type

23.6.8. Target's class

23.6.9. Ship's length

23.6.10. Ship's beam

23.6.11. Ship's draught

23.6.12. Course

23.6.13. Speed

23.6.14. Geographic position (creating geographical fields and polygons where filters would be active)

23.7. The SSIS filtering subsystem shall be provided with detailed installation and administration / user guides in English or Lithuanian language.

23.8. The Supplier shall provide updates / amendments of current SSIS documentation.

23.9. In defining of filtering parameter use of "Wild card" shall be implemented (* - meaning any symbol at any place, ? - meaning any symbol in the defined place)

23.10. Each filtering parameter shall have possibility to use AND/OR and IS/IS NOT function.

23.11. Creation of the filtering rules must be allowed only for SSIS administrators (e.g. password protected access).

23.12. Filtering rules shall allow choosing ON and OFF option of their validity time. In case of active validity time option it shall be allowed to create filtering rules in advance and automatically turn them on and off within the validity time frame.

23.13. The SSIS shall enable to apply this rule to certain (one or multiple) user (user in this case is understood as other information system(s), webserver user(s), Operator Workstation(s)).

24. **Requirements for the anomaly detection subsystem**

24.1. Anomaly detection subsystem is intended to reduce the operator workload and response time.
24.2. The SSIS administrators shall be able to create the anomaly detection rules on SSIS tracks by various parameters i.e. IMO number, MMSI number, international radio call sign, ship's type, flag, source/sensor type, target's class, ship's length, ship's beam, ship's draught, course, speed.
24.3. Administrative personnel shall be able to create the detection rules for anomalies listed in Part I paragraph 20.4.5.
24.4. The anomaly detection functionality must include at least these anomaly detection ways:
24.4.1. Ship provided data (i.e. AIS data) cross check with trusted static database information mismatch.
24.4.2. Ship declared status (ETA, ETD) not compliant with geographical feasibility.
24.4.3. Ships within operator created black-lists.
24.4.4. Ships with stored VOI reports.
24.4.5. Ships behaviour associated to SUCBAS anomaly identifier list (in latest version).
24.5. Anomaly detection functionality has to provide the operator with visual and audio alarm to abnormal tracks behaviour and/or anomalies meeting the configured occasions. The alarms triggered by anomaly detection have to be configurable by the administrators.

25. **Requirements for additional SSIS workstation:**
25.1. The Supplier shall provide and install all hardware, software and licences necessary to provide additional SSIS workstation, fulfil the requirements stated in Part I paragraphs 1.20.2 – 1.20.11 and other relevant requirements listed in Part I paragraph 1 "General requirements" of this specification.
25.2. The version of the software used at workstation shall be the same as used by the Navy's SSIS.
25.3. The additional operator workstation shall have a full functionality provided on other (existing) SSIS workstations.

26. **Requirements for integration with the Port information system**
26.1. The Supplier shall design and implement SSIS component in order to meet the requirements stated in this paragraph and relevant requirements listed in Part I paragraph 1 "General requirements" of this specification.
26.2. The provided Component shall be able to automatically receive and process XML messages on port visits (Port Visit Notification message and Port Visit Cancel Notification message) provided by Klaipeda State Seaport Shipping Control Information System.
26.3. The SSIS shall receive aforementioned XML messages through Internet utilizing HTTPS protocol.
26.4. The SSIS shall be able to process received data (moorage pier, main technical ships data, number of crew, arrival/departure ports, cargo type, agency, dangerous cargo information) and transfer it to the SSIS Database Management System.
26.5. The SSIS shall be capable regularly synchronise data on port visits stored in the SSIS Database Management System with data received from Klaipeda State Seaport Shipping Control Information System.
26.6. The detailed specification of aforementioned XML messages will be provided by the Purchaser on the Supplier's request.
26.7. The received and processed data on port visits shall be stored by the means of SSIS Database Management System.

27. **Requirements for the overview screen system**
27.1. The Supplier shall provide, install and integrate to the SSIS overview screen system (hereinafter – overview screen) in order to meet the requirements stated in this paragraph

and relevant requirements listed in Part I paragraph 1 "General requirements" of this specification.

27.2. The overview screen shall be capable to provide a common view of an incident or other interesting surveillance scenario to the MOC personnel.

27.3. The overview screen shall be at least of 60 inch diagonal screen size, of at least 1920x1080 resolution, with thermal and cooling capabilities designed for 24/7 operation, with VESA mounting capability.

27.4. It shall be access restricted possibility to project any window from any SSIS operators' workstation in MOC to the overview screen including but not limited to:

27.4.1. chart based maritime picture

27.4.2. radar video

27.4.3. track data

27.4.4. user objects

27.4.5. CCTV display

27.5. It shall be possible to define several chart based or information windows on the overview screen.

27.6. The SSIS shall provide capability to control the overview screen using GUI of the operators' workstation which is providing the view.

27.7. The SSIS shall support integration of several overview screens (if Purchaser decides to integrate additional overview screens later on) that each may be setup to view any given geographical area and information.

27.8. The SSIS and provided overview screen shall support combining of several overview screens in order to form "video wall".

PURCHASER:
Lithuanian Armed Forces
Commander of Lithuanian Armed Forces Na
CPT (N) Artūnas Mockus

(signature)
L.S.

LIETUVOS KARIUOMENĖ
LIETUVOS RESPUBLIKOS KRAŠTO APSAUGOS MINISTERIJA

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22.2. In addition SSIS shall have possibility to exchange the track related data with Latvia by means of OTH-T GOLD and/or ADatP-3 messages.

23. **Requirements for the filtering subsystem**

23.1. The SSIS filtering subsystem shall to enable the information holder to control the output of the system data. The Supplier shall implement SSIS filtering subsystem as an additional module of the SSIS. It shall be compatible with current version and future updates of SSIS.

23.2. The SSIS filtering subsystem has to be delivered as a set of all the licenses, materials and Software programming, integration into the SSIS and configuration, needed to create it and integrate it into the SSIS.

23.3. The Supplier has to integrate the filtering subsystem into the SSIS. The final version of the information filtering subsystem graphical interface and functionality has to be endorsed and commissioned by the Purchaser.

23.4. The SSIS administrative personnel using the filtering subsystem shall be able to create the filtering rules on SSIS tracks transmitted to:

23.4.1. Other information systems;

23.4.2. Users of Internet Client Subsystem;

23.4.3. SSIS operators.

23.5. If the provided SSIS filtering subsystem will have several components all of them shall have the same graphical user interface.

23.6. Tracks shall be filtered at least by following parameters listed in the SSIS track data window:

23.6.1. Vessel name

23.6.2. IMO number

23.6.3. MMSI number

23.6.4. International Radio Call Sign

23.6.5. Ship's Type

23.6.6. Flag

23.6.7. Source/Sensor type

23.6.8. Target's class

23.6.9. Ship's length

23.6.10. Ship's beam

23.6.11. Ship's draught

23.6.12. Course

23.6.13. Speed

23.6.14. Geographic position (creating geographical fields and polygons where filters would be active)

23.7. The SSIS filtering subsystem shall be provided with detailed installation and administration / user guides in English or Lithuanian language.

23.8. The Supplier shall provide updates / amendments of current SSIS documentation.

23.9. In defining of filtering parameter use of "Wild card" shall be implemented (* - meaning any symbol at any place, ? - meaning any symbol in the defined place)

23.10. Each filtering parameter shall have possibility to use AND/OR and IS/IS NOT function.

23.11. Creation of the filtering rules must be allowed only for SSIS administrators (e.g. password protected access).

23.12. Filtering rules shall allow choosing ON and OFF option of their validity time. In case of active validity time option it shall be allowed to create filtering rules in advance and automatically turn them on and off within the validity time frame.

23.13. The SSIS shall enable to apply this rule to certain (one or multiple) user (user in this case is understood as other information system(s), webserver user(s), Operator Workstation(s)).

24. **Requirements for the anomaly detection subsystem**

ANNEX 1
TO PART I TO TECHNICAL SPECIFICATION FOR THE UPGRADE OF THE SSIS AND TECHNICAL SURVEILLANCE DEVICE SYSTEM

REQUIREMENTS FOR NAVAL FLEET COMMAND AND CONTROL SUBSYSTEM

1. Purpose of Naval fleet Command and Control (hereinafter – C2) subsystem is to provide users with operational and tactical data collection, distribution, display and evaluation capabilities in order to ensure Situational Awareness, support to military decision making process (MDMP) and information handling capability to exchange data with other Commands and subordinate units. Naval fleet C2 subsystem shall also provide different tools to support specific areas of military operations. The Supplier shall provide all hardware, software and licences necessary to meet the requirements stated in this Annex and subsequent appendixes and relevant requirements listed in paragraph 1 "General requirements" of technical specification for the upgrade of the SSIS and TSDS.

2. Main objectives of Naval fleet C2 subsystem are:

2.1. To ensure Situational Awareness.

2.2. To ensure Compilation, Archiving and Dissemination of Recognized Maritime Picture (RMP) and Operational data.

2.3. To support Military Decision Making Process (MDMP) for planning of maritime and coastal operations.

2.4. To ensure Message handling and supporting C2 of subordinate units.

2.5. To provide easy access to different Databases and Analysis tools.

3. Naval fleet C2 subsystem is intended to be used for following tasks:

3.1. RMP compilation and Situational Awareness.

3.2. Fleet management.

3.3. Maritime and Coastal operations Planning and Execution.

3.4. Search and Rescue operations.

3.5. Message Handling.

4. Specific Naval fleet C2 subsystem requirements:

4.1. The Naval fleet C2 subsystem shall be based on open and service oriented architecture and shall allow future expansions through addition of new software components, sensors and connections to external information systems, in order to achieve required functionality, operational objectives and level of maritime situational awareness.

4.2. Static Naval fleet C2 installation instance shall comprise of required number of servers and 6 workstations that will be deployed in Lithuanian Navy HQ and Communication Center. The installation instance shall allow for the further expansion to up to 24 workstations connected to the same servers and has to include interfacing with systems described in ANNEX1 to Part I to Technical Specification. Static HQ server equipment shall have capability to be moved in 19'' racks if required.

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4.3. Hardware and software requirements stated in ANNEX1 to Part I to Technical Specification apply for mobile and static installation instances, unless stated otherwise.

4.4. The Supplier shall ensure that Naval fleet C2 static and mobile installation instances are interconnected by communication means available.

4.5. The Naval fleet C2 subsystem shall use the same source code/backbone as the SSIS in order to ensure seamless integration.

4.6. The main delivery of the Naval fleet C2 subsystem shall include implementation of static installation instance in accordance with requirements listed in this specification and following components:

4.6.1. Hardware;
4.6.2. Sensor integration;
4.6.3. Software;
4.6.4. Data input and output standards;
4.6.5. Geospatial information services (hereinafter – GIS);
4.6.6. Graphical User Interface (GUI);
4.6.7. Radar data processing;
4.6.8. Filtering of data feeds to external Information systems;
4.6.9. Shipping database functionality;
4.6.10. Track management functionality;
4.6.11. Alarm functionality;
4.6.12. Data logging and archiving;
4.6.13. Anomaly detection;
4.6.14. Data replay;
4.6.15. Training;
4.6.16. Documentation;

4.7. Additional Naval fleet C2 subsystem components that shall be available:

4.7.1. Additional Workstation for Static Naval fleet C2 subsystem installation instance;
4.7.2. Mobile Naval fleet C2 installation instance;
4.7.3. Additional Workstation for Mobile Naval fleet C2 subsystem installation instance;
4.7.4. PKI security services;
4.7.5. Weather Analysis module;
4.7.6. Order of Battle module;
4.7.7. War Diary module;
4.7.8. Mine Warfare module;
4.7.9. Warship database module;
4.7.10. ATO/ACO display module.

4.8. Required functionality of specific C2 services/applications (para 4.7.1-4.7.9) is described in Appendix 1 to this Annex.

4.9. The supplier shall possess Naval fleet C2 subsystem core functionality (not including specific modules listed in Appendix 1 to this Annex) described below that is tested, ready for operations and already used by other Navies/Coast Guards.

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4.10. Military Message Handling module specific requirements, seen as a core functionality of the Naval fleet C2 subsystem are listed in Appendix 2 to this Annex.
4.11. Tentative Naval fleet C2 subsystem architecture is provided in Appendix 3 to this Annex.

5. Hardware requirements:

5.1. Requirements for servers:
5.1.1. The Supplier shall provide server systems that shall comprise of one or more servers providing information collection, processing, storing and dissemination functions, rack cabinets, networking, keyboard video mouse and uninterruptable power supply equipment as detailed further herein.
5.1.2. Total amount of server systems required – as deemed necessary to fulfill requirements of the Naval fleet C2 subsystem.
5.1.3. Server systems shall be configured to operate as hot standby, that is if one of the systems fails, the other shall replace it automatically (without any operator or administrator action) not later than after 5 seconds.
5.1.4. Every server in the server system shall have no less than 2 hot swappable power supplies.
5.1.5. Hard drives in each server of the system shall be configured to function as RAID-5 array with one additional hot swappable spare disk.
5.1.6. Provided servers shall be tested by the supplier before the delivery. Server performance shall meet the optimal requirements set by the software manufacturer and third party software manufacturer.
5.1.7. Network interface in the servers shall support 1000Base-TX.
5.1.8. Server unit case must be of rack mountable type.
5.1.9. Requirements for server rack cabinet:
5.1.9.1. Grounding bus.
5.1.9.2. Integrated fan cooling unit including thermal sensor.
5.1.9.3. Internal height not less than 42U (applicable only for static Naval fleet C2 subsystem installation instance), for mobile Naval fleet C2 subsystem installation instance- has to be confirmed after site survey.
5.1.9.4. Including network switch with the following requirements:
5.1.9.5. Compatible with Cisco IOS;
5.1.9.6. No less than 2 1000Base-T ports;
5.1.9.7. No less than 24 fiber optic ports (applicable only for mobile Naval fleet C2 subsystem installation instance);
5.1.9.8. No less than 48 fiber optic ports (applicable only for static Naval fleet C2 subsystem installation instance);
5.1.9.9. Supporting VLANs, Trunks, QoS;
5.1.9.10. Manageable in SSH, Telnet, Web, Direct Serial interfaces;
5.1.9.11. Certified as EAL4 or higher in accordance to ISO/IEC 15408 Common Criteria's.
5.1.10. Including network router with the following requirements:
5.1.10.1. Compatible with Cisco IOS;
5.1.10.2. Not less than 2 integrated 10/100/1000 Base-T ports;
5.1.10.3. Not less than 4 10/100/1000 Baste-T type switched ports;
5.1.10.4. Not less than 2 SFP ports;

5.1.10.5. No less than 512MB DRAM memory;
5.1.10.6. No less than 256MB FLASH type memory;
5.1.10.7. Certified as EAL4 or higher in accordance to ISO/IEC 15408 Common Criteria's;
5.1.10.8. Supporting IPv4, IPv6, RIPv2, OSPF, BGPv4, Static, NAT, QoS;
5.1.10.9. VPN supporting IPSec, L2TP. Encryption: AES128, AES256, 3DES.
5.1.11. Including Keyboard Video Mouse unit:
5.1.11.1. KVM unit must have integrated KVM switch be able to be connected to not less than 4 servers;
5.1.11.2. Keyboard layout – QWERTY;
5.1.11.3. Video signal interface VGA, keyboard and mouse interface – USB;
5.1.11.4. Integrated touchpad for mouse manipulation;
5.1.11.5. KVM height no more than 1U;
5.1.11.6. Wire grounding;
5.1.11.7. Indicator with active KVM connection.
5.1.12. Including Uninterruptable Power Supply:
5.1.12.1. Rack-mountable case type;
5.1.12.2. UPS type: On-Line;
5.1.12.3. Input voltage and frequency: 230V/50Hz;
5.1.12.4. Input Connection: IEC 320 C20 type;
5.1.12.5. Output voltage and frequency: 230V/50Hz;
5.1.12.6. Output power capacity not less than 2700KWatts/3000 VA;
5.1.12.7. Output voltage distortion less than 2%;
5.1.12.8. Output Connections: not less than 7 of IEC 320 C13 type;
5.1.12.9. Wave type: sine wave;
5.1.12.10. Bypass: automatic and manual;
5.1.12.11. Estimated runtime on full load not less than 4 min;
5.1.12.12. Wire grounding;
5.1.12.13. Case height no more than 3U.
5.1.13. Power strip 1U:
5.1.13.1. Containing not less than 8 C13 type power supply sockets;
5.1.13.2. Horizontal rack-mountable type;
5.1.13.3. Height no more than 1U;
5.1.13.4. Providing maximum not less than 10Ampere;
5.1.13.5. Illuminated power switch;
5.1.13.6. Wire grounding;
5.1.13.7. C14 type plug.
5.1.14. The server rack cabinet must be certified in accordance with NATO SDIP 27/1 level B standard and approved certificate shall be provided.
5.1.15. For static Naval fleet C2 subsystem installation instance server rack has to have minimum of 24 external fiber optical connections.
5.2. Workstations for Static Naval fleet C2 subsystem:
5.2.1. Number of workstations – 6.

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5.2.2. Each workstation shall have two monitors of at least 24 diagonal screen-sizes, at least 1920x1080 pixels resolution and shall comply with the TCO'03.

5.2.3. The keyboards shall be of U.S. layout.

5.2.4. The mouse shall be optical with a scrolling wheel.

5.2.5. Network interface shall support fiber optic network.

5.2.6. The set of computer unit must be certified in accordance with NATO SDIP 27/1 level B Standard and approved certificate must be provided.

5.2.7. The workstations shall be tested by the provider before the delivery. Workstation performance shall meet the optimal requirements set by the software manufacturer and third party software manufacturer.

5.2.8. Naval fleet C2 subsystem software shall be installed and ready for use before delivery.

5.2.9. The efficiency of workstations shall meet the optimal requirements set by the software manufacturer and the third parties. When using the full functionality of the workstation, the CPU usage shall not exceed 30%.

5.2.10. The noise of computers in the idle mode shall not exceed 30 dBA. The Supplier shall provide a manufacturer's noise declaration in accordance with ISO 7779 or ISO 9296, or a noise declaration of a certified test centre in accordance with ISO 7779 or ISO 9296.

5.2.11. The Purchaser estimates that basic Static Naval fleet C2 subsystem shall have at least 6 Workstations that will be deployed in Lithuanian Navy HQ and Communication Center. The provided solution shall allow for the further expansion to up to 24 workstations connected to the same servers and has to include interfacing with systems described in this ANNEX to Part I to Technical Specification.

6. Sensor integration:

6.1. The Supplier shall ensure proper interconnection of Naval fleet C2 subsystem static installation instances with SSIS, by using Cross Domain Solution (will be provided by the Purchaser). Functional check and appropriate demonstration is to be provided during Naval fleet C2 subsystem acceptance process.

6.2. The Supplier is responsible for proper interconnection of Naval fleet C2 subsystem mobile installation instances and following on board sensors of afloat platforms:

6.2.1. navigational radar (ARPA data string);

6.2.2. DVL;

6.2.3. GPS/DGPS;

6.2.4. gyro;

6.2.5. AIS;

6.2.6. anemometer;

6.2.7. TDL (LINK 11).

6.3. The Supplier is responsible for proper interconnection of existing radio equipment in Lithuanian Communications Center and afloat platforms to corresponding Naval fleet C2 subsystem static and mobile installation instances.

6.4. Detailed information necessary for interfacing of sensors and radio equipment could be obtained during site survey before submitting proposal.

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7. Software requirements:

7.1. Naval fleet C2 subsystem main functionality:

7.1.1. The Naval fleet C2 subsystem shall be capable of multi-sensor/multi-source fusion and tracking.

7.1.2. The Naval fleet C2 subsystem shall continuously receive data from SSIS and complement the internal data in accordance with defined rules. Only processed track data is to be received by Naval fleet C2 subsystem. No radar video data is required.

7.1.3. Naval fleet C2 subsystem shall be capable to provide information to classified information systems (i.e. NATO Maritime Command and Control Information system (MCCIS)) through the use of OTH-T GOLD or ADatP-3 (current version) messages. The messages sent to classified information systems shall contain data of Naval fleet C2 subsystem tracks defined by the operator created filters as mentioned in the para 12.

7.1.4. Naval fleet C2 subsystem shall provide data/information acquisition, processing, display and storage functions.

7.1.5. The provided server systems shall provide data to end users for display.

7.1.6. GIS display shall be the main end user working environment to be used for displaying tracks and surveillance functions.

7.1.7. Naval fleet C2 subsystem shall enable the operator(s) to access only the functionality and data they are authorized by the administrator.

7.1.8. The Naval fleet C2 subsystem shall have a modern flexible software architecture that ensures Core Functionalities required for Situational Awareness as a backbone of basic software package and an easy extensions and upgrades by acquisition of additional software applications that facilitate other needs such as organizational messaging and support tools for operational needs.

7.2. Operating system and software licensing:

7.2.1. Naval fleet C2 subsystem licensing policy shall allow purchase of either corporate or single licenses.

7.2.2. All operating system licenses shall be part of Naval fleet C2 subsystem provision and responsibility of Supplier.

8. Data input and output standards:

8.1. The Naval fleet C2 subsystem shall be capable of importing and exporting data via:

8.1.1. serial RS-232 or RS-422;

8.1.2. Ethernet using TCP/IP, UDP Multicast or Broadcast.

8.1.3. NMEA-0183 (standard sensor data strings ARPA, AIS, GPS, Gyro, Log, Anemometer, data feeds from other Information Systems provided in NMEA-0183 format);

8.1.4. DDS data feed;

8.1.5. Military Data Link (Link-1, Link-11, Link-16, Link-22, JREAP-C) (all supported by Networked Interoperable Real-time Information Services (hereinafter - NIRIS), thus if NIRIS feed is available, Naval fleet C2 subsystem shall be capable to process data received);

8.1.6. NATO Vector Graphics (NVG);

8.1.7. NFFI (NATO Friendly Force Information STANAG 5527);

8.1.8. OTH-T Gold (JUNIT, CTC, XCTC, POS);

8.1.9. ADatP 3;

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8.1.10. NATO TIDE Protocol Suite;
8.2. Media formats supported by the Naval fleet C2 subsystem:
8.2.1. Audio Codecs: G.711, G.729;
8.2.2. Video Codecs: MJPEG; H.264; MPEG-4.

9. GIS functionality:

9.1. GIS shall be implemented as a part of Naval fleet C2 subsystem that captures, stores, manages and presents spatial and geographical data.
9.2. Digital geographic data should be presented as raster images and/or as vectors, allowing operators to display both types of data on top of each other. Operators shall be able to select exactly what geographic data they want to use, and how they want it to be displayed.
9.3. The GIS shall be capable of fusing imagery and vector data (e.g. by transparency, or overlapping) in order to display them at the same time.
9.4. GIS data shall be used as a background to display all data on the workstation. The operator shall be provided with the functionality to select different layer(s) for display on his workstation.
9.5. GIS shall allow to search for S57/S52/S63 symbols by e.g. Lighthouse or Geographical name.
9.6. GIS shall provide possibility to display data contents on chosen object from S57/S52/S63 charts.
9.7. GIS shall support following electronic chart formats:
9.7.1. IHO S/57, S/52, S/63 data protection scheme;
9.7.2. Raster Navigation Charts (RNC) data;
9.7.3. ESRI Shapefiles;
9.7.4. JPEG-2000 (Aerial imagery);
9.7.5. GeoTIFF;
9.7.6. OGC WMS;
9.7.7. OGC KML.
9.8. GIS shall be capable of exporting data of operational picture to other information systems using OGC-WMS and KML format.
9.9. Administrators shall be able to import supported electronic charts into the Naval fleet C2 subsystem.
9.10. The Supplier is responsible for providing GIS data and its licenses (if required) to display world overview (including boundaries of the countries).

10. Graphical User Interface (GUI) requirements:

10.1. The language of the GUI of provided Naval fleet C2 subsystem software and operating systems shall be either English or Lithuanian.
10.2. The operator GUI shall be customizable and be able to represent tracks and other information (e.g. meteorological data, etc.) on top of the GIS background.
10.3. GUI shall allow multi-window and multi-screen operations and enable the operator to simultaneously monitor situation in separate geographical areas displayed on separate physical monitors (multi-screen) with different zoom and visualization options.
10.4. The GUI shall enable the operator to dock the application windows and it shall be possible to create operator defined window layouts of the docked application windows.

10.5. GUI shall NOT use dialog boxes (windows) that interrupt the work of the operator. Critical information shall be presented to the operator using a built-in alarm system. The alarms have to be prioritized by the administrator.

10.6. Display modes:

10.6.1. The GUI shall provide possibility to display GIS and operational data in 2D format.

10.6.2. The GUI shall support display ranges from 0,25 nm to 3072 nm.

10.6.3. The GUI shall support at least North Up presentation.

10.6.4. The GUI shall support both True Motion and Relative Motion (specifically on mobile C2 installations).

10.7. Color Schemes:

10.7.1. The GUI shall support color schemes appropriate for use in Day, Dusk and Night conditions.

10.7.2. It shall be possible for administrator to edit the colors in the different display settings.

10.7.3. The color schemes shall apply to all application windows.

10.8. Symbology and labeling:

10.8.1. The GUI shall use track display symbology as listed in Track management part.

10.8.2. The GUI shall use S52 chart symbology.

10.8.3. The GUI shall allow operator to choose what track data will be displayed within the track label.

10.9. The GUI shall have following units implemented:

10.9.1. distance - nautical miles, meters, kilometers, yards;

10.9.2. speed - knots, km/h, m/s.

10.10. The GUI shall have following grids and other reference systems implemented and allow easily accessible choice between the options:

10.10.1. Latitude, Longitude (in at least following format: DD MM,MMMM N/S DDD MM,MMMM E/W) – target/cursor position to be displayed respectively;

10.10.2. UTMS – target/cursor position to be displayed respectively;

10.10.3. MRGS;

10.10.4. Tactical grids:

10.10.4.1. General Operational Grid – target/cursor position to be displayed respectively;

10.10.4.2. 4W;

10.10.4.3. 2W;

10.10.4.4. SCREEN KILO (this one is to be available to be fixed on a moving target);

10.10.4.5. Other operator defined grids.

10.10.5. Reference points – functionality to measure bearing and range from the reference point shall be available.

10.11. Layers:

10.11.1. The Naval fleet C2 subsystem shall be based on the layer principle, where operator can easily define specific layer to be displayed and use it for NVG drawings.

10.11.2. The Naval fleet C2 subsystem shall allow importing/exporting the layer graphics in NVG format.

10.11.3. The Naval fleet C2 subsystem shall not limit amount of layers that can be used.

10.11.4. The Naval fleet C2 subsystem shall allow operator to turn ON/OFF various information layers and control the content of each layer.

10.12. The GUI shall provide the operator the possibility to define filters for track display based on different track attributes and easy way of displaying designated layers with graphical information.
10.13. The Naval fleet C2 subsystem shall provide following tools:
10.13.1. The Naval fleet C2 subsystem shall give bearing / distance line between two targets, between a target and position or between two points on the operator GUI. Bearing/distance line should be updated upon each update of the target, if one or both end-points are target-related. Label on bearing / distance lines should specify: angle in degrees, distance between positions (in selected measurement units).
10.13.2. Naval fleet C2 subsystem shall enable the use of range rings that shall originate from the selected active reference object or the track.
10.13.3. The Naval fleet C2 subsystem should be capable of calculating and displaying Closest Point of Approach (CPA) and Time to the Closest Point of Approach (TCPA) between two targets or between a fixed point and a target.
10.13.4. The Naval fleet C2 subsystem should be capable of displaying a predicted track of target on the basis of the target position, bearing and speed for the time-period pre-set by operator.
10.13.5. The Naval fleet C2 subsystem shall support the use of reference object. It should be possible to mark any given point (by cursor on chart or predefine by coordinates) on chart or track as a reference object.
10.13.6. The Naval fleet C2 subsystem should ensure geographical position tool, which enables operator to see the cursor`s: precise coordinates, distance/bearing from selected reference object.
10.13.7. The Naval fleet C2 subsystem should enable the operator to mark a position (by cursor on chart or predefine by coordinates) on the operator GUI.
10.13.8. The Naval fleet C2 subsystem should be equipped with a positioning tool, which enables an operator to find geographical position by manually entering geographical coordinates or distance/bearing from predefined reference object. The chart screen shall be centered on exact spot and marked by an easy recognizable symbol.
10.13.9. The Naval fleet C2 subsystem shall provide interception tool, which allows calculating interception of the target.
10.13.10. The Naval fleet C2 subsystem shall support the use of pointers that may be transmitted and shared with other selected workstations.
10.14. The Naval fleet C2 subsystem shall support hardcopy printout of the active GUI window using the printing services that are provided by the operating system of the operator workstation.
10.15. The Naval fleet C2 subsystem shall enable the operator to save the active GUI window (print screen functionality) on the file-system of the operator workstation.
10.16. Naval fleet C2 subsystem shall allow use of other software on the same workstations, such as Microsoft Sharepoint, Microsoft Office, Acrobat Reader.
10.17. Naval fleet C2 subsystem shall support copy&paste functionality from Naval fleet C2 subsystem's windows for import in Microsoft Office documents.
10.18. Operator Preferences:
10.18.1. The Naval fleet C2 subsystem operator shall be able to customize his working environment.
10.18.2. The Naval fleet C2 subsystem operator shall be able to select the presentation of track using a variable track symbol size.

10.18.3. The Naval fleet C2 subsystem operator shall be able to select the presentation of the track label using different fonts.
10.18.4. The Naval fleet C2 subsystem operator shall be able to define different layouts of the GUI. The layouts shall store the default and pre-selected dimension and position of the various windows and the chart layers selected as active.
10.18.5. The Naval fleet C2 subsystem operator shall be able to define several pre-selected layouts.
10.18.6. It shall be possible to zoom and pan on the chart using fast and simple mouse movements.

11. Radar data processing. No radar data processing is required for Naval fleet C2 subsystem. Level of radar integration on mobile Naval fleet C2 subsystem installation instances on board of the ships shall be limited to ARPA data string interface.

12. Filtering of data feeds to external Information systems:
12.1. The Naval fleet C2 subsystem shall have filtering functionality, providing the administrator with the possibility to decide what specific tracks/information shall be exported/provided to external information systems.
12.2. The Supplier shall implement filtering functionality in Naval fleet C2 subsystem as an additional module. It shall be compatible with current version and future updates of components of Naval fleet C2 subsystem.
12.3. The filtering module has to be delivered as a set of all the licenses, materials and Software programming, integration into the Naval fleet C2 subsystem and configuration, needed to create the Software and integrate it into the Naval fleet C2 subsystem.
12.4. The Supplier has to integrate the filtering module into the Naval fleet C2 subsystem. The final version of the information filtering module graphics interface and functionality has to be endorsed and commissioned by the Purchaser.
12.5. Administrative personnel using the Naval fleet C2 subsystem shall be able to create the filtering rules on tracks transmitted to other information systems.
12.6. The software components of filtering module shall have the same GUI.
12.7. Tracks shall be filtered by following parameters listed in the Naval fleet C2 subsystem track data window or combination of these:
12.7.1. Classification
12.7.2. Type
12.7.3. Ships type and class
12.7.4. MMSI number
12.7.5. International Call Sign
12.7.6. Flag
12.7.7. Geographic position (creating geographical fields and polygons where filters would be active)
12.8. In defining of filtering parameter use of "Wild card" shall be implemented (* - meaning any symbol at any place, ? - meaning any symbol in the defined place)
12.9. Each filtering parameter shall have possibility to use AND/OR and IS/IS NOT function.
12.10. Creation of the filtering rules must be allowed only to administrative personnel (eg. password protected access).

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12.11. Filtering rules shall allow choosing ON and OFF option of their validity time. In case of active validity time option it shall be allowed to create filtering rules in advance and automatically turn them on and off within the validity time frame.
12.12. Each filtering rule shall have possibility to apply this rule to certain (one or multiple) user (user in this case understood as other information system(s), webserver user(s), Operator Workstation(s)).

13. Shipping database functionality:
13.1. Naval fleet C2 subsystem static installation instance shall have internal Shipping database which is designated to provide operator with information on request.
13.2. The database system shall have an open interface such as Open Database Connectivity (ODBC) or Java Database Connectivity (JDBC) and be fully interoperable with SSIS Vessels Database.
13.3. The Shipping database of Naval Fleet C2 subsystem shall have possibility to import Vessels database data from the SSIS and compliment/replicate existing data in accordance with pre-defined rules.

14. Track management functionality:
14.1. The Naval fleet C2 subsystem shall have capability of processing at least 20000 targets simultaneously.
14.2. The Naval fleet C2 subsystem shall automatically assign each track a unique tracking number and continue to utilize this identification until the end of tracking (automatically lost by the Naval fleet C2 subsystem after pre-defined time or dropped by the operator).
14.3. The Naval fleet C2 subsystem shall be capable of collection of track data from various integrated sensors and/or sources, processing and display of managed track data on chart.
14.4. The track management service shall be capable of conducting track processing of received source and outputting results without delay.
14.5. The Naval fleet C2 subsystem shall provide linkages between actual track and its data (including video, still images etc.) from databases (applicable only for static Naval fleet C2 subsystem installation instance).
14.6. The Naval fleet C2 subsystem shall provide operator possibility to perform search of tracks based on all track attributes (e.g. name, call sign and MMSI etc.), recorded within the Naval fleet C2 subsystem.
14.7. The Naval fleet C2 subsystem shall provide operators with functionality that allows assigning of a category and a threat level with corresponding colour to every tracked track. The Naval fleet C2 subsystem shall automatically assign each new track to unknown category and unknown threat level by default.
14.8. Each category shall have a corresponding graphical representation. At least the following categories (and their abbreviations) shall be implemented in the Naval fleet C2 subsystem:
14.8.1. Air (AIR);
14.8.2. Land (LND);
14.8.3. Subsurface (SUB);
14.8.4. Surface (SUR);
14.8.5. Unknown (UNK);
14.8.6. Space (SPC).

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14.9. The following threat levels (and their abbreviations) with corresponding colour visualization shall be implemented in the Naval fleet C2 subsystem:

14.9.1. Friendly (FRO) – cyan;

14.9.2. Hostile (HOS) – red;

14.9.3. Neutral (NEU) – green;

14.9.4. Assumed friendly (AFD) – cyan;

14.9.5. Suspect (SUS) – red;

14.9.6. Unknown, Evaluating (UNK) – yellow;

14.9.7. Pending (PND) – yellow;

14.9.8. Joker (JOKER) – red;

14.9.9. Faker (FAKER) – red.

14.10. The Naval fleet C2 subsystem operator should be able to specify one of these Track Identification levels:

14.10.1. 0= PENDING: there is no identity available;

14.10.2. 1= AIS ONLY: the identity is based on received AIS only;

14.10.3. 2= AIS CONFIRMED: the identity is based on received AIS and confirmed by other means;

14.10.4. 3= CERTAIN: the identity is based on visual identification.

14.11. Pending Track Identification level shall be automatically assigned to all new tracks by default.

14.12. The Naval fleet C2 subsystem shall provide operators with functionality that allows assigning of a ship type to every tracked track. The Naval fleet C2 subsystem shall automatically assign each new track to unknown ship type by default.

14.13. Implemented ship types (and their abbreviations) have to correspond to NATO standardization agreement "STANDARD SHIP DESIGNATOR SYSTEM" (STANAG N° 1166) in latest edition.

14.14. The Naval fleet C2 subsystem shall provide operator with functionality to create new tracks, edit existing tracks, track categories, their graphical representation, threat levels, their color indicators, ship symbols and save them within the Naval fleet C2 subsystem with the functionality to protect them from accidental deletion/alteration.

14.15. Track fusion and correlation:

14.15.1. The Naval fleet C2 subsystem shall be capable of correlating tracks from different sources that share common spatial and movement patterns within pre-set limits.

14.15.2. The Naval fleet C2 subsystem shall be able to present tracking information obtained from several sources (sensors, systems, etc.) simultaneously. All data about single track must be fused and represented as a single track. The information about sources tracking the track must remain associated with the track.

14.15.3. The Naval fleet C2 subsystem shall allow control the behavior of the track fusion module with adjustable parameters and enable the operator from his GUI to fuse or un-fuse (i.e. if radar and AIS tracks are fused the Naval fleet C2 subsystem shall be able to present the different track components of the track) the track which is tracked by several sources.

14.16. Track display:

14.16.1. The Naval fleet C2 subsystem shall present all tracks by symbols corresponding to these requirements:

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14.16.1.1. MIL STD 2525B (or later edition) "Military Standard for Common Warfighting Symbology".

14.16.1.2. APP-6C (or later edition) "NATO Joint Military Symbology".

14.16.2. The Naval fleet C2 subsystem shall fulfill these track visualization requirements:

14.16.2.1. The Naval fleet C2 subsystem shall enable the operator to show or hide the defined track groups (by track categories, threat level, source, etc.).

14.16.2.2. The Naval fleet C2 subsystem shall enable the operator to show or hide the unique track number.

14.16.2.3. The Naval fleet C2 subsystem shall enable the operator to show or hide the name of the track.

14.16.2.4. The Naval fleet C2 subsystem shall enable the operator to show or hide the current position, course and speed.

14.16.2.5. The Naval fleet C2 subsystem shall allow the operator to show or hide target threat level, target notification level, track identification level.

14.16.2.6. The Naval fleet C2 subsystem shall allow the operator to show or hide the additional information entered by operator as a label.

14.16.2.7. The Naval fleet C2 subsystem shall allow the display the sensor/origin system of the track associated with the label.

14.16.2.8. The Naval fleet C2 subsystem shall be able to conduct track label de-confliction (i.e. be able to automatically move the labels so that they will not overlap with other labels on the screen).

14.16.2.9. Operators shall be able to select which symbols will represent tracks on chart, as well as adjust the size, coloring and decoration of the symbols.

14.16.2.10. Operator shall be able to choose what labels shall be displayed.

14.16.2.11. It shall be possible to show or hide track history information on the chart. The operator shall be able to select from the following options:

14.16.2.11.1. no track history shall be presented;

14.16.2.11.2. track history - creating trace plots. Trace plots have to be presented in time intervals selected by operator.

14.16.2.12. The Naval fleet C2 subsystem shall enable the operator to select the prediction vector length of the vessels using pre-defined time intervals.

14.16.2.13. The Naval fleet C2 subsystem shall visualize in exceptional manner the track symbol/label if track anomaly is detected.

14.17. Manual track management functionality:

14.17.1. The Naval fleet C2 subsystem shall ensure that the recognition information provided from different sources and on the same tracks is rendered at operators' workstations to one track.

14.17.2. In the case when different information sources provide different track identification data about the fused track- Naval fleet C2 subsystem shall warn (i.e. highlight the track) the operator that there is an ambiguity of data. The operator shall choose which identification data is superseding (to be used as true) in case of ambiguous data is received. It should be possible to retrieve information earlier overwritten in case of operator mistake.

14.17.3. Operator shall be able to assign a category and a threat level with corresponding color IAW available symbology schemes.

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14.17.4. The Naval fleet C2 subsystem shall allow operator to create simulated tracks. It shall be possible to attach simulated tracks to a route and have the simulated track follow the route using dead reckoning. The operator should be capable of updating the simulated track position, course, speed, identification, etc.

14.18. Track data recording. The Naval fleet C2 subsystem shall record at least the following track history and identification data:

14.18.1. unique track number generated by Naval fleet C2 subsystem;

14.18.2. timestamped positions/course/speed of track from acquiring until drop;

14.18.3. data source (as example: radar id, information system id);

14.18.4. vessels Name;

14.18.5. Call Sign;

14.18.6. International Maritime Organization Number;

14.18.7. Maritime Mobile Service Identity;

14.18.8. vessels Flag;

14.18.9. ship type;

14.18.10. other identification data (entered by operator if vessels name, call sign and etc. are not available);

14.18.11. username of the operator that manipulated (merged, split, dropped, identified, etc.) the track.

15. Alarm functionality:

15.1. The Naval fleet C2 subsystem shall be able to categorize alarms as:

15.1.1. operational - alarms that are raised because the track is breaking the predefined rules set by the operator;

15.1.2. technical - alarms that are raised because of malfunctions or errors in the Naval fleet C2 subsystem or its sensors;

15.2. Operational Alarms:

15.2.1. The Naval fleet C2 subsystem shall have automatic alerting functions to warn the operator when potentially dangerous navigational situation with track occur, in case of Naval fleet C2 subsystem failure or a sensor error. Alarms also have to be created if anomaly with track is observed.

15.2.2. It shall be possible to pre-define warnings for operators based on different criteria. In general, predefinition criteria as a minimum shall include:

15.2.2.1. any track movement related to other moving tracks;

15.2.2.2. rack movement related to the operational chart layer;

15.2.2.3. track data discrepancy.

15.2.3. It shall be possible to raise alarms based on vessel identifications e.g. alarms may apply only to vessels carrying dangerous cargo.

15.2.4. The Naval fleet C2 subsystem shall enable the use of route based alarm conditions such as:

15.2.4.1. Speed low and high

15.2.4.2. Arrival at a specified Way Point

15.2.4.3. Sudden change of course

15.2.5. The Naval fleet C2 subsystem shall enable the use of track based alarms such as:

15.2.5.1. Anchor alarm

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15.2.5.2. Lost track alarm, etc.

15.3. Technical Alarms

15.3.1. The Naval fleet C2 subsystem shall be able to generate alarms regarding key components and sensors. Alarms shall be based on these conditions:

15.3.2. Status of the communication to Naval fleet C2 subsystem component or sensor;

15.3.3. Status of the data provision;

15.3.4. Malfunctions in Naval fleet C2 subsystem component;

15.3.5. Technical alarms shall be indicated in a different fashion within the GUI as other alarms.

15.4. Alarming the operator shall be configurable at least by operator roles or workstation role. Operators should receive only those alarms that are relevant for the selected operator role.

15.5. Operators or operator working positions shall be able to subscribe to selected alarm data based on the operational role of the operator or the pre-defined workstation role.

15.6. Alarm information shall clearly display the source ID of the alarm (i.e. track name, site name, etc.) and if available indicate a geographic position.

15.7. It shall be possible for an operator to locate (pan to) the geographical coordinate of the alarm using one key press.

15.8. The operator GUI shall be able to clearly indicate the alarm using both audio and visual means. Audio and visual means of indication must be configurable (ON/OFF). Visual indication of the alarm shall be configurable either as pop-ups or separate windows. Pop-up window on the workstation screen has to remain active until the operator's acknowledgment.

15.9. The alarm functionality shall be able to be configured to sound a continuous alarm.

15.10. The presentation of a track that has an active alarm shall be clearly indicated.

15.11. It shall be possible for an operator to acknowledge, suspend an alarm and make a query on the alarm information.

15.12. All raised alarms disregarding of their category shall have one of the following status:

15.12.1. Active- if source causing the alarm is active;

15.12.2. Non-active- if condition causing the alarm has been fixed/resolved.

15.13. The status of the alarm information shall be color-coded.

15.14. Alarms shall be stored in to an alarm database.

15.15. The stored alarm information shall contain:

15.15.1. the alarm id;

15.15.2. time of the alarm;

15.15.3. alarm text;

15.15.4. time of clearance;

15.15.5. username of operator that acknowledged the alarm.

15.16. It shall be possible to export stored alarm information at least to the text file.

16. Data logging and archiving:

16.1. Data logging must not affect usual functionality of the other Naval fleet C2 subsystem components.

16.2. All records must be time stamped by the Naval fleet C2 subsystem time.

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16.3. Data logging shall be performed on physically separate hardware solution (applicable only for static Naval fleet C2 subsystem installation instance) with enough hard drive storage space to store at least 30 days of track data. No raw radar video is to be stored.

16.4. Data logging hardware solution must be equipped with optical drive supporting CD-R/CD-RW/DVD±R/DVD±RW and dual layer DVD±RW discs.

16.5. The Naval fleet C2 subsystem shall allow storage capacity extension using COTS storage solutions without any need for additional software updates/upgrades.

16.6. The Naval fleet C2 subsystem shall store the data in partitions organized either per daily, weekly or monthly basis. The Naval fleet C2 subsystem shall store partitions until the disk-space on the designated drive is filled. The Naval fleet C2 subsystem shall be capable to operate in "overwrite" fashion where the Naval fleet C2 subsystem is automatically able to overwrite the oldest information and to continue the logging.

16.7. The Naval fleet C2 subsystem shall have possibility to transfer stored partitions to external storage media.

16.8. The Naval fleet C2 subsystem shall provide a management tool that enables analysis of traffic density within a certain time-span.

16.9. It shall be possible to restrict access to the configuration of the logging parameters only to the administrators.

16.10. The Naval fleet C2 subsystem shall allow for redundant data logging, ensuring that all recordable data will not be lost at any case (hardware/software malfunctions, data storage breakdowns, etc.) and will be available for future replay.

16.11. The Naval fleet C2 subsystem shall support two types of data logging:

16.11.1. Track logging;

16.11.2. Event logging.

16.12. Track logging requirements. The Naval fleet C2 subsystem shall be able to record at least the following data:

16.12.1. Track data (name, unique tracking number, track acquisition, track recognition, track loss, data source, category, threat level, ship type).

16.12.2. Username of the operator that manipulated the track and sensor and manipulation type (editing the data, changing parameters, etc.).

16.12.3. Meteorological data.

16.13. The Naval fleet C2 subsystem shall be able to record the following event logging data:

16.13.1. Naval fleet C2 subsystem /network elements ON/OFF and restart;

16.13.2. Operator successful and unsuccessful attempts to logon/logout;

16.13.3. the changes of users/user groups permissions to use Naval fleet C2 subsystem resources;

16.13.4. the logging ON/OFF;

16.13.5. any attempt to change, edit, create or delete the logging records;

16.13.6. any unauthorized attempt to use access the Naval fleet C2 subsystem data;

16.13.7. the change of the date and/or time;

16.13.8. alarms, described in Alarm functionality part.

16.14. Each Naval fleet C2 subsystem /network logging event record shall provide at least such data:

16.14.1. The type of event;

16.14.2. Date and time;
16.14.3. Data of the operator;
16.14.4. Event description.
16.15. Naval fleet C2 subsystem event logging data shall be viewable for the administrative personnel. The administrators shall have the functionality to:
16.15.1. Search and sort the logged data by attributes.
16.15.2. Create the reports by earlier performed searches and sorting;
16.15.3. Print, or save the created reports to external media.

17. Anomaly detection:

17.1. Anomaly detection module is intended to reduce the operator workload and response time.
17.2. Administrative personnel shall be able to create the anomaly detection rules on Naval fleet C2 subsystem tracks by various parameters i.e. IMO number, MMSI number, international radio call sign, ship's type, flag, source/sensor type, target's class, ship's length, ship's beam, ship's draught, course, speed.
17.3. The anomaly detection functionality must include at least these anomaly detection ways:
17.3.1. Ship provided data (i.e. AIS data) cross check with trusted static database information mismatch (applicable only for static Naval fleet C2 subsystem installation instance).
17.3.2. Ship declared status (ETA, ETD) not compliant with geographical feasibility.
17.3.3. Ships within operator created black-lists.
17.3.4. Limitation of anomaly detection for specific operator defined geographical area.
17.4. Anomaly detection functionality has to provide the operator with visual and audio alarm to abnormal tracks behavior and/or anomalies meeting the configured occasions (such as track being in the designated VOCI, VOI, COI, CCOI lists). The alarms triggered by anomaly detection have to be configurable by the administrators.

18. Data replay:

18.1. Logged data replay shall be implemented as a part of Naval fleet C2 subsystem that is able review the logged information for any selected time period.
18.2. The replay of a logged data shall not affect the logging and usual functionality of the other Naval fleet C2 subsystem components.
18.3. The operator GUI shall support the activation of replay of a selected time from operator workstation.
18.4. It shall be possible for administrators to allow or deny access for operators to replay functions.
18.5. The Naval fleet C2 subsystem shall be able and allow operators to replay recorded partitions stored on external media.
18.6. Replayed data should be displayed on the standard GIS interface, without the functionality for the information to be modified in any way.
18.7. The Naval fleet C2 subsystem shall provide operators functionality to review logged information on tracks in both graphical and text format with the support of data filtering based on track attributes.
18.8. The replay GUI shall allow the operator to fast forward, slow down and stop the replay as required. Replay shall enable the use of C2 navigational functions (CPA, ERBL, etc.), use of track

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visualization options and GIS manipulation (zoom in/out, show/hide radar video) during the replay of the logged data.

18.9. The Naval fleet C2 subsystem shall support the creation of multimedia video-audio clips and provision of printable report of selected moment in order to provide them to the authorities as an evidence of observed situation.

18.10. The Naval fleet C2 subsystem shall be able to replay at least the following data:

18.10.1. Track data (name, unique tracking number, track acquisition, track recognition, track loss, data source, category, threat level, ship type).

18.10.2. Meteorological data.

18.11. During the replay an operator shall be able to conduct at least the following queries in the logged information:

18.11.1. Queries defined by a time interval;

18.11.2. Queries defined by any track attributes.

19. Training Requirements

19.1. The supplier shall train at least 4 (four) future operators and at least 2 (two) future administrators of the Naval fleet C2 subsystem identified by the Purchaser. All of the training shall be performed in either English or Lithuanian in the work place of the identified personnel not more than one month after the Naval fleet C2 subsystem had been deployed, but before Site Acceptance Test. The training shall be designed to provide the operators with sufficient knowledge and understanding to operate the Naval fleet C2 subsystem and administrators to maintain and manage it.

19.2. After training administrators shall be able to use Naval fleet C2 subsystem and user management functionalities without any restrictions.

20. Documentation requirements:

20.1. Naval fleet C2 subsystem shall be provided with a set of documentation in either English or Lithuanian that shall:

20.1.1. describe Naval fleet C2 subsystem architecture and it's operation (booklets, certificates, capabilities of different modules);

20.1.2. describe all of the required interfaces and applications to receive/exchange information from the sensors (radars, AIS, Tactical Data Links) and other Information Systems;

20.1.3. document all of the required installation and maintenance procedures in sufficient detail to be carried out by the Naval fleet C2 subsystem staff;

20.1.4. include internal information flows and interfaces for national accreditation processes;

20.1.5. include maintenance manuals;

20.1.6. include procedures for software update, unless provided separately with the update.

21. Installation:

21.1. The supplier shall install all of the Naval fleet C2 subsystem hardware and software after consulting the Purchaser on the specific installation locations.

21.2. The Purchaser will provide existing data transmission network for transferring information within static locations and internal Naval fleet C2 subsystem components as well as within mobile Naval fleet C2

subsystem location. Interface – Ethernet 100BASE-TX and 100BASE-FX. Standard throughput at 100 Mbps. Throughput for secure lines will depend on crypto devices in place. Detailed information about the existing networks can be obtained during site survey.

21.3. The Supplier at its own cost and expense has to install any additional communication lines, equipment cabinets and computer network equipment at the software and hardware installation places if existing network is not sufficient enough to fulfil the requirements of this specification.

22. Acceptance:

22.1. In case of the development of functionalities listed in this Annex and Appendix 1 and 2 to this Annex is required, the Supplier shall involve Purchaser representatives into the Development and Factory Acceptance testing processes, thus allowing for timely input into the developed functionalities. Final acceptance for the newly developed modules shall be the on-site acceptance testing.

PURCHASER:
Lithuanian Armed Forces
Commander of Lithuanian Armed Forces
CPT (N) Arūnas Mockus

(signature)
L.S.

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LIETUVOS KARIUOMENĖ

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APPENDIX 1
TO ANNEX1 TO PART I
TO TECHNICAL SPECIFICATION FOR THE
UPGRADE OF THE SSIS AND TECHNICAL
SURVEILLANCE DEVICE SYSTEM

TECHNICAL SPECIFICATION OF ADDITIONAL MODULES OF NAVAL FLEET COMMAND AND CONTROL SUBSYSTEM

1. **Additional Workstation for Static Naval fleet C2 subsystem installation instance:**
   1.1. Each user workstation shall have two monitors of at least 24 diagonal screen-sizes, at least 1920x1080 pixels resolution and shall comply with the TCO'03.
   1.2. The keyboards shall be of U.S. layout.
   1.3. The mouse shall be optical with a scrolling wheel.
   1.4. Network interface shall support fiber optic network.
   1.5. The set of computer unit must be certified in accordance with NATO SDIP 27/1 level B Standard and approved certificate must be provided.
   1.6. The workstations shall be tested by the provider before the delivery. Workstation performance shall meet the optimal requirements set by the software manufacturer and third party software manufacturer.
   1.7. Naval fleet C2 subsystem software shall be installed and ready for use before delivery.
   1.8. The efficiency of workstations shall meet the optimal requirements set by the software manufacturer and the third parties. When using the full functionality of the workstation (monitoring the image provided by all integrated video sensors), the CPU usage shall not exceed 60%.
   1.9. The noise of computers in the idle mode shall not exceed 30 dBA. The Supplier shall provide a manufacturer's noise declaration in accordance with ISO 7779 or ISO 9296, or a noise declaration of a certified test centre in accordance with ISO 7779 or ISO 9296.
   1.10. All parts of the computer proposed (system unit, motherboard, RAM, monitor, etc., except for chip cards, mouse and keyboard) shall be manufactured by the same manufacturer and contain its trademark or it shall be indicated in the technical documentation.
   1.11. The provided solution shall allow for the further expansion to up to 24 workstations connected to the same servers and has to include interfacing with systems described in ANNEX1 to Part I to Technical Specification.

2. **Mobile Naval fleet C2 installation instance:**
   2.1. Mobile Naval fleet C2 installation instance shall comprise of required number of servers and of 2 workstations each that will be deployed on mobile ashore or afloat units. The installation instance shall allow for the further expansion to up to 10 workstations connected to the same servers. The delivery shall include interface with all required sensors on board of deployed vessels and vehicles. Max. number of intended purchase, would be installation instances for 9 ships, 2 mobile HQ vehicles and 3 Mobile Radar Stations.

2.2. Detailed hardware and software requirements for mobile installation instances are stated in ANNEX1 to Part I to Technical Specification, unless stated otherwise.

2.3. The version of the software used at mobile installation instance shall be the same as used by the Naval Fleet C2 subsystem.

3. Additional Workstation for Mobile Naval fleet C2 subsystem installation instance:

3.1. The version of the software used at workstation shall be the same as used by the Naval Fleet C2 subsystem mobile installation instance.

3.2. Each user workstation shall have a display of at least 15.6 diagonal screen size, at least 1920x1080 pixels resolution with image aspect ratio 16:9.

3.3. Interface for connecting external monitor or projector with VGA and Digital interface.

3.4. The keyboards shall be of U.S. layout with separate numeric keypad.

3.5. Touchpad for mouse pointer manipulation.

3.6. Network interface shall support 100Base-FX multimode fiber optic network interface.

3.7. The workstation must be certified in accordance with NATO SDIP 27/1 level B Standard and approved certificate must be provided.

3.8. The workstations shall be tested by the provider before the delivery. Workstation performance shall meet the optimal requirements set by the software manufacturer and third party software manufacturer.

3.9. Naval fleet C2 subsystem software shall be installed and ready for use before delivery.

3.10. The efficiency of workstations shall meet the optimal requirements set by the software manufacturer and the third parties. When using the full functionality of the workstation (monitoring the image provided by all integrated video sensors), the CPU usage shall not exceed 60%.

3.11. The proposed workstation shall be manufactured by the same manufacturer and contain its trademark or it shall be indicated in the technical documentation.

4. PKI (Public Key Infrastructure) security module description:

4.1. Corporate license for this module is to be provided. Only one license for the PKI management system administration is required, unless management function is inherent in the PKI module software.

4.2. PKI capability shall be fully integrated into the Naval fleet C2 subsystem.

4.3. Information within the subsystem (TDF/JMAP) shall be protected by software based access-tokens.

4.4. Subsystems PKI module shall support PKCS#11 Certificates and Integrated Token or Smart Card.

4.5. TDF Authentication to the Operating System shall use Kerberos.

4.6. PKI module shall support TLS/SSL AES-256 Encryption.

4.7. PKI shall support 2-way Certificate based Authentication.

4.8. Information on PKIs shall be stored in password based encrypted data sets.

4.9. PKI module shall have integrated LDAP/DAP Access Role.

4.10. PKI shall support encryption of messages circulated in the system.

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4.11. Subsystem's PKI module shall provide full access for system administrator to manage and configure PKI certificates.

4.12. It shall be possible to import PKI database via available communication means and external media (e.g. CD/DVD, USB storage).

4.13. The PKI security module shall be provided with all necessary equipment and training required for production of coding keys and smart cards within Purchaser's organization.

5. **Weather Analysis module functionality:**

5.1. Corporate license for this module is to be provided.

5.2. Purpose of Weather Analysis module shall be collection, storage, presentation and analysis of data from a range of various meteorological and hydrographical sensors and information systems.

5.3. Weather Analysis module software shall collect data from different weather data sources, process it and distribute across the system.

5.4. Weather and hydrographical data from unclassified sources, such as national meteorological services, shall be imported into SSIS Weather Analysis module and transferred to the Naval fleet C2 subsystem.

5.5. Weather Analysis module of the C2 subsystem shall be capable of receiving, processing and displaying meteorological and hydrographical information from mobile C2 subsystem instances via communication means available.

5.6. Following whether data protocols shall be supported by the module:

5.6.1. WMO GRIB;

5.6.2. ISAO METAR;

5.6.3. WMO SYNOPS;

5.6.4. Weather data via NMEA 0183.

5.7. Weather Analysis module shall store and process at least following environmental data:

5.7.1. Temperature (air, wind chill and water);

5.7.2. Wind direction and speed;

5.7.3. Water current direction and speed;

5.7.4. Air pressure;

5.7.5. Precipitation;

5.7.6. Humidity;

5.7.7. Sea state;

5.7.8. Visibility data;

5.7.9. Water depth;

5.7.10. Ice data.

5.8. Module shall provide possibility to enter environmental data manually, specifically the forecast data to be used for operational planning purposes.

5.9. Meteorological and hydrographic data shall be presented in an easy and comprehensible fashion.

5.10. Module shall have capabilities to display actual weather and hydrographical information from available sensors as well as retrieve, store and process such data from the past from the systems providing it.

5.11. Meteorological data shall be distributed within a subsystem by the communication means available.

5.12. Module shall display data in either main window or separate window that can be adjusted by the operator. Configuration includes size, visualization and sensor data to be displayed.

5.13. Weather Analysis module shall provide capability of viewing of meteorological and hydrographic data in a geographical fashion. This can be done in the main window by using different layers or separate window.

5.14. Weather Analysis module shall have capability to evaluate impact on the different operations based on environmental data available, including actual and forecast data.

5.15. Impact evaluation shall be based on the evaluation of environmental data available in the C2 subsystem and predefined criteria for different platforms and/or operations entered by the user.

5.16. The evaluated data shall be displayed in a comprehensible way using color coding (Green – No impact on operations/platform, Yellow – Limited impact on operations/platform, Red – Major impact on operations/platform, Grey – Platform doesn't have this operational capability). Both table view (platform/operation against time intervals) and geographical view (overlay on the chart) shall be implemented.

6. Order of Battle module functionality:

6.1. Corporate license for this module is to be provided.

6.2. Purpose of the Order of Battle (ORBAT) module is to enable the creation of the list of military assets and military Task Organization within the Naval fleet C2 subsystem.

6.3. ORBAT module shall have possibility to store operator entered units in a separate database.

6.4. ORBAT module shall support maritime, air and land units.

6.5. ORBAT module database shall be capable to import data from the Warship database and automatically populate all necessary fields once unit from Warship Database is added into the ORBAT. If data is not matching – operator choice shall be prompted.

6.6. ORBAT module shall have possibility to create exercise assets that can be manually mapped to the unit from the Warship database.

6.7. ORBAT database shall have at least following attributes:

6.7.1. Sort of the asset – Real life/Exercise;

6.7.2. Status of the asset (Fully operational, Limited, Non operational, Destroyed, Sunk)

6.7.3. Name – this attribute used for automated mapping with Warship database;

6.7.4. Flag;

6.7.5. IMO number;

6.7.6. MMSI;

6.7.7. International call sign;

6.7.8. Hull number;

6.7.9. Type (maritime, air, ground);

6.7.10. Standard designation of the asset (IAW STANAG 1166, e.g. MHC, MHS, FF, DD, AOR etc.);

6.7.11. Class/type (e.g. type 333 mine hunter) – this attribute used to map the unit to the Warship database manually;

6.7.12. Number of crew: Order of information display – Officers/NCO/Conscripts/Passengers;

6.7.13. Duties – selectable from the drop down list (IAW APP 11); multiple duties can be assigned;

6.7.14. Sensors – all sensors have to be listed and status selectable from the drop down list or by check box as Operational, Limited, Not Operational. Color coding shall be used to emphasize the status (Operational - Green, Limited - Yellow, Not Operational - Red);

6.7.15. Effectors – all effectors have to be listed and status selectable from the drop down list or by check box as Operational, Limited, Not Operational as well as required and actual ammunition and its status. Color coding to be used to emphasize the status (Operational - Green, Limited - Yellow, Not Operational - Red). Effectors shall also have an effective range of the weapons attached to them;

6.7.16. Communication systems – all communication equipment has to be listed and status selectable from the drop down list or by check box as Operational, Limited, Not Operational. Color coding to be used to emphasize the status (Operational - Green, Limited - Yellow, Not Operational - Red);

6.7.17. Dimensions;

6.7.18. Logistic data:

6.7.18.1. Max and actual amount of fuel (in tons, cubic meters, percentage-selectable);

6.7.18.2. Max and actual amount of lub oil (in tons, cubic meters, percentage-selectable);

6.7.18.3. Max and actual amount of fresh water (in tons, cubic meters, percentage-selectable);

6.7.18.4. Max and actual amount of provision (days).

6.8. Data about the status of the asset shall be circulated within the system automatically by using communication means available or entered manually by the operator based on reports received.

6.9. ORBAT module shall allow graphical display of warship sensor/effector coverage on the tactical display based on data held in the database.

6.10. ORBAT module shall have possibility to bring up unit data window once it is selected in the ORBAT window or on the geographical tactical display.

6.11. ORBAT module shall have possibility to provide required data for automated message preparation/submission (ADatP3).

6.12. ORBAT module database shall be integrated with tracks database, thus providing possibility to geographically display (GoTo functionality) to the asset selected within ORBAT window.

6.13. Module shall support standard NATO Task Organization concept as stated in ATP 1 Vol. I.

6.14. Module shall have possibility to use at least but not limited to following Task Organization compositions at one time:

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6.14.1. Own Task Org (Real life or Exercise);

6.14.2. Friendly Forces Task Org (Real life or Exercise);

6.14.3. Enemy Forces Task Org (Real life or Exercise).

6.15. ORBAT module shall support attachment and detachment of forces from Task Organization.

6.16. ORBAT module shall have possibility to display existing Task Organization graphically as the Organizational diagram and in a Tabular view. Both views shall have possibility to expand/hide lower level of organization.

6.17. Assets included in ORBAT shall be displayed in ORBAT window by the symbol IAW APP-6C (or later edition) "NATO Joint Military Symbology" and asset name.

6.18. Status of the assets is to be displayed as a label to the asset icon in both geographical and tabular view.

6.19. Asset status, Logistical and sensors/effectors/communication system status shall have possibility to be manually entered.

6.20. Module shall support the possibility to display asset status and logistic status of one ships or selected group of the ships in a tabular format by operator's choice of the attributes that can be predefined in the module. Percentages of different attributes, such as fuel, potable water, ammunition and oil shall be automatically calculated by the module based on the data available.

6.21. Color coding (green, yellow, red) shall be used to emphasize the status of the ship/consumables. Color coding should be IAW trip wires entered by the operator, that are based on the percentage and ships class/type.

6.22. Module shall support forecast of the logistic status based on the historical data during operation for logistic replenishment planning purposes.

6.23. ORBAT module tabular view shall support creation of the synchronization matrix based on the time.

6.23.1. Similar functionality as per Microsoft Outlook Calendar to view unit activities at specific time shall be provided.

6.23.2. Tasking shall be entered manually or from drop down list predefined by the operator.

6.23.3. Synchronization matrix shall support multiple lines divided into two groups:

6.23.3.1. Planned (filled in by the respective Tasking Authority);

6.23.3.2. Actual (filled by the Tasked unit).

6.23.4. Data about the status of the executed task shall be circulated within the system automatically by using communication means available or entered manually by the operator based on reports received.

6.23.5. All data in the Synchronization matrix shall be stored in the database.

7. **War diary module functionality:**

7.1. Corporate license for this module is to be provided.

7.2. Purpose of the War Diary module is to log all incidents/orders received from the Tasking authority and Command decisions/reactions as well as the developments of the previous incidents.

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7.3. War Diary shall be provided in a separate window and should have own database.

7.4. At least following attributes should be provided in the database:

7.4.1. Time of the incident/order.

7.4.2. Time of the entry.

7.4.3. Security Classification of the entry.

7.4.4. Type of the entry (Incident/Order/Decision).

7.4.5. Originator: Tasking Authority or Asset.

7.4.6. Indicator, if troops are in contact with an enemy.

7.4.7. Title of the incident/order.

7.4.8. Position of the incident.

7.4.9. Description of the Incident/order.

7.4.10. Troops involved.

7.4.11. Description of the decision made by Command.

7.4.12. Link to the document within system message archive.

7.4.13. Link to another ongoing incident.

7.4.14. Impact of the incident on the platform:

7.4.14.1. Numbers of Killed/Wounded in Action personnel (WIA – 5 categories).

7.4.14.2. Damage Assessment (own and enemy).

7.4.14.3. Ammo consumption.

7.4.15. Status of the Incident/Execution (Open, Closed, In progress, Completed).

7.4.16. Check box for choosing if the entry shall be sent to the external systems, or shall be kept as a local entry only.

7.5. Once incident is being created – it shall be automatically distributed within the Naval fleet C2 subsystem via communication means available. Position of the incident shall be displayed on the geographical view with an icon:

7.5.1. Graphical symbol in orange color, if no troops involved.

7.5.2. Graphical symbol with "TIC" label, if troops involved.

7.6. Operator on the other console shall access the War diary entry window by clicking on the symbol.

7.7. Originator of the incident shall have the capability to update the War Diary entry once the situation progresses.

7.8. Operator shall be capable of filtering the entries based on their attributes and displaying them in a tabular view.

7.9. Operator shall be capable of printing the complete or selected segments of the War Diary entries.

7.10. On completion of the mission/operation, or on operator request, it should be possible to collect all entries (including internal platform entries) in one place and archive, process, evaluate and print.

8. Mine warfare module functionality:

8.1. Corporate license for this module is to be provided.

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8.2. Purpose of Mine Warfare (MW) Module is to support staff in planning, executing and evaluating Mine Laying and Mine Countermeasures Operations.

8.3. MW module shall have capability of displaying and importing of data in following formats:

8.3.1. Additional Military Layers (AML) 2.1, 3.0 (Small Bottom Objects (SBO), Large Bottom Objects (LBO), Routes, Areas and Limits (RAL), Contour Line Bathymetry (CLB), Environment Seabed and Beach, Maritime Foundation and Facilities (MFF), Atmospheric, Meteorological and Climatology (AMC), Integrated Water Column (IWC)).

8.4. Mine laying Operations functionality:

8.4.1. Module shall provide tools for minefield planning.

8.4.1.1. Mine field planning tool shall be compatible with ATP 6 and ATP 24 algorithms and support calculations to achieve the required effectiveness of the minefield.

8.4.1.2. Mine field planning tool shall be displayed in a separate window.

8.4.1.3. Mine field planning tool shall have fields to enter the mine stock available, required initial threat and other attributes mentioned in ATP 6 and 24.

8.4.1.4. Mine field planning tool results, thus position of the mines and the resulting Mine Damage Area shall be displayed on the geographical display.

8.4.1.5. Mine field planning tool shall provide capability of automatically preparing and issuing Mine Laying Order to the designated platform via communication means available.

8.4.1.6. Mine laying planning tool data shall be displayed on the geographical display as separate layers on the operator choice.

8.5. Mine Threat/Mine Danger Area:

8.5.1. Module shall provide operator to evaluate Mine Threat Area (MTA) size, based on the mine threat and environmental factors.

8.5.2. MTA once designated shall be populated across the system on operator's decision via communication means available.

8.5.3. In case of mine found – following attributes shall be stored and distributed across the Naval fleet C2 subsystem:

8.5.3.1. Time

8.5.3.2. Position

8.5.3.3. Mine Reference Number

8.5.3.4. Unit, that found the mine

8.5.3.5. Identification

8.5.3.6. Status of mine (Marked, Disposed, Undealt, Neutralized, Removed)

8.5.4. In case status of the mine changes – module shall allow the update of it.

8.5.5. Mines found have to be logged in the module and displayed in the geographical or tabular view (Mine Tote) on the choice of the operator.

8.5.6. The Naval fleet C2 subsystem shall have possibility to graphically display the Mine Danger Areas (MDA) and log them in the system.

8.5.7. MDAs shall be based on either the circle with designated radius centered on the mine found or polygon area including several mines.

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8.5.8. MDAs shall be automatically circulated across the Naval fleet C2 subsystem via communication means available.

8.5.9. MDAs established shall have following attributes:

8.5.9.1. Time

8.5.9.2. Reference Number IAW ATP 24 Vol. II

8.5.9.3. Establishing authority

8.5.9.4. Area bound by MDA (either the circle with designated radius centered on the mine found or polygon area including several mines)

8.5.9.5. Status of the MDA.

8.6. Mine Countermeasures (MCM) Operations:

8.6.1. Module shall support Q-Route and Anchorage planning for Mine Countermeasures Operations.

8.6.1.1. Q-Route and Anchorage planning (numbering, naming) shall comply with AHP 7 requirements.

8.6.1.2. Q-Routes and Anchorages shall be stored in the database attached to specific Operations.

8.6.1.3. On operator's request, planned Q-Routes/Anchorages shall be distributed across the system via communication means available.

8.6.1.4. Q-Routes and Anchorages shall have attributes providing their present status (Coverage and Percentage Clearance (PC) required and achieved). Data shall be entered manually and distributed across the Naval fleet C2 subsystem.

8.6.1.5. Status of the Q-Routes/Anchorages shall be displayed in either tabular or geographical view. In geographical view colors to indicate the status of the Q-Routes shall be used (Green – required PC and coverage achieved, Yellow – work in progress, Red – No effort done).

9. Warship database module functionality:

9.1. Corporate license for this module is to be provided.

9.2. Module shall have database available for entering specific data about warships based on two level data entry.

9.3. Module shall have capability to import data dump from IHS Janes database, thus have to support all informatikon fields available within IHS Janes database.

9.4. Module shall allow user to modify data in the warship database manually.

10. ATO/ACO display module functionality:

10.1. Corporate license for this module is to be provided.

10.2. Naval fleet C2 subsystem shall be capable of graphical display of airspace management and air tasking information enclosed in ADatP3 messages ACO and ATO.

10.3. Display shall be organized as a separate layer based on the validity of respective ACO/ATO message.

10.4. Several layers for ACO/ATO shall be available in the C2 subsystem for different days.

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10.5. C2 subsystem shall allow display of ATO message as an MS Excel file in order to allow stripping of ATO.

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APPENDIX 2
TO ANNEX 1 TO PART I TO TECHNICAL
SPECIFICATION FOR THE UPGRADE OF
THE SSIS AND TECHNICAL
SURVEILLANCE DEVICE SYSTEM

REQUIREMENTS FOR MILITARY MESSAGE HANDLING MODULE

1. General

1.1. Military message handling module, as integral part of the Naval fleet C2 subsystem, in this appendix is referred as Military Message Handling System.

1.2. Graphical MMHS architecture is provided in Appendix 3 to Annex 1 (Tentative naval fleet command and control subsystem architecture).

1.3. List of Abbreviations used in this Appendix :

BITE	Built-In Test Equipment
C2	Command and Control
COMCEN	Communications Center
DAP	Directory Access Protocol
DTG	Date-Time-Group
EoS	Element of Service
ESS	Enhanced Security Service
FL	Format Line
GUI	Graphic User Interface
IPM	Interpersonal Messaging
LDAP	Lightweight Directory Access Protocol
MM	Military Message
MMHS	Military Message Handling System
PKI	Public Key Infrastructure
PLAD	Plain Language Address Designator
S/MIME	Secure/Multipurpose Internet Mail Extension
SDK	Software Development Kit
SDK	Software Development Kit
SIC	Subject Indicator Code
SMTP	Simple Mail Transfer Protocol
SSN	Station Serial Number

2. System Description

2.1. MMHS Services

2.1.1. Military Message Handling System (MMHS) shall support the exchange of military information. Following MMHS services for users are required:

- Transport layer of Naval fleet C2 subsystem data;
- Formal military messaging;
- Formatted ACP127 messaging;
- Interpersonal messaging;
- Chat.

2.1.2. MMHS shall be the integrated part of Naval fleet C2 subsystem as a transport layer to enable the data transport. The user interface of Naval fleet C2 subsystem shall provide the capability of "point and click" on the systems to share data between the users.

2.1.3. MMHS shall provide the capability of executing command and control by formal military messaging (military messages and ACP127 format messages) between operational roles and command entities.

2.1.4. MMHS shall ensure the capability of interpersonal messaging (e-mail) for informal communication between individuals.

2.1.5. MMHS should provide the capability of instant informal messaging between users in form of chat (point-to-point/point-to-multipoint). The service may use ASCII standard text-based message exchange.

2.2. MMHS networks

2.2.1. MMHS shall be designed to enable the required services and capabilities in both high-throughput/high bandwidth and low-throughput/low-bandwidth networks.

2.2.2. NATO STANAG 4406 (ed.2) Annex C profiles and protocols should be used for high-throughput/high-bandwidth (strategic-operational) networks. Profiles and protocols of different nature may be used to ensure equal functionality.

2.2.3. NATO STANAG 4406 (ed.2) Annex E profiles and protocols for lightweight alternative should be used for low-throughput/low-bandwidth (tactical) networks. Profiles and protocols of different nature may be used to ensure equal functionality.

2.2.4. The interface point (as per STANAG 4406 Annex E – Tactical Interface Agent) between high-throughput/high-bandwidth and low-throughput/low-bandwidth networks should be deployed in the communications facilities at the shore site (strategic-operational) infrastructure where all low-throughput communication means including radio equipment are available.

2.2.5. The lightweight alternative enabling the capability of messaging over constrained throughput networks should be designated for the navy vessels and all other mobile instances.

2.2.6. MMHS shall support information exchange in unicast, multicast and broadcast modes of transmission.

3. System Requirements

3.1. MMHS architecture should be based on the service and protocols requirements as per NATO STANAG 4406 (Ed.2). The system may be based on SMTP as it is recognized that X.400 protocol standards might be difficult to support. MMHS over SMTP shall contain the required extensions and shall ensure the functionalities designated for military messaging.

3.2. The system shall not contain any 3rd party licensable components to run the core of MMHS (e.g. MS Windows Exchange).

3.3. The system shall be capable of running on the latest (as of 2016) MS Windows operating systems.

3.4. The system shall support the SDK for additional MMHS applications and services from 3rd party for future development.

3.5. The user shall be able to operate simultaneously more than one operational role.

3.6. The capability to integrate the 3rd party's radio and other communication equipment in order to enable the remote control shall be provided.

3.7. The system shall not contain any single point of failure in terms of the software architecture and shall continue to run on best mode available.

3.8. BITE function shall monitor the run-time status of the MMHS applications and shall restart those in case of malfunction or error.

3.9. The system configuration and administration shall be built in the software platform to enable the users with assigned system administrator role to conduct administration and management. The administration and management service may be designed as an application and shall have a user-friendly control panel.

3.10. Central Archiving service for message store of networked system instances shall be provided. Archived messages should be encrypted. Possibility to retrieve messages from the archive and to export to CD/DVD media shall be ensured for designated operational user roles. Capability of importing the messages to the system from CD/DVD media devices shall be provided.

4. MMHS Security

4.1. MMHS must be designed to facilitate both national SECRET (and below) and NATO SECRET (and below) domains. National MMHS implementations must be able to transfer messages with either national or NATO security policies and labels, and some user workstations should be able to handle both national and NATO messages.

4.2. MMHS shall contain a built-in tool for managing the security handling policy.

4.3. MMHS security standards should be compliant to NATO STANAG 4406 (Ed.2) Annex B or shall provide the equivalent security services.

4.4. PKI environment with Certificate Authority/Registration Authority, Built-in integrated DAP for management of keys, Certification Revocation Service, Certificate Token Enrollment solution and hardware tokens shall be provided.

4.5. The implementation of User Authentication service shall follow the specifications given in the NATO STANAG 4631 "The NATO Profile for the Use of S/MIME CMS and ESS". This profile together with a mechanism for handling user certificates and PKI shall implement the service for authentication of origin.

4.6. The implementation of Security Labels service shall follow the specifications given in the NATO STANAG 4631 "The NATO Profile for the Use of S/MIME CMS and ESS".

4.7. The implementation of Digital Signature and Encryption services should be in accordance with NATO STANAG 4406 (Ed.2). Signature and/or encryption of message headers may be omitted.

4.8. MMHS shall contain a solution for user authorization to execute system services. Protected system functionality shall be admissible only to the user who is authorized to conduct certain operations in accordance with the security handling policy.

4.9. MMHS shall provide the Security Log service. Any access to protected system functionalities shall generate a security event that shall be stored and shall be available for a security audit. The user with assigned security role shall be able to access the Security log and shall be able monitor the security events in order to observe what operations are conducted within the system.

5. Directory Integration

5.1. Directory service should be based on the specifications given in ACP-133 and shall enable administration of address-lists, user certificates and public keys. LDAP may be used as an alternative directory solution.

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5.2. Directory service system should be used to store the database of user data as well as database of public keys to enable mail encryption.

5.3. The capability to deploy some of the system instances to the environment where (L)DAP functionality is not provided shall be sustained. In this environment the system shall have the capability to import and export (L)DAP data so the instances can have the replication of (L)DAP information.

6. Message Prioritization, Queuing and Distribution

6.1. System administrator role and traffic operator role shall be capable of managing the message queuing for all defined connection points of the transmission equipment.

6.2. The system administrator role and traffic operator role shall be able to monitor the message queues and manage the queuing mechanisms to resolve possible message delivery problems.

6.3. MMHS shall be capable of supporting dynamic routing that enables message delivery by accommodating rapid changes in the network or radio environment. It is essential to ensure message delivery to a unit that is operating under emission control restrictions or is moving from one radio network coverage to the other.

6.4. The dynamic routing shall contain a capability of manual administration to set the static rules that defines addresses reachable through a predefined communications link. The capability to configure the prioritization of communication links based on available bandwidth, set reliability or given orders shall be provided as well.

6.5. MMHS shall be capable of managing the prioritization of messages by organizing the messages in different queues according to their precedence.

6.6. MMHS shall be capable of distributing the messages to operational user roles according to their content (keywords or attributes) and SIC. Possibility to define logical rules for creation of distribution lists should be provided.

6.7. Authorized user roles shall be provided with a GUI for viewing the message queues and a capability to reprioritize, delete or purge the message queues.

7. User Interface

7.1. User Role for Message Handling

7.1.1. User role in its content is defined as an authorization to execute certain operations or services within military and ACP127 message handling and is not applicable for interpersonal messaging.

7.1.2. The User role for message handling shall not substitute the assigned operational role (e.g. Battle Watch Captain) but shall supplement it in terms of authorizing the operational role to either draft, and/or release, and/or transmit the message.

7.1.3. As MM and/or ACP127 are the formal messaging to handle command, control and reporting, the MMHS users execute certain roles in handling the messages on behalf of the originator.

7.1.4. The originator of an MM and ACP127 message in this content is referred as per ACP121: "The originator of a message is the command, formation, unit or headquarters on whose authority a message is sent. The originator is responsible for the functions of drafting and release".

7.1.5. Three user roles for message handling shall be defined: Message Drafter, Releasing Officer and Traffic Operator.

7.1.6. The Drafter role shall enable the assigned person to actually compose the message.

7.1.7. The Releasing Officer role shall enable the assigned person the authority to release the message for transmission for, and in the name of, the originator.

7.1.8. The Traffic Operator role shall enable the assigned person to select the appropriate means of communication, to edit all required routing information and to transmit the message when it is authorized for release.

7.2. MM Heading Extensions

7.2.1. The structure of MM shall be fundamentally the same as that of IPM. The extension to MM as a minimum shall follow RFC6477 standard or should be as per ACP123/STANAG4406 (Ed.2) Annex A with supplementary user requirements stated below.

7.2.2. Additional elements of service in the Heading are required to support MM:

EoS	Syntax	Remarks
Originator PLAD	"ORIGINATOR:"	Organizational entity (e.g. SINCLITNAV)
Recipient PLAD	"TO:"	Organizational entity of "action" addressee
Copy Recipient PLAD	"INFO:"	Organizational entity of "info" addressee
Exempted address PLAD	"XMT:"	Organizational entity
Pilot forwarding info	*No specific requirements*	As per ACP123 clause 2.II.213.b.
ACP127 Message Identifier	"MESSAGE IDENTIFICATION:"	As per ACP123 clause 2.II.213.d. The identifier consists of the routing indicator or assigned call sign of the originating COMCEN, the SSN and the filling DTG. Access.
Primary Precedence	*No specific requirements*	MM precedence for "action" addressee. Possible values: ROUTINE (R), PRIORITY (P), IMMEDIATE (O), FLASH (Z)
Copy Precedence	*No specific requirements*	MM precedence for "info" addressee. Possible values: ROUTINE (R), PRIORITY (P), IMMEDIATE (O), FLASH (Z)
Subject Indicator Code	"SIC:"	i.a.w. ACP117 NATO SUPP-2 From 3 to 8 groups of SIC
Handling Instructions	*No specific requirements*	Instructions for MM that require manual handling by traffic operator. Operating signals from ACP131 may be used.
Coddress Message Indicator	"GROUPS:"	Group count for Coddress Message
Message Instructions	*No specific requirements*	Any information of interest to the persons reading MM.
Extended Authorization Info	"DTG:"	DTG when MM was officially released or submitted to communication facilities for transmission.
Originator Reference	"MSN:"	Message Serial Number of 3 digits.
Other Recipient Indicator	"ZEN:"	Indicating organizational entities that are intended to receive or have received the MM via other means.

7.3. MM body part

7.3.1. The actual information of an MM shall be carried in the body of the MM. This should be formatted as either a single body part or as multiple body parts (military text format, plain text, graphics, etc.).

MWL

7.3.2. MM body part should be formed as "free-formatted" plain text if the military text format has not been selected by the user. The guidelines in ACP123 clause 4.I.414.a. should be implemented when preparing the plain text.

7.3.3. MM body part shall begin with the security classification. Possible values: UNCLAS, CONFIDENTIAL, SECRET, NATO UNCLAS, NATO CONFIDENTIAL, NATO SECRET.

7.3.4. Military information in the form of graphics, drawings or other multimedia can be provided as MM attachment.

7.3.5. MM body part shall be formed as military text format if selected by the user. NATO ADatP-3 (STANAG-5500) and OS-OTG (OTH-GOLD) shall be the standards for the military text formats.

7.3.6. MM shall contain the user graphical interface to view, prepare and correct the military text formats in accordance with NATO ADatP-3 (STANAG-5500) and OS-OTG (OTH-GOLD). The graphical interface shall be capable of building a message text format (MTF) from an XML schema, new standard or baseline. The user shall be able to convert MTFs into XML schemas and to import or export the XML.

7.3.7. User shall be capable of forwarding an MM and/or an IPM message using the message body part. IPM message may be forwarded as an attachment to MM.

7.4. ACP127 Message Envelope

7.4.1. MMHS user interface shall contain ACP127 message format in accordance with ACP127 NATO SUPP-3.

7.4.2. Message format lines FL11/FL13 (BT) and FL16 (NNNN) shall be inserted automatically.

7.4.3. Format Line shall not exceed 69 characters in length.

7.4.4. User interface in ACP127 envelope shall support only ITA-2 (BAUDOT) and/or ITA-5 (ASCII) characters.

7.4.5. ACP127 user interface for message drafter role

7.4.5.1. Message header shall contain format lines FL5 – FL9.

7.4.5.2. FL5 shall consist of dual precedence (if precedence for "action" and "info" addressees differs) or single precedence and DTG in form of "ddhhmmZ MMM YYYY".

7.4.5.3. First line of FL12 shall be security classification (Possible values: UNCLAS, CONFIDENTIAL, SECRET, NATO UNCLAS, NATO CONFIDENTIAL, NATO SECRET).

7.4.5.4. Second line of FL12 shall be SIC.

7.4.5.5. Body text in FL12 may be as "free-format" plain text or MTF using the graphical interface of military message formats in accordance with NATO ADatP-3 (STANAG-5500) and OS-OTG (OTH-GOLD) standards. The graphical interface shall be capable of building a message text format (MTF) from an XML schema, new standard or baseline. The user shall be able to convert MTFs into XML schemas and to import or export the XML. User shall be able to view and edit MTF in electronic form and source form.

7.4.6. ACP127 user interface for traffic operator role (ACP127 Gateway operator Role)

7.4.6.1. Message header shall contain additional format lines FL1 – FL4. Information in these lines may be edited manually by the traffic operator as it might differ (either ACP127-SUPP-1 or ACP127-NATO SUPP-3) depending on the communications circuit to be used.

7.4.6.2. Traffic operator shall be able to edit manually routing indicators, operator signals from ACP131 and slants in front of PLADs in FL7 and FL8.

7.4.6.3. FL10 and FL15 may be edited manually by the traffic operator.

7.4.6.4. Traffic operator shall be able to view and edit a full ACP127 message in source mode.

8. MMHS interoperability requirements

8.1. ACP127 Gateway

8.1.1. MMHS shall contain ACP127 Gateway to support integration between the system and ACP127 environment.

8.1.2. ACP127 Gateway should be based on the minimum behavior specifications as per NATO STANAG 4406 (Ed.2) Annex D.

8.1.3. ACP127 Gateway should be capable of sending and receiving ACP127 Plaindress, Abbreviated Plaindress, and Codress message formats that have been received from, or require translation to, MM messages.

8.1.4. ACP127 Gateway should be capable of complying with the ACP127 transmission and message instructions.

8.1.5. ACP127 Gateway shall support ITA-5 (ASCII) and ITA-2 (Baudot) protocols. Conversion between ITA-5 (ASCII) and ITA-2 (Baudot) should be executed if ITA-2 (Baudot) circuits are directly connected to the gateway.

8.1.6. ACP127 Gateway shall support the ACP127 message procedures that specify the various instances where format lines may be present or absent.

8.1.7. ACP127 Gateway shall be capable of handling all ACP127 message formats as defined in ACP127 NATO SUPP-3 and ACP127 SUPP-1.

8.1.8. ACP127 Gateway shall be capable of handling error conditions in the ACP127 message formats specified in ACP127 NATO SUPP-3. All error conditions should be logged and the gateway operator shall be capable of manually recovering the ACP127 message. Procedures of manual recovery include display of the message and forward the complete (faulty) message within ITA-5 body text to other user within MMHS domain.

8.1.9. The MMHS protocol elements that have no equivalent in ACP127 and are marked as non-critical may be discarded. The MMHS protocol elements marked as critical for transfer and/or delivery for which are no equivalents should cause the gateway to non-deliver the message and notify the gateway operator.

8.1.10. ACP127 Gateway shall be capable of address mapping to map ACP127 PLAD, ACP127 Routing Indicator and MM address.

8.2. Interface to the Legacy ACP127 System

8.2.1. MMHS shall support the text-based message exchange to the legacy ACP127 systems that are installed onboard Vidar and Hunt class vessels and the communications facilities ashore (COMMCEN).

8.2.2. The exchange of messages may be designed by using shared file area and transporting ITA-5 (ASCII) text-based ACP127 messages.

8.3. ACP145 Gateway

8.3.1. MMHS shall be designed to support ACP145 Gateway for further expansion of the system in order to achieve interoperability with MMHS of other NATO nations.

8.3.2. ACP145 Gateway shall implement the elements of service on the messaging, directory and security standards within ACP123/STANAG 4406, ACP133 and S/MIME with ESS as it is defined in ACP145.

8.3.3. ACP145 Gateway shall contain the common functional capabilities:

- P772 as per ACP123/STANAG4406 (Ed.2);

MWK

- S/MIME signature with ESS label as per ACP145 chapter 5;
- P1 as per ACP123/STANAG 4406 (Ed.2);
- Directory services as per ACP145 chapter 4.

8.3.4. In case the MMHS is based on SMTP and conversion to STANAG 4406 (Ed.2) protocols is required, ACP145 Gateway shall be designed to contain the required additional interface or gateway solution.

PURCHASER:
Lithuanian Armed Forces
Commander of Lithuanian Armed Forces
CPT (N) Arūnas Mockus

(signature)
L.S.

LIETUVOS KARIUOMENĖ

SUPPLIER:
Navielektro Ky
Chief Executive Officer
Asser Koivisto

(signature)
L.S.

Navielektro
Working Partnership in Vessel Traffic Systems
Hallimestarinkatu 11, 20780 Kaarina, Finland
Phone +358 2 2437711 Fax +358 2 2437733

Public supply contract No KPS-314
Annex 2

SEA SURVEILLANCE INFORMATION SYSTEM SOFTWARE ORDER FORM

No.____ of _____
(Date)

_____
(Place)

No.	Name of Goods	Quantity	Unit price, **without VAT**, (EUR)	Total price, **without VAT,** (EUR)	Delivery and Installation address
1	2	3	4	5	6
1.					
2.					
3,					

(Position of the Purchaser or its authorised person)	(Signature)	(Name and surname)

PURCHASER:
Lithuanian Armed Forces
Commander of Lithuanian Armed Forces Navy
CPT (N) Arūnas Mockus

_____
(signature)

L.S.

LIETUVOS KARIUOMENĖ
LIETUVOS RESPUBLIKOS KRAŠTO APSAUGOS MINISTERIJA

SUPPLIER:
Navielektro Ky
Chief Executive Officer
Asser Koivisto

_____
(signature)

L.S.

Navielektro
Working Partnership in Vessel Traffic Systems
Hallimestarinkatu 11, 20780 Kaarina, Finland
Phone +358 2 2437711 Fax +358 2 2437733

MWK

Public supply contract No KPS-314
Annex 3

RATES OF SEA SURVEILLANCE INFORMATION SYSTEM AND ITS MODULES

No.	The upgrade of the sea surveillance information system composed of:	Total price, **without VAT,** (EUR)
1	2	3
1.	The main delivery of the SSIS (as stated in para. 3.2. of Part I of Technical specification)	**962.870,60**
2.	Upgrade of AIS subsystem	**55.780,00**
3.	Connection and integration of Closed-Circuit Television equipment	**8.760,00**
4.	Connection and integration of Radio Direction Finders	**35.000,00**
5.	Search and rescue subsystem	**100.000,00**
6.	Data exchange with Latvia	**45.000,00**
7.	Filtering subsystem	**25.000,00**
8.	Anomaly detection subsystem	**40.000,00**
9.	Additional SSIS workstation	**42.811,00**
10.	Integration with the Port information system	**20.000,00**
11.	Overview screen system	**33.516,00**
12	Naval fleet command and control subsystem (as stated in ANNEX 1, incl. appendix 2 and appendix 3 to annex 1to Technical specification)	**966.751,60**
12.1.	Additional workstation for Static Naval Fleet C2 subsystem installation instance	**30.580,00**
12.2.	Mobile Naval Fleet C2 installation instance	**164.570,80**
12.3.	Additional workstation for Mobile Naval Fleet C2 subsystem installation instance	**27.555,00**
12.4.	PKI (Public Key Infrastructure) security module	**20.000,00**
12.5.	Weather Analysis module	**50.000,00**
12.6.	Order of Battle module	**55.000,00**
12.7.	War diary module	**55.000,00**
12.8.	Mine warfare module	**190.000,00**
12.9.	Warship database module	**50.000,00**
12.10.	ATO/ACO display module	**45.000,00**
	TOTAL PRICE:	**3.023.195,00**

PURCHASER:
Lithuanian Armed Forces
Commander of Lithuanian Armed Forces Navy
CPT (N) Arūnas Mockus

LIETUVOS KARIUOMENĖ
LIETUVOS RESPUBLIKOS KRAŠTO APSAUGOS MINISTERIJA

(signature)
L.S.

SUPPLIER:
Navielektro Ky
Chief Executive Officer
Asser Koivisto

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Public supply contract No KPS-514
Annex 4

Navielektro Ky

Legal form: Limited partnership
Address: P.O. Box 137 (Street address is Hallimestarinkatu 11), 20781 KAARINA, FINLAND
Contact information: Rose-Marie Koivisto, phone: +358 2 243 7711, e-mail: rmk@navielektro.fi
Name of register where data about Supplier is stored: Finnish Patent and Registration Office Trade Register
Business ID: 0684382-6
VAT number: FI0684382-6

TO LITHUANIAN ARMED FORCES
Mantas Čiuta
Lietuvos kariuomenė
Vilnius, Lithuania

TECHNICAL PROPOSAL ON MODERNISATION OF SOFTWARE OF THE SEA SURVEILLANCE INFORMATION SYSTEM AND THE TECHNICAL SURVEILLANCE DEVICE SYSTEM

2017 March 28 No 1
Kaarina, Finland

Supplier's name */Names of all members if a group of economic operators is participating/*	Navielektro Ky
Supplier's address */Addresses of all members if a group of economic operators is participating/*	P.O. Box 137 (Hallimestarinkatu 11), 20781 KAARINA, FINLAND
Full name and position of the person having signed the proposal with a secure electronic signature	Rose-Marie Koivisto, Chief Excecutive Officer
Phone number	+358 2 2437711 (+358 790 615)
Fax number	+358 2 243 7733
E-mail address	rmk@navielektro.fi

/Note. To be completed if the Supplier intends to hire a sub-supplier(s) or sub-provider(s)/

name(s) of sub-supplier(s) or sub-provider(s)	Not Applicable
address(es) of sub-supplier(s) or sub-provider(s)	Not Applicable
Share of obligations (percentage) for which the Supplier intends to hire a sub-supplier(s) or sub-provider(s)	Not Applicable

1. We hereby confirm our agreement to all the procurement terms and conditions defined in:

1) the notice of open tender published in accordance with the procedure laid down by the Law on Public Procurement *(on 2016 in the Central Public Procurement Information System, procurement number RFT308722).*

2) other Terms and Conditions of Open Procedure (including their clarifications and supplements).

2. By placing a secure electronic signature on the proposal submitted via the CPP IS, I hereby acknowledge that the digital copies of the documents and the data submitted by electronic means are true.

Pursuant to the terms and conditions laid down in the contract documents, we hereby submit our tender consisting of two parts submitted in separate envelopes. In this part, we provide technical information and data on our readiness to perform the procurement contract to be awarded.

No	Subject of procurement	Quantity
1.	Sea Surveillance Information System Upgrade Software and Its Modules.	1 set
2.	Technical Surveillance Device System Upgrade Software and Its Modules.	1 set.

The products offered fully comply with the requirements set out in the Contract Documents and their characteristics are as indicated in Annex 1 "Technical Specification for the Upgrade of the Sea Surveillance Information System and the Technical Surveillance Device System" to the Terms and Conditions of Open Procedure. **We provide the description of the offered product with technical indicators (parameters) and accompany the Technical Proposal with documents proving the compliance of the products with all the requirements set 1676 pages.**

The following documents are enclosed with the Technical Proposal:

Item No	Title of the documents enclosed	Pages
	Technical Documentation (documents with T –numbering)	**482**
T01	T01a-Navielektro-Lithuania-Compliance-Matrix-SSIS-Part-I-Confidential	15
	T01b-Navielektro-Lithuania-Compliance-Matrix-SSIS-Part-I-Annex-1-Confidential	16
	T01c-Navielektro-Lithuania-Compliance-Matrix-TSDS-Part-II-Confidential	16
T02	T02-Navielektro-Lithuanian-Naval-Tender-Solutions-Product-Description-Confidential	74
T03	T03-Navielektro-Lithuania-TDF-Web-Product-Description-Confidential	8
T04	T04-Navielektro-Lithuania-MATIS-C2-Product-Description-Confidential	21
T05	T05-Navielektro-Lithuania-MSS-SAT-Procedure-Confidential	29
T06	T06-Navielektro-Lithuania-MMHS-Product-Description-Confidential	35
T07	T07-Navielektro_Lithuania_Preliminary Functionality Description-of-the-Navielektro-CSF-Confidential	15
T08	T08-Navielektro-Lithuania-NAVY-C2-ICT-Deployment-Integration-Description-Confidential	42
T09	T09-Navielektro-Lithuania-NAVY-SSIS-Sensor-and-ICT-Deployment-Integration-Description-Confidential	61
T10	T10-Navielektro-Lithuania-TSDS-SSIS-Statement-about-Tracking-Performance-Confidential	9
T11	T11-Navielektro-Lithuania-BORDER-GUARD-TSDS-Sensor-and-ICT-Deployment-Integration-Description-Confidential	58
T12	T12-Navielektro-Lithuania-Example-Track-Filtering-and-Visualization-Manual-Confidential	28
T13	T13-Navielektro-Lithuania-Training-Plan-Confidential	14
T14	T14-Navielektro_lithuania-JMAP_v7-Tactical-Display-Framework-Product-Specification-Confidential	13
T15	T15-Navielektro-Lithuania-JMAP-SDK-General-Document-Confidential	29
	Device Documentation –Introductions & Datasheets (documents with D –numbering)	**1140**
D1	D1_Navielektro-Lithuania-List-of-HW-SW-COAST-GUARD-TSDS-Confidential	2

D2	D2_Navielektro-Lithuania-List-of-HW-SW-SSIS-and-NAVY-C2-Confidential	2
D3	D3_APC_UPS_SRT5KRMXLI_APC	3
D4	D4_APC_NetBotz_Rack_Monitor_200_Users_Guide	125
D5	D5_Aten_CL5808	3
D6	D6_Axis_Q7404_VideoEncoder_UserManual	58
D7	D7_Cisco_ASA_5500-X_Series_Next-Generation_Firewalls	11
D8	D8_Cisco_Catalyst_3650_Series_Switches	35
D9	D9_Cisco_Catalyst_3850_Series_Switches	36
D10	D10_Dell_KB-813_Smartcard_Reader_USB_Keyboard_Black	3
D11	D11_Dell_Latitude_5000_Series	2
D12	D12_Dell_Precision_Tower_3620_noise_specs_prec_tower	6
D13	D13_Dell_Precision_Tower_3620_datasheet	2
D14	D14_Dell_24_Monitor_P2417H	2
D15	D15_Dell_PowerEdge_R730_and_R730xd_Technical-Guide	66
D16	D16_Dell_PowerEdge_R730_Spec_Sheet	2
D17	D17_FARGO_HDP5000	108
D18	D18_Kongsberg_AIS_BS610	2
D19	D19_Meinberg_m300_gps	150
D20	D20_Navielektro_ne_gige_radar_streamer-guide-Confidential	31
D21	D21_Navielektro_RDP-datasheet_2-Confidential	6
D22	D22_Perle-Iolan-SDS_UserGuide	481
D23	D23_Samsung_LFD-DMELRGSERIESDSHT	2
D24	D24_Samsung_LFD-QMFSERIESDSHT	2
	Company Qualification Documents (documents without letter)	54
00	00_ACKNOWLEDGE_OF_REGULATION_CONFORMITY_2017_15_03.pdf 00_ACKNOWLEDGE_OF_REGULATION_CONFORMITY_2017_15_03.pdf.xades	2
01	01_CRIMINAL_RECORDS_2017-02-02_Apostille.pdf 01_CRIMINAL_RECORDS_2017-02-02_Apostille.pdf.xades	4
02	02_NAVIELEKTRO_CERTIFICATE_OF_PAID_TAXIES_2017-02-16_Apostille.pdf 02_NAVIELEKTRO_CERTIFICATE_OF_PAID_TAXIES_2017-02-16_Apostille.pdf.xades	2
03	03_VALIDITY_AND_PAYMENT_CERTIFICATE_FOR_TyEL_INCURANCE_2017-02-10_Apostille.pdf 03_VALIDITY_AND_PAYMENT_CERTIFICATE_FOR_TyEL_INCURANCE_2017-02-10_Apostille.pdf.xades	2
04	04_CERTIFICATE_FROM_BANKRUPTCY_AND_ENTERPRICE_REORGANIZATION REGISTER_2017-01-26_Apostille. 04_CERTIFICATE_FROM_BANKRUPTCY_AND_ENTERPRICE_REORGANIZATION_REGISTER_2017-01-26_Apostille.pdf.xades	6
05	05_CERTIFICATE_FROM_RESTRUCTURING_OF_PRIVATE_DEPTS_REGISTER_2017-01-26_Apostille.pdf 05_CERTIFICATE_FROM_RESTRUCTURING_OF_PRIVATE_DEPTS_REGISTER_2017-01-26_Apostille.pdf.xades	4
06	06_CERTIFICATE_FROM_BUSINESS_PROHIBITIONS_REGISTER_2017_01_26_Apostille.pdf 06_CERTIFICATE_FROM_BUSINESS_PROHIBITIONS_REGISTER_2017_01_26_Apostille.pdf.xades	4
07	07_TRANSLATION_OF_THE_EXTRACT_FROM_THE_TRADE_REGISTER_2017-02_10_Apostille.pdf 07_TRANSLATION_OF_THE_EXTRACT_FROM_THE_TRADE_REGISTER_2017-02_10_Apostille.pdf.xades	2
08	08_SUPPLIERS_DECLARATION_2017-03-23.pdf 08_SUPPLIERS_DECLARATION_2017-03-23.pdf.xades	1
09	09_BANK_ASSESSMENT_OR_A_COMPANYS_CREDITWORTHINESS_2017_01_30_Apostille.pdf 09_BANK_ASSESSMENT_OR_A_COMPANYS_CREDITWORTHINESS_2017_01_30_Apostille.pdf.xades	2
10	10_NAVIELEKTRO_FINANCIAL_STATEMENT_2014-03-31.pdf 10_NAVIELEKTRO_FINANCIAL_STATEMENT_2014-03-31.pdf.xades	5
11	11_NAVIELEKTRO_FINANCIAL_STATEMENT_2015-03-31.pdf 11_NAVIELEKTRO_FINANCIAL_STATEMENT_2015-03-31.pdf.xades	5
12	12_NAVIELEKTRO_FINANCIAL_STATEMENT_2016-03-31.pdf 12_NAVIELEKTRO_FINANCIAL_STATEMENT_2016-03-31.pdf.xades	4

13	13_LETTER_FOR_REFERENCE_Finnish_Border_Guard_2017-02-07.pdf 13_LETTER_FOR_REFERENCE_Finnish_Border_Guard_2017-02-07.pdf.xades	1
14	14_LETTER_FOR_REFERENCE_Liikennevirasto_2017-02-09.pdf 14_LETTER_FOR_REFERENCE_Liikennevirasto_2017-02-09.pdf.xades	2
15	15_LETTER_OF_REFERENCE_FOR_THE_SEALION_SEA_SURVEILLANCE_SYSTEM_Finnish_Navy_2017_02_15.pdf 15_LETTER_OF_REFERENCE_FOR_THE_SEALION_SEA_SURVEILLANCE_SYSTEM_Finnish_Navy_2017_02_15.pdf.xades	1
16	16_LETTER_OF_REFERENCE_FOR_THE_SELION_C4ISTAR_SYSTEM_Finnish_Navy_2017_02_15.pdf 16_LETTER_OF_REFERENCE_FOR_THE_SELION_C4ISTAR_SYSTEM_Finnish_Navy_2017_02_15.pdf.xades	1
17	17_MANUFACTURERS_AUTHORIZATION_Dell_2017_02_17_2017.pdf 17_MANUFACTURERS_AUTHORIZATION_Dell_2017_02_17_2017.pdf.xades	1
18	18_NAVIELEKTRO_ISO-9001_CERTIFICATE_valid_2018_09_15.pdf 18_NAVIELEKTRO_ISO-9001_CERTIFICATE_valid_2018_09_15.pdf.xades	2
19	19_CERTIFICATE_OF_SUCBAS_COMPATIBILITY_Finnish_Navy_2017-02-03.pdf 19_CERTIFICATE_OF_SUCBAS_COMPATIBILITY_Finnish_Navy_2017-02-03.pdf.xades	1
Annex 5	Annex_5_LIST_OF_SUCCESFULLY_COMPLETED_CONTRACTS_2017-03-23.pdf Annex_5_LIST_OF_SUCCESFULLY_COMPLETED_CONTRACTS_2017-03-23.pdf.xades	1
Annex 4	Annex_4_SUPPLIERS_DECLARATION_2017-03-23.pdf Annex_4_SUPPLIERS_DECLARATION_2017-03-23.pdf.xades	1

Table 1. Software Modification Possibilities

Item No	Name of additional functionality	Brief description of additional functionality [1]	Location of introduction (country, authority)	Date of introduction	Add. info [2]
1	MADIS	Maritime Anomaly Detection Service with statistical kinematic pattern detection and advanced rule based engined capable of operating on history information	Finnish Navy	31.12.2014	
2	MADIS	Maritime Anomaly Detection Service. See above.	Germany, BaainBW/Navy	30.11.2016	
3	COSPAS-SARSAT	Reception of COSPAS-SARSAT alerts Finnish Coast Guard	Finnish Coast Guard	30.03.2017	
4	GMDSS DSC	Integration with GMDSS functionality and full GMDSS capability	Finnish Traffic Agency	31.12.2008	
5	GMDSS DSC	Integration with GMDSS functionality and full GMDSS capability	Finnish Traffic Agency	31.12.2008	
6	WAMS	Wide Area Multilateration Functionality capable of AIS emitter location detection	Finnish Traffic Agency	30.11.2011	
7	WAMS	Wide Area Multilateration Functionality capable of AIS emitter location detection	Finnish Navy	30.11.2011	
8	Fire Coordination	US Cursor on Target	Finnish Traffic Agency	30.11.2013	
9	Track Warehouse	Big data track statistics for track analysis		30.11.2009	
10	Aids to Navigation integration	Capability to manage and communicate IALA based Aids to Navigation	Finnish Traffic Agency, Comissioner of Irish Lights Ireland	30.11.2008	
11	Video augmentation	Capability to augment the the CCTV video information with tracks or other information	Finnish Traffic Agency	30.3.2017	
12	3D Mapping toolkit	Capability to render 3D maps based on high performance LIDAR or DTED information	Finnish Defence C4I Agency	31.12.2016	
13	IMO LRIT	Capability to receive and manage national LRIT (Long Range International Tracking) information	Ghana Maritime Authority	01.01.2014	
14	MARSUR MSS integration	Integration to the EU EDA MARSUR network	Germany, BaainBW/Navy	31.11.2016	

15	OSINT Port Schedule Information	Scraping of open source inteligence information ie. Port calls of vessels	BaainBW/German Navy, Finnish Navy, Finnish Traffic Agency	31.11.2016	
16	Interface to KSAT	Connection to Kongsberg Satellite Services for real-time collection and presentation of satellite imagery	European Space Agency/ANISTIAMO	30.11.2015	
17	Interface to Satellite AIS	Connectivity to satellite AIS service through VOLPE	Spanish Navy	30.11.2014	

Table 1, notes:

1. Information on functionality features or additional modules of the offered software that are not required in the technical specification (in Annex 1 "Technical Specification for the Upgrade of the Sea Surveillance Information System and the Technical Surveillance Device System" to the Terms and Conditions of Open Procedure) and on possible areas of use/application of the mentioned features or additional modules shall be provided.
2. The Supplier may provide additional information it deems useful. The provision of additional information shall be optional.

The following information provided herein shall be confidential (*the Contracting Authority may not disclose this information to third parties):*

Item No	Title of the document (the use of the word "Confidential" is recommended)	The document is uploaded to this line of the tender window in the CPP IS ("Attached documents" or "Qualification Questions" next to the answer to the question)
T01	T01-Navielektro-Lithuania-Compliance-Matrix-Confidential	Attached documents, ENV1
T02	T02-Navielektro-Lithuanian-Naval-Tender-Solutions-Product-Description-Confidential	Attached documents, ENV1
T03	T03-Navielektro-Lithuania-TDF-Web-Product-Description-Confidential	Attached documents, ENV1
T04	T04-Navielektro-Lithuania-MATIS-C2-Product-Description-Confidential	Attached documents, ENV1
T05	T05-Navielektro-Lithuania-MSS-SAT-Procedure-Confidential	Attached documents, ENV1
T06	T06-Navielektro-Lithuania-MMHS-Product-Description-Confidential	Attached documents, ENV1
T07	T07-Navielektro_Lithuania_Preliminary Functionality Description-of-the-Navielektro-CSF-Confidential	Attached documents, ENV1
T08	T08-Navielektro-Lithuania-NAVY-C2-ICT-Deployment-Integration-Description-Confidential	Attached documents, ENV1
T09	T09-Navielektro-Lithuania-NAVY-SSIS-Sensor-and-ICT-Deployment-Integration-Description-Confidential	Attached documents, ENV1
T10	T10-Navielektro-Lithuania-TSDS-SSIS-Statement-about-Tracking-Performance-Confidential	Attached documents, ENV1
T11	T11-Navielektro-Lithuania-BORDER_GUARD-TSDS-Sensor-and-ICT-Deployment-Integration-Description-Confidential	Attached documents, ENV1
T12	T12-Navielektro-Lithuania-Example-Track-Filtering-and-Visualization-Manual-Confidential	Attached documents, ENV1
T13	T13-Navielektro-Lithuania-Training-Plan-Confidential	Attached documents, ENV1
T14	T14-Navielektro_lithuania-JMAP_v7-Tactical-Display-Framework-Product-Specification-Confidential	Attached documents, ENV1
T15	T15-Navielektro-Lithuania-JMAP-SDK-General-Document-Confidential	Attached documents, ENV1
D1	D1_Navielektro-Lithuania-List-of-HW-SW-COAST-GUARD-TSDS-Confidential	Attached documents, ENV1
D2	D2_Navielektro-Lithuania-List-of-HW-SW-SSIS-and-NAVY-C2-Confidential	Attached documents, ENV1
D20	D20_Navielektro_ne_gige_radar_streamer-guide-Confidential	Attached documents, ENV1
D21	D21_Navielektro_RDP-datasheet_2-Confidential	Attached documents, ENV1

Note. To be completed if any confidential information will be provided in the tender. The Supplier may not specify the whole tender as confidential. If the Supplier fails to specify which information is confidential, it shall be deemed that the tender contains no confidential information. The Contracting Authority shall have the right to request proof of the validity of confidential information. Pursuant to Article 18(11) of the Law on Public Procurement, the Contracting Authority shall publish the tender of the successful tenderer, the contract awarded and amendments to the terms and conditions of the procurement contract, except for information the disclosure of which would be contrary to the legislation or the legitimate commercial interests of suppliers or would prejudice free competition between them, in the CPP IS within 10 days of the award of the procurement contract.

This proposal shall be valid until 30.6.2017.

Chief Financial Officer  Rose-Marie Koivisto

*To be signed separately with an electronic signature in case the document indicates a signatory other than the one signing the entire tender.