



## INVITATION FOR NEGOTIATED PROCUREMENT

The Department of Science and Technology (DOST) - Advanced Science and Technology Institute (ASTI) intends to apply the sum of **SEVEN HUNDRED THIRTY MILLION PESOS ONLY (P730,000,000.00)** being the Approved Budget for the Contract (ABC) for the **PROCUREMENT OF SYNTHETIC APERTURE RADAR IMAGING WITH AUTOMATIC IDENTIFICATION SYSTEM**.

The procurement of the project will be conducted through Negotiated Procurement - Two Failed Biddings, an Alternative Method of Procurement, in accordance with Section 53.1 of the 2016 Revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

The Bids and Awards Committee (BAC) - 2 will hold a **Pre-Negotiation Conference on 10 December 2018, 2:00 in the afternoon** which shall be opened to all prospective bidders. The **Submission and Opening of Offers** will be on **12 December 2018, 1:30 in the afternoon**. The following eligibility, technical and financial documents must be submitted to the Procurement Management Section, G/F DOST-ASTI Bldg., CP Garcia Ave., UP Campus, Diliman, Quezon City:

### I. ELIGIBILITY AND TECHNICAL REQUIREMENTS

1. Valid and current platinum certificate of PhilGEPS Registration;
2. Duly notarized Omnibus Sworn Statement in accordance with Section 25.3 of the 2016 IRR of RA No. 9184;
3. Statement of the Bidder's Ongoing Government and Private Contracts, including contracts awarded but not yet started, if any, whether similar or not similar in nature and complexity to the contract to be bid;
4. Statement of the Bidder's Single Largest Completed Contract similar to the contract to be bid and equivalent to at least fifty percent (50%) of the ABC. The statement shall be supported by the End-user's acceptance certificate or official/collection receipt(s) or its equivalent issued for the contract;
5. If applicable, valid joint venture agreement (JVA), in case the joint venture is already in existence. In the absence of a JVA, duly notarized statements from all the potential joint venture partners should be included in the bid, stating that they will enter into and abide by the provisions of the JVA in the event that the bid is successful. Each partner of the joint venture shall submit their respective PhilGEPS Certificates of Registration in accordance with Section 8.5.2 of the IRR of RA No. 9184. The submission of technical and financial eligibility documents by any of the joint venture partners constitutes compliance.
6. Conformity/Compliance with Technical Specifications. Bidders must indicate "Comply" in each individual parameter of the technical specifications. Likewise, the Terms of Reference must be duly complied with by the bidders;
7. Conformity with Schedule of Requirements; and
8. The following documents which are required by existing laws and/or by the Procuring Entity:
  - a. Proof of Authority of the Bidder's authorized representatives;
  - b. Proof of Offers for manufacturer's supplied items containing all technical information about the product, i.e., product brochures; and

c. Proof of Warranty.

## II. FINANCIAL DOCUMENTS

1. Bid Form; and
2. Completed Price Schedule for Goods Offered from Abroad and/or from Within the Philippines.

The obligation for warranty shall be covered by, at the Supplier's preference, either retention money in an amount equivalent to at least one percent (1%) of every progress payment, or a special bank guarantee equivalent to at least one percent (1%) of the total contract price under Section 62 of the 2016 Revised IRR of RA No. 9184.

Bidders shall enclose their original eligibility and technical documents in one (1) sealed envelope marked "ORIGINAL – TECHNICAL COMPONENT", and the original of their financial component in another sealed envelope marked "ORIGINAL – FINANCIAL COMPONENT" sealing them all in an outer envelope marked "ORIGINAL BID". Each copy of the first and second envelopes shall be similarly sealed duly marking the inner envelope as "COPY NO. 1 – TECHNICAL COMPONENT" and "COPY NO. 1 FINANCIAL COMPONENT" and the outer envelope as "COPY NO. 1", respectively. Envelopes containing the original and its copies shall then be enclosed in one (1) single envelope.

The DOST-ASTI reserves the right to accept or reject an offer, to annul the negotiation process, and to reject all offers/proposals at any time prior to contract award, without thereby incurring liability to affected Bidder/s.

For further information, you may refer to:

**DOST-ASTI BAC Secretariat**  
c/o Procurement Management Section  
G/F DOST-ASTI Bldg., CP Garcia Ave.  
UP Campus, Diliman, Quezon City  
Telephone No.: +63 2 426-9760 local 1206/1212  
Email: bac-sec@asti.dost.gov.ph  
Website: asti.dost.gov.ph

Digitally signed by  
Paul John M. Serrano

**PAUL JOHN M. SERRANO**  
*Chairperson, BAC-2*

## OMNIBUS SWORN STATEMENT

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REPUBLIC OF THE PHILIPPINES        )  
CITY/MUNICIPALITY OF \_\_\_\_\_ ) S.S.

### AFFIDAVIT

I, *[Name of Affiant]*, of legal age, *[Civil Status]*, *[Nationality]*, and residing at *[Address of Affiant]*, after having been duly sworn in accordance with law, do hereby depose and state that:

1. **Select one, delete the other:**

*If a sole proprietorship:* I am the sole proprietor or authorized representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

*If a partnership, corporation, cooperative, or joint venture:* I am the duly authorized and designated representative of *[Name of Bidder]* with office address at *[address of Bidder]*;

2. **Select one, delete the other:**

*If a sole proprietorship:* As the owner and sole proprietor, or authorized representative of *[Name of Bidder]*, I have full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]*, as shown in the attached duly notarized Special Power of Attorney;

*If a partnership, corporation, cooperative, or joint venture:* I am granted full power and authority to do, execute and perform any and all acts necessary to participate, submit the bid, and to sign and execute the ensuing contract for *[Name of the Project]* of the *[Name of the Procuring Entity]*, as shown in the attached *[state title of attached document showing proof of authorization (e.g., duly notarized Secretary's Certificate, Board/Partnership Resolution, or Special Power of Attorney, whichever is applicable);]*;

3. *[Name of Bidder]* is not "blacklisted" or barred from bidding by the Government of the Philippines or any of its agencies, offices, corporations, or Local Government Units, foreign government/foreign or international financing institution whose blacklisting rules have been recognized by the Government Procurement Policy Board;

4. Each of the documents submitted in satisfaction of the bidding requirements is an authentic copy of the original, complete, and all statements and information provided therein are true and correct;

5. *[Name of Bidder]* is authorizing the Head of the Procuring Entity or its duly authorized representative(s) to verify all the documents submitted;

6. **Select one, delete the rest:**

*If a sole proprietorship:* The owner or sole proprietor is not related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

*If a partnership or cooperative:* None of the officers and members of *[Name of Bidder]* is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the

REQUEST FOR QUOTATION NO. 18-09-2138 DD. 05 DECEMBER 2018  
PROCUREMENT OF SYNTHETIC APERTURE RADAR IMAGING WITH AUTOMATIC IDENTIFICATION SYSTEM  
APPROVED DBUDGET FOR THE CONTRACT: ₱730,000,000.00

Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

*If a corporation or joint venture:* None of the officers, directors, and controlling stockholders of [Name of Bidder] is related to the Head of the Procuring Entity, members of the Bids and Awards Committee (BAC), the Technical Working Group, and the BAC Secretariat, the head of the Project Management Office or the end-user unit, and the project consultants by consanguinity or affinity up to the third civil degree;

7. [Name of Bidder] complies with existing labor laws and standards; and
8. [Name of Bidder] is aware of and has undertaken the following responsibilities as a Bidder:
  - a) Carefully examine all of the Bidding Documents;
  - b) Acknowledge all conditions, local or otherwise, affecting the implementation of the Contract;
  - c) Made an estimate of the facilities available and needed for the contract to be bid, if any; and
  - d) Inquire or secure Supplemental/Bid Bulletin(s) issued for the [Name of the Project].
9. [Name of Bidder] did not give or pay directly or indirectly, any commission, amount, fee, or any form of consideration, pecuniary or otherwise, to any person or official, personnel or representative of the government in relation to any procurement project or activity.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_ day of \_\_\_\_, 20\_\_ at \_\_\_\_\_, Philippines.

\_\_\_\_\_  
Bidder's Representative/Authorized Signatory

**SUBSCRIBED AND SWORN** to before me this \_\_\_\_ day of [month] [year] at [place of execution], Philippines. Affiant/s is/are personally known to me and was/were identified by me through competent evidence of identity as defined in the 2004 Rules on Notarial Practice (A.M. No. 02-8-13-SC). Affiant/s exhibited to me his/her [insert type of government identification card used], with his/her photograph and signature appearing thereon, with no. \_\_\_\_\_ and his/her Community Tax Certificate No. \_\_\_\_\_ issued on \_\_\_\_ at \_\_\_\_\_.

Witness my hand and seal this \_\_\_\_ day of [month] [year].

**NAME OF NOTARY PUBLIC**

Serial No. of Commission \_\_\_\_\_  
Notary Public for \_\_\_\_\_ until \_\_\_\_\_  
Roll of Attorneys No. \_\_\_\_\_  
PTR No. \_\_\_\_\_ [date issued], [place issued]  
IBP No. \_\_\_\_\_ [date issued], [place issued]

Doc. No. \_\_\_\_\_  
Page No. \_\_\_\_\_  
Book No. \_\_\_\_\_  
Series of \_\_\_\_\_

**STATEMENT OF ALL ITS ONGOING GOVERNMENT AND PRIVATE CONTRACTS**

Example:

No.	Contract Name	Contract Date & Contract Duration	Owner's name & address	Kinds of Goods / Services	Amount of Contract	Value of Outstanding Contract	Date of Delivery	Government or Private ("G" or "P")
1	XYZ Plan	01 Jan 2017, 5 Years	Juan Dela Cruz, Quezon City	Subscription Service	P99,000,000.00	P38,000,000.00	02 Jan 2017	G
<b>Total Value of All Outstanding Contracts: P38,000,000.00</b>								

No.	Contract Name	Contract Date & Contract Duration	Owner's name & address	Kinds of Goods / Services	Amount of Contract	Value of Outstanding Contracts	Date of Delivery	Government or Private ("G" or "P")
1								
2								
3								
4								

**Total Value of All Outstanding Contracts:** \_\_\_\_\_

\*Supporting documents are not required.

**CERTIFIED CORRECT:**

Name of Company:

Signature of Authorized Representative:

Name and Designation:

Date:

## STATEMENT OF SINGLE LARGEST COMPLETED CONTRACT

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Within three (3) years from the date of submission of bids which is similar in nature and the amount of which should be equivalent to at least fifty (50%) of the ABC.

Please fill up the required information below:

1	Name of Contract	
2	Date of Contract	
3	Contract Duration	
4	Owner's Name	
5	Owner's Address	
6	Kinds of Good / Services	
7	Amount of completed contracts	
8	Date of Delivery	
9	O.R No. / Sales Invoice No.	

**Note:**

The bidder shall:

1. For #7, the amount of the completed contracts can be adjusted by the Bidder to the current prices using PSA's consumer price index, if necessary, for the purpose of meeting the SLCC Requirement.
2. It is required for the Bidder to submit one of the following documents. Choose only one to submit, not all.
  - a. Official Receipt
  - b. Sales Invoice
  - c. Statement of End-user's Acceptance
3. For #9, indicate the official receipt no. or the sales invoice no. of the supporting document attached or easier reference. If the Bidder opts to submit a statement of end-user's acceptance, then just indicate "N/A"

**CERTIFIED CORRECT:**

**Name of Company:**  
**Signature of Authorized Representative:**  
**Name and Designation:**  
**Date:**

## TECHNICAL SPECIFICATION COMPLIANCE

*Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of ITB Clause Error! Reference source not found. and/or GCC Clause Error! Reference source not found..*

ITEM	SPECIFICATION	STATEMENT OF COMPLIANCE
1	<b>Procurement of Synthetic Aperture Radar (SAR) Imaging with Automatic Identification System (AIS)</b>	
	<b>I. General Description</b>	
	- Access to a minimum share of 10% of the total SAR satellite imaging capacity with associated AIS data;	
	- Provision of the following functionalities, but not limited to, planning, reception, cataloguing, and processing of SAR, AIS and other data.	
	Training on the aforementioned shall be included;	
	- Relevant training for development of applications, using SAR with AIS, and other available data for local use by various agencies;	
	- Provision of satellite reception services, when necessary, and forwarding the data to DOST-ASTI;	
	- Relevant documentation such as, but not limited to, manuals and reports;	
	- Provision of other relevant services in support of satellite operations.	
	<b>II. Technical Requirements</b>	
	<b>II.A. S-Band SAR Satellite</b>	
	- The contractor shall ensure that the proposed satellite has a design life of 7 years and will be able to provide service, i.e., SAR data/imagery and AIS data, for at least 7 years.	
	- The satellite must allow both SAR and AIS payloads to work simultaneously	
	<b>II.B. Satellite Specifications</b>	
	- At least HH, HV, VH, VV polarizations	
	- Must have single, dual, tri or quad-polar imaging polarizatoin	
	- Downlink rate of at least 500 Mbps	
	- TT&C frequency band - S-Band	
	- Downlink frequency band - X-Band	

REQUEST FOR QUOTATION NO. 18-09-2138 DD. 05 DECEMBER 2018  
 PROCUREMENT OF SYNTHETIC APERTURE RADAR IMAGING WITH AUTOMATIC IDENTIFICATION SYSTEM  
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	<b>II.C. Baseline Imaging Modes</b>	
	- Mode 1: Allow for wide area applications with at least 25m resolution and at least 100km swath	
	- Mode 2: Allow for maritime ship detection with at least 30m resolution for use in open ocean over an extended swath width of at least 350km	
	- Mode 3: Allow for a capture of at least 10m resolution for a swath width of at least 20km swath selected from at least 150km field of regard	
	- Mode 4: Allow for a capture over a swath width of at least 120km with resolution of at least 30m	
	<b>II.D. AIS Payload</b>	
	- The satellite should have a secondary payload, an automatic ship identification system, to support maritime applications.	
	This payload should have a geolocation accuracy across the swath for all products of at least 50m with respect to the reference Earth ellipsoid.	
	The existing system should allow operators to perform calibration of geolocation performance against a known location.	
	- The satellite should collect AIS data coincidentally with SAR imagery of the same area to provide additional information on the identification of detected ships and highlight non-AIS transmitting vessels.	
	- The AIS data should follow standard specifications, such as that of the International Telecommunication Union (ITU) as indicated in ITU-R M.1371, or its equivalent.	
	- For readability, an .xml file should be provided where the binary AIS data have been converted to into ASCII following the NMEA 0183 format.	
	<b>III. Operational Requirements</b>	
	- The contractor will carry out payload operations throughout the duration of the contract to provide the agreed SAR Imaging Capacity and associated AIS data.	
	<b>III.A. Payload Tasking</b>	
	- All SAR payload tasking shall be done centrally through a collection planning system (CPS), or similar system, located at the contractor's site.	
	The CPS shall be a distributed planning system which allows the DOST-ASTI, to submit tasking requests for the satellite.	
	The DOST-ASTI shall have its own web-based CPS which they can use to identify regions of interest on a world map and generate available tasking requests.	
	DOST-ASTI's CPS will be used to submit these to the contractor's central planning system, where tasking requests will be received and collated.	
	The CPS will be installed by the contractor at the computers provided by DOST-ASTI.	
	<b>III.B. Data downlink</b>	



REQUEST FOR QUOTATION NO. 18-09-2138 DD. 05 DECEMBER 2018  
 PROCUREMENT OF SYNTHETIC APERTURE RADAR IMAGING WITH AUTOMATIC IDENTIFICATION SYSTEM  
 APPROVED DBUDGET FOR THE CONTRACT: ₱730,000,000.00

	<ul style="list-style-type: none"> <li>- For a period of up to one (1) year following the SoS, data will be downloaded to the contractor's ground station should DOST-ASTI be unable to receive at its ground stations.</li> </ul>	
	<p>Thereafter or earlier, the contractor shall ensure that DOST-ASTI will be able to directly receive data from the satellite.</p>	
	IV. Ground Receiving Station Requirements	
	<ul style="list-style-type: none"> <li>- The contractor shall ensure that their satellite will properly communicate with the DOST-ASTI GRS.</li> </ul>	
	IV.A. Mission Operations	
	<ul style="list-style-type: none"> <li>- The contractor shall allow the DOST-ASTI to plan payload imaging operations and to process the generated data collected from the satellite payload along with the following features:</li> </ul>	
	1. Collection Planning System, or equivalent system	
	<ul style="list-style-type: none"> <li>- Centralized planning engine which takes and consolidates imaging requests.</li> </ul>	
	2. Scheduler, or equivalent feature	
	<ul style="list-style-type: none"> <li>- Allows requests to be scheduled, planned and generated.</li> </ul>	
	3. SAR Data Processor	
	<ul style="list-style-type: none"> <li>- Automatically processes raw SAR data and outputs radiometrically corrected, geolocated single look complex or ground range detected products.</li> </ul>	
	Output products must support a public domain metadata standard for transfer to other proprietary tools.	
	<ul style="list-style-type: none"> <li>- Support features such as, but not limited to:</li> </ul>	
	a. Automated processing of raw imagery	
	b. Image decompression	
	c. Processing to level 1 Single Look Complex (SLC)	
	d. Processing to level 1 Ground Range Detected (GRD)	
	e. Support public domain metadata standard (ex. GeoTIFF format)	
	4. Catalogue System, or equivalent system	
	<ul style="list-style-type: none"> <li>- Allows retrieval or downloading of stored images through a graphical interface.</li> </ul>	
	The system should have a date or geographical area viewing for metadata and quick-looks.	
	IV.B. Acquisition Tasking	
	The system shall verify all acquisition tasking requests using the following criteria:	
	1. The task is within the capabilities of the spacecraft.	
	2. The task will not place the spacecraft outside of its normal operating envelope.	
	3. The task does not conflict with planned periods of space or ground segment maintenance or calibration.	

REQUEST FOR QUOTATION NO. 18-09-2138 DD. 05 DECEMBER 2018  
 PROCUREMENT OF SYNTHETIC APERTURE RADAR IMAGING WITH AUTOMATIC IDENTIFICATION SYSTEM  
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	An acquisition request shall be accepted up to 1 month in advance by the CPS.	
	V. Training	
	The contractor shall provide appropriate training for DOST-ASTI such as, but not limited to, the operation of the CPS, SAR Data Processor, Catalogue Systems and applications development.	
	The contractor shall submit a list of topics for the training on applications development for suggestion and approval by DOST-ASTI.	
	Notes:	
	- Any other term, condition or provision not stipulated in this document will be covered by a separate term sheet from DOST-ASTI and agreement from the contractor as proposed and agreed upon with the end-user	
	- Price inclusive of government fees, taxes and duties as well as currency conversion risks and fees, as applicable	
	- Proposal must be inclusive of insurance and refund provisions in cases of operational failure	

## Term Sheet for the Implementation of Synthetic Aperture Radar (SAR) with Automatic Identification System (AIS) for Innovative Terrestrial Monitoring and Maritime Surveillance

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### 1. Introduction

To further improve the Philippines' capabilities in analyzing earth observation data as well as add to its constellation of supported satellites, the Department of Science and Technology – Advanced Science and Technology Institute is looking to implement the "Synthetic Aperture Radar (SAR) and Automatic Identification System (AIS) for Innovative Terrestrial Monitoring and Maritime Surveillance" project, to complement the agency's mandate on undertaking researches to strengthen and modernize science and technology infrastructure. The project will also allow the agency to receive and process SAR Imagery with AIS data to aid various stakeholders, such as the National Security Council (NSC), in their terrestrial monitoring and maritime surveillance activities.

### 2. Purpose

This document serves to detail the specifications for the implementation of the project necessary to provide DOST-ASTI with the required services needed for its applications development. It is primarily composed of the **Statement of Work (SOW)** describing the work to be performed by the contractor and a specification of the **Technical Requirements, Performance Requirements, Operational Requirements, and Other Requirements** relevant to the contractor's deliverables. Other useful information relevant to the ground station and the tender are also included.

### 3. Definitions

Throughout this document, the following conventions apply:

- a) the word "will", implies a statement of fact;
- b) the word "shall" implies a binding and verifiable requirement;
- c) the word "should" implies an optional, but desirable, feature; and
- d) the word "may" implies an optional feature.

"Day" refers to working days unless otherwise noted.

"Week" refers to five (5) consecutive working days.

"Month" refers to twenty-two (22) consecutive working days.

"Bidder" refers to an individual or group who will submit a proposal for evaluation.

"Contractor" refers to the winning bidder.

"Start of Service" refers to the date provided for the start of service certificate.

### 4. Statement of Work

#### 4.1 General Work Descriptions

The contractor shall deliver a solution that will enable planning, reception, cataloguing and processing of SAR with AIS data. The contractor shall provide training on the operations and maintenance of the relevant system, as well as development of applications using SAR and AIS. Satellite imagery and telemetry reception should be thru the DOST-ASTI Ground Receiving Station (GRS). Alternatively, reception can also be provided for by the contractor thru a ground station it owns or thru a 3rd party.

#### 4.2 Contractor Deliverables

The contractor, whenever applicable, shall be responsible for, but not limited to, the design, integration, packing for shipment, shipment, receiving, unpacking, installation, site acceptance testing, training, warranty, and other tasks necessary for the delivery and installation of the various elements of the project.

In general terms, the contractor shall deliver a SAR and AIS service that include, but not limited to, the following main components:

1. Access to a minimum share of 10% of the total SAR satellite imaging capacity or a minimum of at least two (2) imaging minutes per day with associated AIS data for a minimum period of seven (7) years;
2. Provision of the following functionalities, but not limited to, planning, reception, cataloguing, and processing of SAR, AIS and other data. Training on the aforementioned shall be included;
3. Relevant training for development of applications, using SAR with AIS, and other available data for local use by various agencies;
4. Provision of satellite reception services, when necessary, and forwarding the data to DOST-ASTI;
5. Relevant documentation such as, but not limited to, manuals and reports;
6. Provision of other relevant services in support of satellite operations.

The following are the expected deliverables with the nominal date for completion:

**Table 1. Service Deliverables**

Deliverable	Nominal date for completion	Place of Performance
Access to a share of 10% of the planned SAR imaging capacity with associated AIS data on the contractor's satellite*	Start of Service (SOS) + 7 years	DOST-ASTI
Provision of the following functionalities, but not limited to, planning, reception, cataloguing, and processing of SAR, AIS and other data. Training on the aforementioned shall be included;	SOS + 1 year	DOST-ASTI
Relevant training for development of applications, using SAR with AIS, and other available data for local use by various agencies;	SOS + 1 year	DOST-ASTI
Provision of satellite reception services, when necessary, and forwarding the data to DOST-ASTI;	SOS + 1 year	CONTRACTOR'S SITE
Relevant documentation such as, but not limited to, manuals and reports;	SOS + 7 years	DOST-ASTI
Provision of other relevant services in support of satellite operations.	SOS + 7 years	DOST-ASTI

\*The contractor shall ensure DOST-ASTI's capability in receiving, processing, cataloguing and disseminating SAR and AIS data. This shall include the provision of necessary items, as applicable, subject to the provisions of this term sheet.

**Table 2. Document Deliverables**

Deliverable	Nominal date for completion	Place of Performance
Project Review Report	SOS + 7 years	DOST-ASTI
Project Schedule	SOS + 1 year	DOST-ASTI
In-orbit commissioning report	SOS + 1 year	DOST-ASTI
Payload and Tasking User Manual	SOS + 1 year	DOST-ASTI
Start of Service Certificate	SOS	DOST-ASTI
Data Service Scheme	SOS + 1 year	DOST-ASTI

#### 4.3 Program Management

The contractor shall establish and appoint a project manager responsible for the overall contract. The project manager will serve as the point of contact with DOST-ASTI. The contractor shall provide a project schedule or workplan. The project manager shall submit a monthly progress report to DOST-ASTI.

#### 4.3.1 General Approach

The contractor shall adopt a project management approach suitable for the execution of the program and be issued within the Project Management Plan.

The contractor shall maintain a project action item list which will hold all actions raised in meetings and reviews. The action item list will be a live document that is updated throughout the project.

The contractor shall maintain a risk register identifying the main risks that threaten the successful completion of the program to the agreed schedule. The risk register shall include risk mitigation actions. The risk register will be a live document that is updated throughout the project.

#### 4.3.2 Key Personnel and Responsibilities

The contractor's Project Manager (PM) must have delegated authority from the contractor's management and is responsible for successful achievement of the project phases that the contractor has responsibility for, including technical, schedule, cost and quality levels. The Project Manager shall provide and maintain the direct relationship with the customer and engineering teams. The Project Manager also assumes responsibility for product assurance establishing the integrity of the design, providing evidence to support the test program and ensuring that the verification plan is compliant with requirements. The Project Manager maintains overall control of the project deliverables to DOST-ASTI.

#### 4.3.3 Meetings and Reviews

The formal meetings and program reviews shall be held at locations mutually agreed upon by both parties or by teleconference. The Contractor and DOST-ASTI will endeavor to coordinate their review meetings for mutual benefit and efficiency. Appropriate project reviews will be held at specific project milestones, as applicable.

#### 4.3.4 Other Technical Meetings

Contractor shall hold the following technical meetings on an as-required basis to which DOST-ASTI will be invited:

- a) Material Review Boards: Held as required at contractor's premises or through teleconference or as agreed upon with DOST-ASTI.
- b) Non-Conformance Reviews: Held as required at contractor's premises or through teleconference or as agreed upon with DOST-ASTI.
- c) Failure Review Boards: Held as required at contractor's premises or through teleconference or as agreed upon with DOST-ASTI.

#### 4.3.5 Review Completion

The outputs of a milestone review are: the presentation material, the documents under review, the associated Review Item Discrepancies (RID) and an updated action list. Closure of the review and transition to the next phase will occur when all major action items are closed and if a disposition has been agreed by the review against each minor action item and the milestone completion certificate has been signed by DOST-ASTI.

## **5. Technical Requirements**

### **5.1 General Requirements**

The contractor shall deliver a solution that can provide SAR data/imagery at the specifications described below. Moreover, the contractor shall provide satellite AIS data on board the same SAR satellite which

can operate simultaneously. Further, relevant services including training shall be provided by the contractor. Documentation shall likewise be delivered.

## 5.2 Technical Description

The bidder shall provide specifications for the satellite upon request to verify that the bidder's proposed system and satellite meet the specifications as stated in this section.

## 5.3 Satellite Requirements

### 5.3.1 Status of Satellite

The satellite must be proven to be existing in space at the time of posting of this bid. Documentary requirements must be provided including, but not limited to, launch documents, press releases, etc.

### 5.3.2 Design Life

The contractor shall ensure that the proposed satellite has a design life of 7 years and will be able to provide service, i.e., SAR data/imagery with AIS data, for at least 7 years.

### 5.3.3 Satellite Mission Specifications

The satellite must meet the minimum satellite specifications below:

**Table 3. Satellite Specifications**

Parameter	Value
Polarizations	At least HH, HV, VH, VV
Imaging Polarization	Single, dual, tri or quad-polar
Design Life	At least 7 years
Downlink Rate	At least 500 Mbps
TT&C frequency band	In the S-band frequency range
Downlink frequency band	In the X-band frequency range

### 5.3.4 Satellite Payload

The satellite shall have both the AIS and SAR payloads to allow for simultaneous data acquisition.

#### 5.3.4.1 SAR Payload

The SAR payload shall be in the S-band frequency range.

##### 5.3.4.1.1 Satellite Baseline Imaging Modes

At the minimum, the satellite shall have the following imaging modes:

- A. Mode 1
  - Allow for wide area applications with at least 25m resolution and at least 100km swath
- B. Mode 2
  - Allow for maritime ship detection with at least 30m resolution for use in open ocean over an extended swath width of at least 350km
- C. Mode 3
  - Allow for a capture of at least 10m resolution for a swath width of at least 20km swath selected from at least 150km field of regard
- D. Mode 4
  - Allow for a capture over a swath width of at least 120km with resolution of at least 30m

#### 5.3.4.2 AIS Payload

The satellite shall have a secondary payload, an automatic ship identification system, to support maritime applications. This payload should have a geolocation accuracy across the swath for all

products of at least 50m with respect to the reference Earth ellipsoid. The existing system shall allow operators to perform calibration of geolocation performance against a known location.

The satellite shall collect AIS data coincidentally with SAR imagery of the same area to provide additional information on the identification of detected ships.

#### 5.3.4.2.1 AIS Data Format

The AIS data shall follow standard specifications, such as that of the International Telecommunication Union (ITU) as indicated in ITU-R M.1371, or its equivalent. For readability, an .xml file shall be provided where the binary AIS data have been converted to into ASCII following the NMEA 0183 format.

## **6. Performance Requirements**

### **6.1 General Requirements**

The contractor shall deliver a solution that meets the following performance requirements

#### 6.1.1 List of Supported Applications

The satellite system at the minimum should be useful for, but not limited to, the following applications:

1. Ship detection and tracking
2. Oil spill monitoring
3. Forestry management
4. Resource monitoring
5. Border monitoring
6. Disaster management
7. Land use and agriculture mapping
8. Rice monitoring
9. Soil moisture

#### 6.1.2 Percentage Imaging Time and Coverage

The contractor will make available to the DOST-ASTI a 10% share of the total SAR Imaging Capacity defined in terms of minutes of payload operation of the spacecraft and associated ship AIS signals, with priority access over the Area of Interest (AOI) defined as Philippine territory and Exclusive Economic Zone (EEZ).

DOST-ASTI shall be able to request acquisitions and archive images outside of its priority AOI up to its 10% share. The priority and volume of imagery captured will be determined by a token system administered by the contractor who will arbitrate fairly across all customers according to their agreed share.

#### 6.1.3 SAR Acquisition Capacity

The satellite shall be able to acquire SAR data for at least 120 seconds per orbit in any mode and download these to the payload data ground receiving station.

#### 6.1.4 Revisit

The satellite system at the minimum shall have an average revisit time of 2-4 days at high resolution modes.

#### 6.1.5 Simultaneous Download of SAR and AIS Data

The satellite system shall allow for simultaneous download of SAR and AIS data taken over the same area of interest.

#### 6.1.6 Payload Duty Cycle

The satellite shall have a payload duty cycle of around 2-4 minutes per orbit.

#### 6.1.7 Data Compatibility

The satellite's data shall be able to complement existing radar and optical images from both space and airborne assets including, but not limited to, ground based AIS, digital elevation models (DEMs), statistical databases, etc.

#### 6.1.8 Multipolarization

The satellite shall be capable of producing products from all four polarization options: HH, HV, VH and VV. It shall also have the alternating polarization scheme capability allowing the satellite to provide dual (any 2 from HH, VV, HV or VH), tri (i.e., any 3 from HH, VV, HV or VH) and quad polarization imagery.

### **7. Operational Requirements**

#### 7.1 Payload Operations

The contractor will carry out payload operations throughout the duration of the contract to provide the agreed SAR Imaging Capacity and associated AIS data.

#### 7.2 SAR Payload Tasking

All SAR payload tasking shall be done centrally through a collection planning system (CPS), or similar system, located at the contractor's site. The CPS shall be a distributed planning system which allows the DOST-ASTI, to submit tasking requests for the satellite. The DOST-ASTI shall have its own web-based CPS which they can use to identify regions of interest on a world map and generate available tasking requests. DOST-ASTI's CPS will be used to submit these to the contractor's central planning system, where tasking requests will be received and collated. The CPS will be installed by the contractor at the computers provided by DOST-ASTI.

#### 7.3 Mission Operations

The contractor shall support the DOST-ASTI's share of 10% of the planned SAR Imaging Capacity by providing the following:

##### **Service Management**

Managed service shall be provided throughout the mission through technical and management support to DOST-ASTI. The service management will include:

##### **1. User Request Management**

Contractor will provide email and telephone advice and support on tasking opportunities to address specific requests on a case by case basis. This service will be available during the contractor's working days (from Monday to Friday between 9:00 and 17:00 at contractor's local time).

##### **2. Help Desk Support**

Contractor will provide a User Help Desk service to remotely assist DOST-ASTI in resolving issues with the scheduling interface and data reception. This service will be available during contractor working days (from Monday to Friday between 9:00 and 17:00 at contractor's local time) and typically with 2-3 day response time (excluding weekends).

##### **3. Quarterly Reporting**

Contractor will provide a quarterly report to DOST-ASTI with the following information to be provided as applicable:

- i. Overview of Service status
- ii. Volume of Imagery
- iii. Timeliness of Image Supply



- iv. Maintenance activities
- v. Planned maintenance activities including calibration campaigns
- vi. Summary of issues raised and closed

#### 4. Annual Review

Contractor will hold an annual review on an agreeable date. This would include:

- i. Brief overview of performance of system for the previous year by the Contractor
- ii. Review of Quarterly Reports
- iii. Review of Actions and issues logged and documented in Help desk

This shall be provided for a period of seven (7) years following the Start of Service.

#### **Payload Tasking**

The contractor will be responsible for checking the feasibility of the received tasking requests, de-conflicting and uploading them to the satellite. DOST-ASTI will be informed if its image requests have been accepted or rejected.

This shall be provided for a period of seven (7) years following the Start of Service.

#### **Data downlink**

For a period of up to one (1) year following the SoS, data will be downloaded to the contractor's ground station should DOST-ASTI be unable to receive at its ground stations. Thereafter or earlier, the contractor shall ensure that DOST-ASTI will be able to directly receive data from the satellite.

#### **Data dissemination**

The downloaded data from the contractor's ground station will be placed on a secure FTP site or similar service provided by DOST-ASTI, who will be notified via an email alert system. This shall be delivered within 24 hours after downlink. DOST-ASTI shall be responsible for data processing.

This shall be provided for a period of up to one (1) year following the Start of Service.

#### **7.4 Ground Station Requirements**

The contractor shall ensure that their satellite will properly communicate with the DOST-ASTI GRS.

##### 7.4.1 Mission Operations

The contractor shall allow the DOST-ASTI to plan payload imaging operations and to process the generated data collected from the satellite payload along with the following features:

1. Collection Planning System, or equivalent system
  - Centralized planning engine which takes and consolidates imaging requests
2. Scheduler, or equivalent feature
  - Allows requests to be scheduled, planned and generated.
3. SAR Data Processor
  - Automatically processes raw SAR data and outputs radiometrically corrected, geolocated single look complex or ground range detected products. Output products must support a public domain metadata standard for transfer to other proprietary tools.
  - Support features such as, but not limited to:
    - o Automated processing of raw imagery
    - o Image decompression
    - o Processing to level 1 Single Look Complex (SLC)
    - o Processing to level 1 Ground Range Detected (GRD)

- o Support public domain metadata standard (ex. GeoTIFF format)

4. Catalogue System, or equivalent system

- Allows retrieval or downloading of stored images through a graphical interface. The system should have a date or geographical area viewing for metadata and quick-looks.

**7.5 Acquisition Tasking**

The system shall verify all acquisition tasking requests using the following criteria:

1. The task is within the capabilities of the spacecraft.
2. The task will not place the spacecraft outside of its normal operating envelope.
3. The task does not conflict with planned periods of space or ground segment maintenance or calibration.

An acquisition request shall be accepted up to 1 month in advance by the CPS.

**7.6 Satellite Maintenance Notification**

The contractor shall notify the DOST-ASTI of maintenance periods and outage times.

**8. Other Requirements**

**8.1 Training**

The contractor shall provide appropriate training for DOST-ASTI such as, but not limited to, the operation of the CPS, SAR Data Processor, Catalogue Systems and applications development. The contractor shall submit a list of topics for the training on applications development for suggestion and approval by DOST-ASTI.

**8.2 License Terms and Conditions**

The DOST-ASTI will be allowed as part of the licensing agreement, to freely distribute data and imagery products within the government hierarchy, research and development (R&D) institutions, academia and other entities.

**8.3 Documentation**

The contractor shall provide all necessary documentation, such as but not limited to, reports, minutes of meetings, manuals, among others.

**8.4 Reporting Media and Formats**

Unless otherwise stated, reports shall be provided in electronic format, preferably in PDF.

**8.5 Severability**

The invalidity of any portion of the agreement/contract shall not affect the validity of the remaining portions thereof.

**8.6 Currency**

The bidder shall describe all financial bid prices in Philippine Peso.

**8.7 Payment Terms**

Philippine Government terms. Payments shall be inclusive of, but not limited to, all government fees, taxes and duties, as applicable.

Payment shall be done over the course of five (5) years:

Y1: at most 26% of the Contract Price

Y2: at most 18.5% of the Contract Price

Y3: at most 18.5% of the Contract Price

REQUEST FOR QUOTATION NO. 18-09-2138 DD. 05 DECEMBER 2018  
PROCUREMENT OF SYNTHETIC APERTURE RADAR IMAGING WITH AUTOMATIC IDENTIFICATION SYSTEM  
APPROVED DBUDGET FOR THE CONTRACT: ₱730,000,000.00

Y4: at most 18.5% of the Contract Price

Y5: at most 18.5% of the Contract Price

**8.8 Other terms and conditions**

Should there be any discrepancy with the technical requirement/s under Section VII. of the Bidding Documents and the Term Sheet, requirement/s provided for in the latter shall govern.

Any other term, condition or provision not stipulated in this document will be covered by a separate agreement as proposed and agreed upon by DOST-ASTI and the contractor.

-----  
**I HEREBY ACKNOWLEDGE THAT I HAVE READ, UNDERSTAND AND AGREE TO COMPLY WITH ALL REQUIREMENTS STATED IN THE TERMS OF REFERENCE.**

**Name** : \_\_\_\_\_  
**Designation** : \_\_\_\_\_  
**Company Name** : \_\_\_\_\_  
**Date** : \_\_\_\_\_

## SCHEDULE OF REQUIREMENTS

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the **Advanced Science and Technology Institute**.

Item/Lot Number	Description	Quantity	Unit	Delivered, Weeks/Months
1	Procurement of Synthetic Aperture Radar Imaging with Automatic Identification System	1	Lot	<ul style="list-style-type: none"> <li>- Access to image tasking and download must be given within one hundred eighty (180) calendar days upon issuance of Notice to Proceed.</li> <li>- Training shall be completed within sixty (60) calendar days after access to image tasking.</li> </ul>

**I hereby certify to comply and deliver all the above requirements.**

**Name of Company** : \_\_\_\_\_  
**Signature of Authorized Representative** : \_\_\_\_\_  
**Name of Authorized Representative** : \_\_\_\_\_  
**Designation** : \_\_\_\_\_  
**Date** : \_\_\_\_\_

## BID FORM

Date: \_\_\_\_\_  
Request for Quotation No.: \_\_\_\_\_

To : **ADVANCED SCIENCE AND TECHNOLOGY INSTITUTE**  
**Department of Science and Technology Institute**  
**DOST-ASTI Bldg., CP Garcia Ave., UP Technopark**  
**UP Campus, Diliman, Quezon City 1101**

Gentlemen and/or Ladies:

Having examined the Bidding Documents including Bid Bulletin Numbers *[insert numbers]*, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to *[supply/deliver/perform]* *[description of the Goods]* in conformity with the said Bidding Documents for the sum of *[total Bid amount in words and figures]* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid.

We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our Bid is accepted, we undertake to provide a performance security in the form, amounts, and within the times specified in the Bidding Documents.

We agree to abide by this Bid for the Bid Validity Period required by the Procuring Entity and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and address of agent	Amount and Currency	Purpose of Commission or gratuity
_____	_____	_____
_____	_____	_____
_____	_____	_____

(if none, state "None")

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your Notice of Award, shall be binding upon us.

We understand that you are not bound to accept the Lowest Calculated Bid or any Bid you may receive.

We certify/confirm that we comply with the eligibility requirements as required by the Procuring Entity.

We likewise certify/confirm that the undersigned, *[for sole proprietorships, insert: as the owner and sole proprietor or authorized representative of Name of Bidder, has the full power and authority to participate, submit the bid, and to sign and execute the ensuing contract, on the latter's behalf for the Name of Project of the Name of the Procuring Entity] [for partnerships, corporations, cooperatives, or joint ventures, insert: is granted full power and authority by the Name of Bidder, to participate, submit the bid, and to sign and execute the ensuing contract on the latter's behalf for Name of Project of the Name of the Procuring Entity].*

REQUEST FOR QUOTATION NO. 18-09-2138 dated 05 December 2018  
Procurement of Synthetic Aperture Radar Imaging with Automatic Identification System  
Approved Budget for the Contract: ₱730,000,000.00

We acknowledge that failure to sign each and every page of this Bid Form, including the attached Schedule of Prices, shall be a ground for the rejection of our bid.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

\_\_\_\_\_  
*[signature]*

\_\_\_\_\_  
*[in the capacity of]*

Duly authorized to sign Bid for and on behalf of \_\_\_\_\_

**For Goods Offered From Abroad**

Name of Bidder \_\_\_\_\_ Request for Quotation Number \_\_\_\_\_

1	2	3	4	5	6	7	8	9
Item	Description	Country of origin	Quantity	Unit price CIF port of entry (specify port) or CIP named place (specify border point or place of destination)	Total CIF or CIP price per item (col. 4 x 5)	Unit Price Delivered Duty Unpaid (DDU)	Unit price Delivered Duty Paid (DDP)	Total Price delivered DDP (col 4 x 8)

\_\_\_\_\_ [signature]

\_\_\_\_\_ [in the capacity of]

Duly authorized to sign Bid for and on behalf of \_\_\_\_\_

**For Goods Offered From Within the Philippines**

Name of Bidder \_\_\_\_\_ Request for Quotation Number \_\_\_\_\_

1	2	3	4	5	6	7	8	9	10
Item	Description	Country of origin	Quantity	Unit price Exw per item	Transportation and Insurance and all other costs incidental to delivery, per item	Sales and other taxes payable if Contract is awarded, per item	Cost of Incidental Services, if applicable, per item	Total Price, per unit (col 5+6+7+8)	Total Price delivered Final Destination (col 9) x (col 4)

\_\_\_\_\_  
*[signature]*

\_\_\_\_\_  
*[in the capacity of]*

Duly authorized to sign Bid for and on behalf of \_\_\_\_\_