

General Terms and Condition

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General Terms and Conditions

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Appendix

B-1. Statement of Works

Preamble

This Contract made on December ____, 2014 and will be valid until May 31, 2017 by and between Korea Aerospace Research Institute, established under the law of the Republic of Korea with its principal office at 169-84 Gwahakro, Yuseong-Gu, Daejeon 305-806, Korea, hereinafter referred to as “KARI” and _____ established under the law of the _____, with its principal office at _____, hereinafter referred to as “Contractor”.

Witnesseth

WHEREAS, KARI has a satellite assembly, integration and test center (hereinafter referred to as ‘AITC’) for the purpose of the effective development of domestic satellites and basic facilities and equipment for satellite assembly and test have been supplied, installed and used;

WHEREAS, the primary objective of this procurement is to design, manufacture, procure and install qualified functional Vibration shakers & Interface equipment which performs the functions required in Large Vibration Test Facility specification for AITC;

WHEREAS, Contractor represents that it has direct knowledge and first-hand experience in manufacturing and supplying the Vibration shakers & Interface equipment for Large Vibration Test Facility of this Contract;

WHEREAS, Contractor shall perform the design, qualification, production, installation, test, delivery and warranty of the Vibration shakers & Interface equipment for Large Vibration Test Facility and provide technical support which KARI needs in the phase of assembly, integration, test and maintenance for this Contract;

NOW THEREFORE, in consideration of the premises and the mutual covenants hereinafter contained, KARI and Contractor have agreed as follows:

Article 1. Definition

In this Contract, the following words and phrases shall have the meanings as indicated below, unless the context wherein they are used clearly indicates another meaning:

- 1.1 **AITC** means satellite assembly, integration and test center.
- 1.2 **Amplifier** means electrical parts(one amplifier) in the large vibration system.
- 1.3 **Associates** mean all individual or legal entities organized under public or private law, who shall act, directly or indirectly, on behalf of KARI or Contractor, or at the direction of either Party to this Contract to fulfill the obligations undertaken by such Party in this Contract, including, without limitation, the employees of each Party, their suppliers and Subcontractors.
- 1.4 **Contract** means this Contract for the procurement and acquisition of Vibration shakers & Interface equipment for Large Vibration Test Facility including Appendix as attached hereto, and all amendments that may be agreed to by the Parties in accordance with the terms and conditions of this Contract.
- 1.5 **Contractor** means _____.
- 1.6 **Contract Price** means the amount of Contract. If there is any change in Contract Price due to any reason, then the Contract Price means current total amount of Contract.
- 1.7 **Deliverable Data** means any technical data as enlisted in Appendix B-1 “Statement of Works” that Contractor shall deliver to KARI and any related data thereof under this Contract.
- 1.8 **Deliverable (Delivery) Item(s)** means any hardware or software, Deliverable Data, Technical Data, and information as enlisted in Appendix B-1 “Statement of Works” that Contractor shall deliver to KARI.
- 1.9 **EDC** means the Effective Date of this Contract.
- 1.10 **Equipment** means all parts, accessories, facilities, hardware, and software to be supplied by Contractor to KARI pursuant to this Contract.

- 1.11 **Event(s) of Force Majeure** means any act of God, war, whether or not declared, act or failure to act of any government in its sovereign capacity, fire, earthquake, flood, epidemic, quarantine, nuclear incident, or any other act beyond the reasonable control and without the fault of either Party or its Subcontractors.
- 1.12 **Factory Acceptance** means KARI's inspection or audit to Contractor's facility, area or equipment during the development, testing activities for any plan, procedure, specification or other documentation relevant to the work.
- 1.13 **Final Acceptance** means final acceptance by KARI of each Deliverable Item in accordance with Article 13 "Final Acceptance and Inspection".
- 1.14 **Interface Equipment** means vibration system interface which is composed of 2.0m Head expander, 1.2m Head expander and 1.2m Slip table.
- 1.15 **KARI** means Korea Aerospace Research Institute.
- 1.16 **Large Vibration System** means one vibration system which is composed of shaker and amplifier.
- 1.17 **Party or Parties** means KARI or Contractor, or both, according to the context.
- 1.18 **Quad Amplifiers** means electrical parts(four amplifiers) in the quad vibration system.
- 1.19 **Quad Shakers** means mechanical parts(four vibrators) in the quad vibration system.
- 1.20 **Quad Vibration System** means four vibration system which operate simultaneously in multi-shaker option. It is composed of quad shakers and quad amplifiers.
- 1.21 **Shaker** means mechanical part(one vibrator) in the large vibration system.
- 1.22 **Subcontract** means any subcontract, including purchase orders and all similar forms of agreements at any tier under this Contract.
- 1.23 **Subcontractor** means a contractor under any Subcontract including suppliers.
- 1.24 **Third Party(ies)** means any individual or legal entity other than the Associates and

the Parties.

- 1.25 **Work(s)** means whole or part of the work to be executed by a Contractor in accordance with this Contract.
- 1.26 **2.0m Head Expander** means 2.0m diameter interface which is installed at shaker and allow vertical axis testing.
- 1.27 **1.2m Head Expander** means 1.2 ~1.3m diameter interface which is installed at shaker and allow vertical axis testing.
- 1.28 **1.2m Slip Table** means 1.2 x 1.2m interface which is connected to shaker and allow the lateral axis testing.

Article 2. Objective

The objective of this Contract is to procure the qualified Vibration shakers & Interface equipment for Large Vibration Test Facility through the effort of the Contractor. To accomplish this objective, Contractor shall perform all the Works under this Contract required for design, manufacture, qualification, test, installation, warranty and maintenance as well as delivery of Deliverable Item to meet the requirements and specification of this Contract. Also, if there is any anomaly related with Contract, Contractor shall assist KARI to understand the anomaly in a reasonable Work scope such as teleconference and/or electronic communication without additional charge to KARI.

Article 3. Contract Documents

3.1 This Contract shall comprise the following documents, as amended from time to time by written agreement by and between both Parties:

[A] General Terms and Conditions

[B] Appendix

B-1. Statement of Works

3.2 In the event of any inconsistency or discrepancy between or among the Contract documents as listed in Article 3.1 above, the Contract documents shall be applied.

3.3 In the event of any dispute or difference between the Parties in the interpretation of this Contract as a result of the application of the Appendices as specified in Article 3.1, Contractor's Proposal dated December ____, 2014 submitted to KARI in anticipation of this Contract in response to KARI's Request for Proposal dated December ____, 2014 shall be used as a reference document to identify and clarify the intention and understanding of the Parties as contemplated in this Contract, and both Parties shall in good faith seek an agreement or a compromise acceptable to both Parties without modifications to this Contract.

Article 4. Responsibilities of the Parties

4.1 Responsibilities of KARI

4.1.1 KARI shall make a payment to Contractor in accordance with Article 6 “Terms of Payment”.

4.1.2 In accordance with Appendix B-1 “Statement of Works”, KARI shall provide any reasonable support and information in order for Contractor to fulfill any necessary Work.

4.2 Responsibilities of Contractor

4.2.1 Contractor shall have all responsibilities to KARI in a timely manner as required and defined under this Contract without any charges to KARI.

4.2.2 Contractor shall provide all technical support required and stated under this Contract to KARI, warranty and maintenance for all Deliverable Items and the installation in accordance with Article 19 “Warranty”.

Article 5. Contract Price

- 5.1 For the full, satisfactory and timely performance of the Work by the Contractor in accordance with the provisions of the Contract, KARI hereby agrees to pay to the Contractor _____Euros (€_____), in accordance with the terms of payment as stipulated in Article 6 “Terms of Payment”.
- 5.2 The Contract Price as specified in Article 5.1 above shall be firm and fixed price that is not subject to any escalation or to any adjustment or revision by reason of the increase of actual costs incurred by Contractor in the performance of the Work under this Contract, unless otherwise agreed to by both Parties under Article 24 “Changes”.
- 5.3 The Contract Price as specified in Article 5.1 above shall be comprised of the following items.

Items	Qty	Price (€)
One shaker & amplifier system for Quad Vibration System	1	
Improvement of existing three (3) shakers & amplifiers of LDS V984LS	3	
One shaker & amplifier system for Large Vibration System	1	
Shaker Interface equipment	3	
Total	8	

- 5.4 All banking charges incurred in Korea shall be borne by KARI and those charges incurred outside Korea shall be borne by Contractor.

Article 6. Terms of Payment

6.1 Payment Schedule

6.1.1 Payment shall be executed after the establishment of performance bond in accordance with Article 7 “Performance Bond”.

6.1.2 KARI shall pay to Contractor the Contract Price as stipulated in Article 5.1 in accordance with the following schedule:

No.	Payment milestone (in Month)	Payment due date	Payment (€)	Percentage of Contract Price (%)
1	EDC	EDC+ 1M		25%
2	FR for Quad vibration	FR + 1M		25%
3	FAR for Quad vibration	FAR +1M		7%
4	FR for Large vibration	FR + 1M		20%
5	FAR for Large vibration	FAR +1M		8%
6	FAR for Interface equipment	FAR +1M		15%
Total				100 %

* “EDC” means the Effective Date of this Contract in accordance with Article 23 “Effective Date of Contract”.

* “FR” means the Factory Acceptance Review.

* “FAR” means the Final Acceptance Review.

[Note] KARI's Payment Schedule for this Contract can be adjusted by Government budget profile.

6.2 Billing Procedure

6.2.1 All invoices Contractor submits for payment shall be in duplicate signed by an authorized company official and received by KARI at least thirty (30) days before the payment due dates as specified in Article 6.1.

6.2.2 All payments shall be made in Euros by telegraphic transfer to the bank account as designated by Contractor in its invoices. And KARI shall remit the payment within thirty (30) days after KARI's receipt of Contractor's invoice.

6.3 Suspension of Payment

6.3.1 Notwithstanding any provisions of this Contract, if any payment milestone as set forth in Article 6.1.2 has not been accomplished for any reasons attributable to Contractor, KARI may, with an advance notice, suspend such payment due until both Parties agree that the delayed payment milestone has been accomplished.

6.3.2 In the event of KARI's suspension of payment under Article 6.3, Contractor shall nevertheless continue to perform its obligations under this Contract regardless of whether KARI is entitled to suspend the payment.

6.4 Deduction of Payment

6.4.1 All losses, costs, charges, damages and expenses which KARI incurs or sustains by reason of any act, default or omission of the Contractor in the performance of the Contract and any other amounts which KARI is entitled to receive from the Contractor may be deducted from any payment that may be or become due to the Contractor from KARI.

6.4.2 A prior written notice given by KARI accompanied with documents stating the amount due to KARI referred to in Article 6.4.1 and the reason of deduction shall be prima facie evidence of the matters stated herein.

Article 7. Performance Bond

- 7.1 Contractor shall establish a performance bond within three (3) weeks after EDC in favor of KARI in the value of ten percent (10 %) of the Contract Price, in the form of an irrevocable and unconditional standby letter of credit available by KARI's draft at sight.
- 7.2 The entire amount covered by the performance bond shall be payable to KARI on demand together with KARI's written statement to the effect:
- (a) that there was a default of the Contractor in the performance of the Contract (including Subcontractor's default under the Subcontract), or
 - (b) that any amount KARI is entitled to receive from Contractor has not been paid by Contractor to KARI through any other means, or
 - (c) that this Contract was terminated by Contractor's breach as specified in Article 20.2.
- Whenever any amount has been withdrawn by KARI due to such cases of (a) and (b) as above, performance bond shall be replenished.
- 7.3 The letter of credit shall be issued by first class international bank acceptable to KARI. The letter of credit shall be drawn in favor of KARI and advised through the Woori Bank (Daejeon Branch at 1495 Dunsan-dong, Seo-gu, Daejeon, 302-173 Korea, Tel: +82-42-488-9704, Ext. 312/ Fax : +82-505-003-0759_banker@wooribank.com) and shall remain valid until the end of this Contract plus one (1) month. The letter of credit shall not be amended, modified or canceled without KARI's prior written consent.
- 7.4 It is hereby agreed between the Parties that payment from the Performance Bond under this Article 7 shall not affect any other KARI's rights, privileges, interests or remedies under this Contract or the applicable law.

Article 8. Deliveries

8.1 General

- 8.1.1 Contractor shall deliver Deliverable Item in accordance with the defined schedule and method as set forth in Appendix B-1 “Statement of Works” and the delivery shall be deemed to have occurred only when the Final Acceptance has been successfully completed at KARI site.
- 8.1.2 Contractor shall bear any charges or costs of whatsoever nature that are incurred in relation to such delivery or provision until such delivery or provision is duly made under this Contract without any non-conformity and accepted in accordance with Article 13 “Final Acceptance and Inspection” hereof, and shall keep KARI free from any such charges and costs.
- 8.1.3 Contractor agrees that delivery or provision of time and place under this Contract, whether specifically provided for or not, or in subsequent amendments thereto, are of the essence of this Contract.
- 8.1.4 Contractor shall be responsible for all applicable taxes imposed outside Korea including any customs duties and charges of any nature levied on Deliverable Item, spare parts, spare materials, tools, consumables and ancillary equipment as well as any charges associated with the ocean freight and the inland transportation.

8.2 Delivery to KARI

- 8.2.1 Contractor shall deliver Deliverable Item FOB (Free On Board in accordance with the Incoterms 2010) _____ seaport in accordance with the delivery schedule of this Contract.
- 8.2.2 Contractor shall hand over to KARI’s Forwarding Agent (_____) after shipment in accordance with above delivery condition.
- 8.2.3 To obtain import certification, Contractor shall notify KARI by e-mail (address is “acoust@kari.re.kr” for Mr. Jong-Min IM and “jncho@kari.re.kr” for Mr. Jung-Nam CHO) fourteen (14) calendar days prior to each shipment with one set of proforma invoice and packing list specifying the number of boxes, name of Items, unit price,

and size and volume of each container or box to be shipped. As soon as each shipment as provided for in this Article is made, Contractor shall send one (1) copy of the following shipping documents to KARI by e-mail;

- (a) Clean on board vessel bill of lading/or airway bill of lading,
- (b) Commercial invoice,
- (c) Packing list,
- (d) Weight and measurement list,
- (e) Manufacturer's Inspection Report, and
- (f) Export License.

8.2.4 Contractor shall meet the key points schedule as below:

Items	Due date
Quad Vibration System (Quad-shakers, Quad-Amplifier)	-Arrival at KARI : by January 31, 2016 -Installation & Finish site acceptance : by February 29, 2016 -Existing three shakers will be available to Contractor from November 2015
Large Vibration System (One Shaker, One Amplifier)	-Arrival at KARI : by January 31, 2017 -Installation & Finish site acceptance : by February 28, 2017
Interface equipment (2.0m Head expander, 1.2m Head expander, 1.2m Slip table)	-Arrival at KARI : by April 30, 2017 -Installation & Finish site acceptance : by May 31, 2017

Article 9. Delay

9.1 Excusable Delay

9.1.1 Neither Party shall be responsible to the other Party for any delay in performing its obligations under this Contract due to any Events of Force Majeure.

9.1.2 The Party whose performance of obligations hereunder has been affected by any Events of Force Majeure shall notify the other Party within ten (10) days thereafter by sending a detailed statement and sufficient evidence with respect thereto, and promptly of any subsequent change in the circumstances, if any. The affected Party shall exercise its best efforts under the circumstances to remove or remedy the Events of Force Majeure and the effects thereof and resume full performance hereof as soon as possible.

9.1.3 Notwithstanding Article 9.1.1 hereof, any such delay that has not been notified to the other Party pursuant to Article 9.1.2 hereof shall not be excused for any reason whatsoever. Notwithstanding Article 9.1.1 hereof, any delay of performance of the affected Party falling due after delay, failure or incompleteness in exercising the pertinent best efforts to remove or remedy the pertinent Events of Force Majeure or the effects thereof pursuant to Article 9.1.2 hereof shall not be excused for any reason whatsoever.

9.1.4 The Party who has received or is entitled to duly receive the notice of Events of Force Majeure under Article 9.1.2 hereof may suspend performance of its obligations which shall be due subsequent to such Events of Force Majeure, until the other Party has effected such delayed performance to the full extent after and in view of such Events of Force Majeure.

9.2 Non-Excusable Delay

9.2.1 In the event that, unless otherwise excused by virtue of this Contract or the governing or Applicable law, Contractor delays the provision or delivery of Deliverable items as stipulated in this Contract, or performance of its other obligations under this Contract, Contractor shall be responsible for damages incurred by KARI as a result of such delay.

- 9.2.2 Non-Excusable Delay, Liquidated damages, shall be applied for late performance or non-performance at the rate of zero point fifteen (0.15) percent of total Contract price per calendar day, up to ten (10) percent of total price.
- 9.2.3 For the purpose of this Article, any action or omission of Contractor's Subcontractor, agent, or servant, de facto or de jure, shall be deemed to be Contractor's own.

Article 10. Taxes and Duties

- 10.1 In the event taxes are charged in Korea, KARI shall be fully responsible for payment of such taxes. Contractor shall be fully responsible for the payment of all applicable taxes imposed outside Korea including any customs duties and charges.
- 10.2 Neither Party shall be responsible for paying the customs duties, and related taxes, fees, or charges for the personnel and the personal belongings of the other Party.
- 10.3 The Contractor shall further comply with instructions KARI may issue from time to time in order to facilitate any exemptions or reductions from customs duties and other taxes that might be levied on KARI and shall impose the same obligations on its Subcontractors.

Article 11. Intellectual Property

- 11.1 KARI shall own and have a right to use, without any obligation, all the Deliverable Items or Data provided by Contractor in its performing this Contract. Contractor shall take all necessary precautions so that all the Deliverable Items or Data supplied hereunder shall be free from infringement of any patent, design patent, trademark, utility model or any other industrial property right, copyright, license or any other right thereunder of any third party or parties.
- 11.2 In the event that any party other than Contractor claims or threatens to claim infringement by KARI with respect to such use of the Deliverable Items or Data, Contractor shall defend, hold harmless, and indemnify KARI from such infringement claims.
- 11.3 This Article will survive the completion of the Contract, any termination, cancellation or expiration of the Contract in any manner whatsoever.

Article 12. Factory Acceptance

- 12.1 KARI, at all times during the performance of this Contract, shall have the right to do the following activities at the Contractor's facilities, Subcontractor's facilities, supplier's facilities, or other relevant facilities under this Contract;
- (a) Factory acceptance tests and inspections in accordance with in Appendix B-1 "Statement of Works"
 - (b) Monitor the Contract performance of Contractor,
 - (c) Access the Items in progress, and any design, manufacturing, and testing activities and data, including development and engineering model testing, related to, used for, prepared or generated in connection with this Contract, and
 - (d) Witness all qualification and acceptance testing of all Items to be delivered or provided under this Contract including all tests used for the purpose of demonstrating qualification.
- 12.2 Contractor shall make such data and documentation, equipment and facilities available to KARI upon KARI's request and KARI's selection for such purposes. Contractor shall deliver copies of design and test data and other Technical Data, excluding financial data, required to evaluate technical problems or non-performance that may occur during the performance of this Contract. Such documentation and data shall also be available for KARI to make copies thereof. For a period of six (6) years after termination or expiration of this Contract, to the extent that such documentation and data are of a type normally retained by the Contractor and its Subcontractors, it shall continue to be available under the same terms and conditions.
- 12.3 Contractor shall obtain from any of its Associates access by KARI, upon reasonable advance notice to Contractor, to any pertinent facilities, Work in progress and Technical Data of any of Contractor's Associates to inspect Work in progress under this Contract. Contractor shall dispatch its representative or a technical manager authorized to act on behalf of its representative to accompany KARI's access hereunder.
- 12.4 KARI shall have access to all Technical Data in the Contractor's control that are required for this Contract.
- 12.5 If, during the performance of this Contract, the KARI representative or any person

designated by KARI reasonably determines that any of the provisions or delivery of any Items or Contractor's performance of its other obligations under this Contract does not conform to the requirements of this Contract, the KARI representative shall promptly notify the Contractor, and confirm such notification in writing within ten (10) days, of the particulars in which such provision, delivery or performance does not meet the requirements of the Contract. The Contractor, upon receipt of such notice, shall promptly make the corrections of such non-conformity and notify KARI of the result of such corrections, or, if such prompt corrections are not possible, notify KARI of the reason why such prompt corrections are not possible and the period required for the corrections.

Article 13. Final Acceptance and Inspection

- 13.1 The Final Acceptance of installation, Deliverable Items or Data shall occur only after:
- (a) installation, Deliverable Items or Data to be performed by the Contractor under the Contract for Works have been completed in accordance with the Contract; and
 - (b) the Contractor has demonstrated to KARI that the installation, Deliverable Items or Data meet the specifications and requirements in this Contract; and
 - (c) all Works and conditions under the Contract to be fulfilled by the Contractor prior to the Final Acceptance have been met, in which case KARI shall finally accept, in writing, installation, Deliverable Items or Data subject to the provisions set forth below.
- 13.2 Subject to the conditions as set forth in Article 13.1 above, The Final Acceptance of installation, Deliverable Items or Data shall be deemed to have occurred only when the inspection and test of installation, Deliverable Items or Data have successfully completed at KARI site and KARI's authorized representative has accepted installation, Deliverable Items or Data in writing. If KARI determines that any installation, Deliverable Item or Data is unacceptable, it shall justify such refusal to the Contractor, in writing. If such written Final Acceptance letter is not given to Contractor, within thirty (30) days after the inspection and test regarding such installation, Deliverable Item or Data or if such installation, Deliverable Items or Data are taken into use, such installation, Deliverable Items or Data shall be deemed to have been accepted by KARI.

- 13.3 If any installation, Deliverable Item or Data is determined to be unacceptable, it shall be considered as non-delivery and the Contractor shall, at its expense, promptly repair or replace such Items so that it shall comply with the Contract specifications and requirements, and shall submit such repaired or replaced Items for its confirmation. The repaired or replaced Items shall be accepted in accordance with the requirements of Article 13.1.
- 13.4 The Parties agree that the acceptance of any installation, Deliverable Item or Data under this Article shall not be interpreted or construed to mean that such installation, Deliverable Items or Data are free of all defects and conform in all respects with the requirements of this Contract, and Contractor shall not be entitled to any additional costs incurred or to recover any damages suffered due to defects in the Items or KARI's rejection of the Items.

Article 14. Spare Parts and Erection Tools

- 14.1 Contractor shall provide KARI with all list and delivery time of spare parts/erection tools for KARI's use for consumable and five (5) years of operation as per the Scope of supplies specified in Contract Specifications.
- 14.2 Contractor shall guarantee that spare parts/erection tools can be made available for fifteen (15) years.

Article 15. Defect and Non-conformity

- 15.1 In the event that KARI discovers that any Deliverable Item provided or delivered pursuant to Article 8 “Deliveries” are defective or non-conformity, KARI shall promptly notify Contractor thereof. Until KARI has made the Final Acceptance, without charge to KARI, provided that such defect or non-conformity is not attributable to KARI, Contractor shall promptly remedy such defect or non-conformity and retest in the presence of KARI's authorized representative. In addition, if remedying such defect or non-conformity would substantially delay as compared to the period required to complete such substitution, Contractor shall promptly provide substitute Items. Upon the remedy of such defect or non-conformity that the requirements of this Contract are satisfied in all respects or upon the provision of substitute Items, Contractor shall notify KARI of the details of the remedy undertaken by Contractor.
- 15.2 The Parties hereby agree that acceptance under this Article shall not be interpreted or construed to mean that the Deliverable Items provided or delivered are free of all defects and conform in all respects with the requirements of this Contract.
- 15.3 If, at any time, during the performance of its obligations under this Contract Contractor becomes aware of such defects or non-conformity as provided for in this Article, Contractor shall promptly take appropriate corrective measures at its own expense to remedy any such defects or non-conformity in the same manner as stipulated in this Article, and notify KARI of the details of such defects or non-conformity and the remedy thereof.
- 15.4 With regard to the Items after the remedy of such defect or non-conformity, or the substitute Items provided or delivered, or the performance of Contractor's obligations under this Contract after the remedy of such defect or non-conformity, under Articles 15.1, 15.2 and 15.3 hereof, this Article 15 shall apply as appropriate.
- 15.5 For the purpose of this Article, any act or omission of a Party's Subcontractor, agent, or servant, de facto or de jure, shall be deemed to be that Party's own.

Article 16. Indemnification

Contractor shall indemnify and hold KARI, its officers, agents, servants, employees, subsidiaries, successors, and assignees, or any of them, harmless from any and all loss, damage, liability or expense resulting from damage to all tangible property and injuries including death, to all persons, in the circumstances caused by its act or omission in the performance of the Work, and shall pay all expenses, including reasonable attorneys' fees, and satisfy all judgments as may be incurred by or rendered against them, or any of them.

Article 17. Licenses, Clearances and Permits

- 17.1 Unless otherwise specified in this Contract, each Party is responsible for obtaining all government approvals from any government authority which has jurisdiction and authority to require such approvals, including, but not limited to, licenses, visas, and permits necessary to carry out such Party's obligations in accordance with this Contract. KARI is responsible for obtaining any necessary Korean government approvals, and Contractor is responsible for all other government approvals.
- 17.2 The Parties shall cooperate and provide each other, upon request of and without cost to the other Party, all reasonable and necessary assistance in obtaining any and all governmental approvals, which they respectively are required to obtain pursuant to this Contract.
- 17.3 Each Party shall be solely responsible for any expenses incurred in obtaining the approvals, which are required under this Article. The Parties shall provide to each other, upon request of and without cost to the other Party, suitable documents or other reasonable evidence to show that they have obtained any and all governmental approvals, which they respectively are required to obtain pursuant to this Contract.

Article 18. Confidentiality

- 18.1 Each party shall confidentially treat all documents, data, materials and information supplied by one to the other, and shall not disclose the above to any third party, and shall not use the above for any other purpose than for the performance of this Contract without prior written consent from the other party. However this Confidentiality obligation shall not be apply to the information which is made available to the general public.
- 18.2 If specified by written consent, both parties agree to enter into Non-Disclosure Agreement.

Article 19. Warranty

- 19.1 The installation, Deliverable Items or Data supplied by Contractor or its Subcontractors hereunder shall be in good working order and free from all defects in workmanship and materials and shall comply with the requirements of this Contract. Warranty period for the installation, Deliverable Items or Data shall be one (1) year from on the date of Final Acceptance letter.
- 19.2 Warranty covers the replacement of faulty parts, the labor required for repair, traveling cost, living fees and all associated necessary costs.
- 19.3 For the upgrading of three shakers used in quad-shakers, Contractor shall take the responsibility for the normal operation especially in amplifiers system for five (5) years. In case of new shakers including amplifiers supplied, it shall be applied to Articles 19.1.
- 19.4 Contractor or A/S teams shall submit the written plan for repair within 48 hours after the reception of the notification of fault. The Contractor or A/S teams shall completely finish the repair within thirty (30) days after the reception of the written notification of fault.
- 19.5 For an urgent service during important testing period, The deadline for action is five (5) days from the reception of the written notification of service. To meet the deadline of the urgent service, KARI will notify Contractor of the test start date and the period two (2) weeks before the test start date. Contractor shall stand by the A/S crews at Contractor's convenient place during the test period (up to four (4) weeks). Contractor shall include a plan for these requirements in the proposal.
- 19.6 To meet these requirements, Contractor shall propose a detailed plan for the prompt repair in the proposal. The detailed information (location, number of crews, resume, phone and FAX numbers, e-mail address, etc.) of the A/S teams shall be shown in the proposal and shall be approved by KARI.

Article 20. Termination

20.1 Termination for Events of Force Majeure

20.1.1 In the event that the excusable delay under Article 9 “Delay” exceeds six (6) months for any single Events of Force Majeure or nine (9) months in the aggregate for all Events of Force Majeure, KARI, at its sole discretion, may declare frustration of this Contract, and terminate the whole or any part of this Contract by sending a three (3) days prior notice to the Contractor.

20.1.2 In the event that Contract is terminated for Events of Force Majeure, Contractor shall return one hundred percent (100%) of the amount paid by KARI under this Contract. KARI shall return all Deliverable Items to Contractor, in the manner of “AS IS”.

20.2 Termination for Breach

20.2.1 KARI may, by written notice to the Contractor, terminate the whole or any part of the Contract, if any of the following circumstances occurs;

- (a) Contractor fails to deliver any Deliverable Item under Contract in accordance with the delivery schedule; or
- (b) Contractor fails to perform any Work under this Contract or fails to progress with the Work in a manner which satisfies KARI that Contractor will perform the Contract within the time specified and in accordance with the terms of the Contract; or
- (c) Contractor fails to remedy any or all defects and non-conformity on the Deliverable Item in accordance with Article 20.2.

20.2.2 In the event of the circumstances in Article 20.2.1, KARI may notify the Contractor and may suspend any further performance of its obligation under this Contract. If the Contractor fails, within ten (10) days from the dispatch of the notice, to produce and notify KARI of reasonable evidence of its intent and ability to effect due performance of the obligation in breach within sixty (60) days from due dispatch of written notice, then KARI may terminate this Contract with three (3) days’ prior notice of termination.

20.2.3 In the event this Contract is terminated for Contractor’s breach, the Contractor shall return all the amounts paid by KARI under the Contract and also pay the termination

charge of ten percent (10%) of the total Contract Price. KARI shall return the Deliverable Item to Contractor, if any.

20.3 Termination for Special Circumstances

20.3.1 Either Party may terminate this Contract anytime upon or after due dispatch of notice of such effect, without any other conditions, in the event that the other Party falls within any of the following categories:

- (a) the other Party has fallen bankrupt or insolvent;
- (b) the other Party passed a resolution for its reorganization (bankruptcy related), dissolution, liquidation or winding-up; or
- (c) a court order for proceedings for the bankruptcy, reorganization (bankruptcy related), dissolution or winding-up of the other Party has been applied for by any person and such application has not been dismissed within sixty (60) days.

20.3.2 In the event this Contract is terminated by Article 20.3.1 above, each Party shall effect the restitution to the other Party of whatever is provided, delivered, or paid to it in the same manner and types as such provision, delivery or payment was made. However, both Parties may also agree otherwise and if KARI wants to retain the results of the Works or any Deliverable Item, then corresponding payment shall remain with Contractor or be made by KARI.

20.4 Termination for Convenience

20.4.1 KARI may terminate this Contract, in whole or in part, **ONLY IF GOVERNMENT TERMINATES THE PROGRAM WHICH IS DIRECTLY RELATED TO THIS CONTRACT** for its convenience, with sixty (60) days' prior written notice to Contractor. In case of such termination for convenience, Contractor is entitled to receive payment due which Contractor has already done in accordance with Article 6.1.2 within thirty (30) days from the date of termination and KARI shall release performance bond at the same time.

Article 21. Resolution of Disputes and Governing Law

- 21.1 In cases any controversy or claim arises out of or in relation to this Contract or with respect to a breach hereof, the Parties shall seek to resolve the matter amicably through discussions between themselves. In the event of any disagreement between KARI and Contractor about the interpretation of the provisions or definitions used in this Contract, the interpretation of KARI shall govern until and unless otherwise decided by arbitration conducted pursuant to the following provisions.
- 21.2 If the Parties cannot resolve such controversy or claim in accordance with Article 21.1 above, it shall be finally settled by arbitration in Seoul, Korea, before the Korean Commercial Arbitration Board in accordance with its rules. The proceedings shall be conducted in English. The award rendered by the board shall be final and binding on the Parties and may be entered in any court of competent jurisdiction for execution.
- 21.3 The validity, performance, construction, and effect of this Contract shall be governed by the laws of Korea.

Article 22. Language and Units

- 22.1 This Contract shall be executed in English.
- 22.2 All documents, drawings, plans and other writings as well as communications between both Parties shall be in English.
- 22.3 Measurements and quantities for deliverable documentation shall be recorded in units of Système Internationale.

Article 23. Effective Date of Contract

23.1 The effective date of this Contract ("EDC") is the date on which all of the following conditions have been satisfied:

- (a) The duly authorized representatives of both Parties have signed this Contract, and
- (b) The appropriate governmental authorities of the Republic of Korea and Contractor's country have duly approved this Contract, if required.

23.2 Any amendment to this Contract shall be effective upon signature by the authorized representatives of both Parties.

Article 24. Changes

24.1 Changes Requested by KARI

24.1.1 Any changes requested by KARI during the performance of this Contract, within the general scope of this Contract, which would add or delete Work, affect the design of Work, change the method of shipment or packing, place or time of delivery, duration of Contract, or would affect any other requirement of this Contract, shall be submitted in writing to Contractor. Contractor shall respond to any changes KARI requested in writing within thirty (30) days after receipt of such request. If such change requested by KARI causes an increase or decrease in the Contract Price and/or an impact of schedule, Contractor shall submit to KARI at the time the response to the requested change is submitted, the details of such increase or decrease.

24.1.2 KARI shall notify Contractor in writing, within thirty (30) days after receipt of Contractor's response, whether it agrees with and accepts Contractor's response. If KARI agrees with and accepts Contractor's response, an amendment to the Contract reflecting such change, Contract Price and/or schedule adjustment, if any, shall be issued, and Contractor shall proceed with the performance of the Contract as changed. Contractor shall provide updated information that reflects the final agreed price of the change, if KARI requests. In the event the Parties are unable to agree on a change requested by KARI or price adjustment, if any, or both, Contractor shall proceed with the performance of the Contract as unchanged.

24.2 Changes Requested by Contractor

24.2.1 Any changes requested by Contractor during the performance of this Contract, within the general scope of this Contract, that would add or delete Work, affect the design of Work, change the method of shipment or packing, place or time of delivery, duration of Contract, or would affect any other requirement of this Contract, shall be submitted in writing to KARI thirty (30) days prior to the proposed date of the change. If such change requested by Contractor causes an increase or decrease in the Contract Price, Contractor shall submit to KARI at the time the requested change is submitted, the details of such increase or decrease.

24.2.2 KARI shall notify Contractor in writing within thirty (30) days after receipt of the requested change and Contract Price adjustment, if any, whether or not it agrees with

and accepts such change. If KARI agrees with and accepts change requested by Contractor, an amendment to the Contract reflecting such change, and Contract Price adjustment, if any, shall be issued, and Contractor shall proceed with the performance of the Contract as changed. Contractor shall provide updated information which reflects the final agreed price of the change, if KARI requests. In the event the Parties are unable to reach an agreement on a change requested by Contractor, or Contract Price adjustment, if any, or both, Contractor shall proceed with the performance of the Contract as unchanged.

Article 25. Notices

25.1 All notices, requests, demands, approvals, reports, invoices, and other correspondence to be provided pursuant to this Contract shall be in writing and shall be deemed to have been duly given to the Party to be notified: (i) on the date of delivery if delivered in person, (ii) on the date of dispatch if by facsimile, telex or e-mail, or (iii) on the date of receipt if by registered airmail or overnight courier.

All notices shall be addressed to the appropriate Party at its address as follows:

For KARI: **Korea Aerospace Research Institute**

169-84 Gwahakro, Yuseong-gu, Daejeon 305-806, Korea

Commercial matters

Mr. Jung-Nam Cho

Tel: +82-42-860-2613

Fax: +82-42-860-2666

E-mail: jncho@kari.re.kr

Technical matters

Mr. Jong-Min Im

Tel: +82-42-860-2562

Fax: +82-42-860-2234

E-mail: acoust@kari.re.kr

For Contractor: Company name

Address

Commercial matters

Mr.

Tel: +

E-mail:

Technical matters

Mr.

Tel: +

E-mail:

25.2 Each Party may change its address for notice by notice given to the other Party in the manner set forth above. And any notices given as provided herein shall be considered effective seven (7) days after the registered postage pre-paid airmailing thereof or the day of actual receipt thereof, whichever occurs first, or on the day of personal delivery, or the day of sending if by facsimile, telex or e-mail.

Article 26. Miscellaneous

26.1 Assignability

This Contract and each and every covenant, term and condition hereof shall be binding upon and inure to the benefit of the Parties and their respective successors, and neither this Contract nor any rights and obligations hereunder shall be assignable or delegable directly or indirectly by either Party without the prior written consent of the other Party.

26.2 Entire Agreement

This Contract embodies the entire agreements of the Parties with respect to the subject matter hereof and supersedes and cancels any and all prior understandings or agreements, oral or written, in relation hereto, which may exist between the Parties. No oral explanation or oral information by any of the Parties shall alter the meaning or interpretation of this Contract.

26.3 Unenforceable Terms

If any term or provision of this Contract shall for any reason be invalid, illegal or unenforceable in any respect, this Contract shall be interpreted and construed as if such term or provision had never been included herein.

26.4 Non-waiver

The failure or delay of any Party to require performance by the other Party of any provision of, or of any right or obligation under this Contract, shall not constitute a waiver thereof, nor shall such affect that Party's right to thereafter require performance of such or any other provision, right or obligation.

26.5 Disclaimer of Agency

This Contract shall not be deemed to constitute any Party the agent of the other Party.

26.6 Headings

The headings in this Contract have been inserted for convenience of reference only and are not to be used in consulting or interpreting this Contract.

26.7 Time Limits

Unless otherwise indicated, any time limits to which this Contract binds Contractor or KARI shall be counted in calendar days from the day following that of the event marking the start of the time limit, and shall end on the last day of the period specified. When the last day of a time limit is a Saturday or Sunday, or a legal holiday in the country in which the particular contractual performance is required, such time limit shall be extended to the first working day following.

26.8 Subcontractors

Each Party shall be fully responsible for the work of its Subcontractors under this Contract, and such subcontracting shall not relieve that Party of its obligation under this Contract.

26.9 Limitation of Liability

Contractor shall not, under any circumstances, have any liability to KARI for any indirect, special, consequential and/or incidental or punitive damages resulting from the performance, non-performance or bad performance of this Contract, including without limitation loss of profits, loss of revenues and any other similar loss. However, in case of Contractor's act of intentional, gross negligence or willful misconduct, the foregoing provision shall not apply for. Contractor's aggregate liability under this Contract shall be limited to one hundred percent (100%) of the Contract Price.

IN WITNESS WHEREOF this Contract has been issued in two (2) signed English originals of equivalent validity, executed on behalf of KARI and the Contractor by their respective persons authorized on that behalf.

Korea Aerospace Research Institute

Contract Company

By : _____

By : _____

Name : Dr. Gwang-Rae Cho

Name :

Title : President

Title :

Date :

Date :

Appendix B-1. Statement of Works

1. Work description

1.1 WP S1000 Shakers, Amplifiers and Interface Management

1.1.1 General

An effective and economical management of the Project shall be conducted. A Project Manager shall be responsible for the management and execution of the work to be performed.

1.1.2 Access

The KARI shall be allowed free access to any plan, procedure, specification or other documentation relevant to the work. Areas and equipment used during the development/testing activities shall also be available for inspection and audit.

The KARI shall be notified at least three weeks before the start of any test program, or as mutually agreed, in order to enable the KARI to select those tests that it wishes to witness. The KARI shall notify its visit at least three week in advance.

1.2 WP S2000 Shakers, Amplifiers and Interface Design

1.2.1 Design

The design of the shakers, amplifiers, interface shall be carried out. Since the four shakers shall be integrated in the seismic foundation to be designed and connected to the table under the Upgrading of the Multishaker Vertical Configuration Contract, a complete mass-spring model of the shaker shall be provided.

1.2.2 Design Review (DR)

Upon successful completion of the Design Review (DR) meeting the KARI shall authorise manufacturing and assembling of the relevant equipment. From that time on, a configuration control system for the documentation and drawings shall be established. All changes to the design shall be processed via Contract Change Notice (CCN) to be approved by KARI.

1.2.3 Deliverables: Design Review Data Package

The following documents shall be handed over to the KARI 2 weeks prior to the DR:

- 1.2.3.1 Exhaustive list of equipment to be delivered*
- 1.2.3.2 Technical justification for the selected components*
- 1.2.3.3 Functional description of the main and auxiliary equipment*
- 1.2.3.4 Individual shaker performance specifications*
- 1.2.3.5 Quad Vibration System performance specifications*
- 1.2.3.6 Detailed internal and external interfaces document*
- 1.2.3.7 Mass-spring model of one shaker used in quad-shaker*
- 1.2.3.8 Measurements supporting the equipment performance specifications*
- 1.2.3.9 Certificates supporting the compliance with EMC requirements*
- 1.2.3.10 Electrical load list for equipment and auxiliary equipment*
- 1.2.3.11 Calculation of reactive power and mains filters (if applicable)*
- 1.2.3.12 Detailed description of the safety devices and interlocks*
- 1.2.3.13 Design Specifications and FMECA report for the Interlock Supervisory Kit*
- 1.2.3.14 Cable list with cable number, type, size, length and destination (cable length to be verified at KARI site)*
- 1.2.3.15 Factory Acceptance Plan*

1.3 WP S3000: Shakers, Amplifiers and interface Manufacturing

During this work package the following tasks shall be performed:

1.3.1 Manufacturing

The system hardware shall be manufactured according to the design accepted under WP S3000.

All manufacturing operations shall be planned in co-ordination with inspections and tests. This planning shall be documented in a concise Manufacturing and Inspection Plan.

1.3.2 Factory acceptance

The Factory Acceptance objective is to verify that the requirements detailed in technical requirements are fulfilled.

The factory acceptance tests and inspections shall be performed according to a Factory Acceptance Plan, which shall identify all the activities to be performed and the requirements intended to be verified.

The Factory Acceptance Review meeting in order to review the results of the implementation of the Factory Acceptance plan shall be organised.

A board composed of members to be agreed with the KARI's representatives shall attend the Factory Acceptance Review meeting and confirm that:

1.3.2.1 All the equipment to be delivered is ready to be shipped.

1.3.2.2 The functional requirements are fulfilled.

1.3.2.3 The shakers perform individually as specified

1.3.2.4 The Quad vibration system perform as specified

This task shall be completed upon a successful Factory Acceptance Review.

1.3.3 Deliverables:

1.3.3.1 Exhaustive list of the equipment to be shipped

1.3.3.2 Factory Acceptance test reports

1.3.3.3 Factory Acceptance Review minutes of meeting

1.3.3.4 KARI on site Acceptance Plan

1.4 WP S4000 Shakers, Amplifiers and Interface Installation and Testing

During this work package the following tasks shall be performed:

1.4.1 Mechanical installation.

The mechanical installation comprises the:

- Connection of the cooling units to the interfaces with KARI supplies.

1.4.2 Amplifiers:

The amplifiers and cooling units shall be installed in KARI basement Room. The amplifier related equipment shall be brought in the basement room through a loading bay by means of a cargo crane.

1.4.3 Shakers:

The shakers shall be installed in the seismic foundation procured under Part 2.

The shakers shall be transported at the ground floor level and lowered inside the seismic foundation using a 20,000 Kg [10,000kg x 2EA] crane supplied by KARI.

1.4.4 Electrical installation

The electrical installation comprises the:

1.4.4.1 Routing, installation and termination of input and output power cables and control cables.

1.4.4.2 Connection of power cables (feeder) of the amplifiers to KARI RFI filters.

1.4.4.3 Continuity and insulation testing according to the Contractor specifications.

1.4.4.4 Labeling and marking of installed cables and wires.

1.4.4.5 Connection of earthing cables to the existing KARI dedicated network

1.5 WP S5000: Shakers, Amplifiers and Interface Acceptance testing

Upon completion of the installation of the shakers and auxiliary equipment, the provisional acceptance of the shakers, not connected to the table, shall take place according to the Acceptance Plan.

The acceptance tests shall be performed in accordance with formal test procedures and documented in test reports.

The draft operation manual will be used during the acceptance test to confirm its suitability to support the operation of the system. KARI staffs and other authorized persons will be trained on the operation of the system during the acceptance test.

The Acceptance Plan shall cover all tests and verifications, which were already performed during Factory Acceptance but are invalidated by the installation at KARI.

During this work package the following tasks shall be performed:

1.5.1 Interlock/ External trip acceptance

1.5.1.1 The proper functioning of the internal and external interlocks shall be verified individually; external trips may be checked by simulation.

1.5.1.2 The individual shaker amplifiers behavior shall be recorded during a soft and hard shut down and checked against specifications. To this end armature and vibrator body acceleration responses during soft and hard shutdown of a typical sine vibration test run shall be measured.

1.5.1.3 The Multishaker amplifiers behavior, not connected to the table, shall be recorded during a soft and hard shut down and checked against specifications. To this end each armature and vibrator body acceleration responses during soft and hard shutdown of a typical sine vibration test run shall be measured.

1.5.2 Vibration acceptance test sequence

The vibration acceptance tests shall verify the capability of the amplifiers to drive the vibrators in compliance with KARI specification. The following vibration tests have to be performed:

1.5.2.1 Individual shaker full performance tests

1.5.2.2 Quad Multishaker bare armatures, performance tests

1.5.2.3 Quad Multishaker loaded by interconnecting the four shaker armature with a KARI furnished plate, performance tests

1.5.2.4 Abort sequence verification

During the test runs the following measurements shall be recorded:

1.5.2.5 Amplifier AC input voltage and current

1.5.2.6 Amplifier signal output voltage and current (amplitude and phase)

1.5.2.7 Matching transformer output voltage and current (if applicable)

1.5.2.8 Acceleration, amplitude and phase, for each armature

1.5.3 Cooling units acceptance test

The adequacy of the amplifier forced air-cooling as well as water and oil cooling has to be proven. Therefore temperatures at essential locations shall be measured and recorded while performing a vibration test run at maximum shaker performance (Multishaker configuration) over a period of time, relevant to the test duration.

1.5.4 Acceptance review and acceptance data package

An Acceptance Review (AR) shall be performed to review the results of the implementation of the Acceptance Plan. A Board composed of KARI representatives, including PA Representatives and other member to be agreed shall perform the Acceptance Review.

1.5.5 Deliverable

The AR shall be supported by an Acceptance Data Package (ADP). The ADP shall be provided two weeks prior to the review in 2 paper copies and 5 electronic copies. The ADP shall comprise the following documents:

1.5.6 System Description Document

A system description document containing the Quad Multishaker and Lateral single shaker performance specifications, the general functional description including block diagrams, layouts and principal schematics as necessary.

1.5.6.1 For each component a document covering:

- Product Application: Details the product regarding type and serial number.*
- Installation and Operation: Concise information on the installation, the adjustment and the operation of the product*
- Test Instructions: Manufacturer's standard test procedure for the product*
- Test reports: Results from the manufacturer's standard test procedures for the product.*
- CE Compliance Certification: Formal certification stating that the equipment provided complies with CE requirements.*
- Parts List and Drawings: Complete bill of materials listing including assembly drawings associated with the product*

1.5.6.2 Mechanical Drawings

- All mechanical drawings necessary for the installation and maintenance of the equipment, stating dimensions, weights and attachment points*
- All mechanical interface drawings for cable trays, cable entry and termination*
- Electrical drawings comprising:*
 - Overall functional block diagram (with reference to the equipment by drawing, or equipment number)*
 - Block or simplified functional diagram of the individual equipment (amplifiers)*
 - Test points and test values*
 - Terminal lists*
 - Cable list comprising cable number, cross section and quality, length and destination*
 - Drawing list of the delivered drawings*

1.5.6.3 Copies of all Non-conformance Reports and Requests for Waiver

1.5.6.4 Manufacturing Inspection Report

1.5.6.5 Acceptance test plans, test procedures and test reports

1.5.6.6 System Operation Manual

The system operation manual shall describe the aspects of the operation of the equipment in a logical order, to ensure a safe and proper use. This manual shall contain the following chapters:

- Pre-operational checks
- Start-up and safe shut-down
- Operation of equipment and auxiliaries
- Inspections

Note: This document should be written such that it can be used as a stand-alone manual for the facility operator without necessarily consulting the other documents.

1.5.6.7 Maintenance manual

The maintenance manual shall describe the aspects of preventive and corrective maintenance. This document shall clearly distinguish between activities that require the special knowledge of the supplier and the activities that can be done by trained KARI personnel.

In addition specific needs for tools or instrumentation shall be included in this section. The shakers' Subcontractor shall identify parts with a limited lifetime.

1.5.6.8 Amplifier and shaker foot print manual

The amplifier and shaker footprint manual section shall describe activities, to be performed by trained KARI personnel, to carry out periodic amplifier and shaker signature tests.

1.5.6.9 Repair manual

The repair manual section shall assist the maintenance engineer in case a malfunction has to be corrected. It shall advise on the steps to be done to replace or repair, with references to the spare parts list and functional checks required thereafter.

1.5.6.10 Spare part list

A recommendation concerning the spare-parts list covering a period of 5 years of operation shall be made and the guarantee that spare-parts can be made available for another 10 years thereafter shall be given.

Delivery time shall be stated for all for spare parts.

1.5.6.11 Attached documents

The attached documents which compile information, data sheets, instruction for use, of those deliverable items, which are not covered by the above manual sections (e.g. instruments, auxiliary equipment etc.)

1.5.6.12 Minutes of the Acceptance Review Board

1.6 WP S6000 Assistance to Installation and Commissioning of the Integrated System

Support shall be given during the installation of the integrated system and associated auxiliaries and to the System Provisional Acceptance tests of the integrated system, as well as during the guarantee period leading to the System Final Acceptance.

The work package shall include giving support for:

1.6.1 Fixing interfaces issues

1.6.2 Bolting the shakers inside the seismic foundation

1.6.3 Aligning the shakers with respect to the QHE

1.6.4 Attending integrated acceptance test campaign

1.6.5 Any other related activities necessary to ensure a successful Provisional and Final acceptance of the integrated system.

2. Management reporting Meetings and Deliverables

The hardware deliveries shall include, as a minimum, the following:

Item No.	Part name	Qty	Description
1	One shaker & amplifier system for Quad Vibration System	1	<ul style="list-style-type: none"> - 160 kN Electrodynamic shaker - Including amplifier and related auxiliaries - Including matching transformer - All needed Cables for new installation place
2	Improvement of existing three shakers & amplifiers of LDSV984(Quad Vibration System)	3	<ul style="list-style-type: none"> - 160 kN Electrodynamic shaker - All needed Cables for new installation place - Same lifetime as new ones
3	One shaker & amplifier system for Large Vibration System	1	<ul style="list-style-type: none"> - More than 280kN Electrodynamic shaker - Including amplifier and related auxiliaries - Including matching transformer - All needed Cables for new installation place
4	Shaker Interface equipment	3	<ul style="list-style-type: none"> - 2.0m Head-expander - 1.3 or 1.2m Head-expander - 1.2m Slip table - Related auxiliaries for interface

Kick-off/PDR/CDR/MRR/TRR/FAR reviews shall be held.

Review	Purpose
Kick-off	<ul style="list-style-type: none"> -Review the requirements of the system -Understand and agree the design baselines
Design Review	<ul style="list-style-type: none"> - Verify the compatibility of the design definition and predicted performance with system requirements - Verify the coherency of the equipment specifications with the subsystem specification
Test Readiness Review	<ul style="list-style-type: none"> - Review test plans, sequences and procedures
FAR (Factory Acceptance Review)	<ul style="list-style-type: none"> Review test results (Checking key requirements' performance consistency) - Final acceptance of quad-shakers in Factory
FAR (Final Acceptance Review)	<ul style="list-style-type: none"> -Review test results (Checking key requirements' performance consistency) - Final acceptance of quad-shakers in KARI

3. KARI's undertakings related to the shakers

The following items are provided as KARI's Undertakings:

1. PCU4 and MACU
2. Amplifier modules
3. Access to existing overhead cranes, lifting eyes and lifting slings
4. One office with 1 telephone and 1 PC connected to Internet + access to 1 FAX machine during the installation and commissioning
5. Raw water cooling outlets in the amplifier room
6. Disposal facilities for water and consumables
7. Cable trays located as per system layout drawing
8. Compressed air outlets located close to the vibrators
9. Electrical mains supply at agreed outlets in the plant room and vibrator area
10. Dedicated earth star point located in the plant area close to equipment
11. Four shaker armature interconnecting plate (if required)
12. Qualified operators for instrumentation, operation and data acquisition during acceptance testing
13. On-site access to the existing vibration system data package if required
14. Access to building layout if required
15. Specialized equipment required to complete the agreed acceptance procedure
16. Access to on-site workshop for small mechanical correction work
17. On-site car parking for company vehicle
18. Finished final location to allow the installation of the shakers

4. Warranty

- 4.1 The system shall be warranted for a duration of 1 years from the date of definitive acceptance on the site against any operational faults. The date of acceptance is the date when the whole system is completely installed and its function is approved perfect in a written format by KARI or its representative.
- 4.2 The warranty covers the replacement of faulty parts, the labor required for repair, traveling cost, living fees and all associated necessary costs.
- 4.3 For the upgrading of three shakers used in quad-shakers, contract shall take the responsibility for the normal operation especially in amplifiers system for 5 years. In case of new shakers including amplifiers are supplied, it take Warranty 6.1.
- 4.4 The contractor or A/S teams shall submit the written plan for repair within 48 hours after the reception of the notification of fault. The contractor or A/S teams shall completely finish the repair within 30 days after the reception of the notification of fault.
- 4.5 For an urgent service during important testing period, the deadline for action is 5 days from the reception of the notification of service. To meet the deadline of the urgent service, KARI will notify the contractor of the test start date and the period 2 weeks before the test start date. The contractor shall stand by the A/S crews at contractor's convenient place during the test period (up to 4 weeks).The contractor shall include a plan for these requirements in the proposal.
- 4.6 To meet these requirements, the contractor shall propose a detailed plan for the prompt repair in the proposal. The detailed information (location, number of crews, resume, phone and FAX numbers, e-mail address, etc.) of the A/S teams shall be shown in the proposal and shall be approved by KARI.

5. Product supply schedule

The contractor shall meet the key points schedule as below;

Items	Key Points Schedule
Quad vibration System (Item #1 & #2)	<ul style="list-style-type: none"> - Arrival at KARI : by January 31, 2016 - Installation & Finish site acceptance : by February 29, 2016 - Existing three shakers are available to contractor from November 2015
Large Vibration System (Item #3)	<ul style="list-style-type: none"> - Arrival at KARI : by January 31, 2017 - Installation & Finish site acceptance : by February 28, 2017
Interface equipment (Item #4)	<ul style="list-style-type: none"> - Arrival at KARI : by April 30, 2017 - Installation & Finish site acceptance : by May 31, 2017

***For the detailed description for item #, refer to hardware deliveries in 2.Management reporting Meetings and Deliverables**

6. Payment Condition

6.1 KARI may terminate this Contract, in whole or in part, ONLY IF GOVERNMENT TERMINATES THE PROGRAM WHICH IS DIRECTLY RELATED TO THIS CONTRACT for its convenience, with sixty (60) days' prior written notice to Contractor. In case of such termination for convenience, Contractor is entitled to receive payment due which Contractor has already done in accordance with this Contract within thirty (30) days from the date of termination and KARI shall release performance bond at the same time.

6.2 KARI's Payment Schedule for this Contract can be adjusted by Government budget profile.