

**Request For Proposal
for
*Acoustic Testing at KARI Chamber***

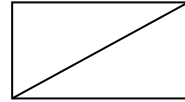


October 2014

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IMPORTANT

1. This RFP should be kept in confidentiality and should neither be copied nor distributed to the third parties.
2. The questions and opinions on this RFP can be asked or suggested to Korea Aerospace Research Institute before submission of the proposal.
3. This RFP should be returned to Korea Aerospace Research Institute with bidder's proposal.
4. This RFP shall be legal bind after the contract is awarded unless the bidder explicitly expresses the differences from the RFP in the compliance sheet.

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Table of Contents

I. OVERVIEW	2
1. OVERVIEW OF THE PROJECT	2
2. REQUISITES OF PARTICIPANTS	2
3. SCOPE OF THE CONTRACT	2
II. TECHNICAL REQUIREMENTS	3
1. TOTAL SYSTEM CONFIGURATION	3
2. REQUIREMENTS FOR ACOUSTIC TESTING	4

I. OVERVIEW

1. Overview of the project

- 1.1 Korea Aerospace Research Institute (hereinafter referred to as "KARI") is located at Daeduk Research Complex, 140 km south of Seoul.
- 1.2 KARI has a satellite assembly, integration and test center (hereinafter referred to as "AITC") for joint use by corporations and research institutes 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.
- 1.3 The purposes of this project is to perform the acoustic test with acoustic source of contractor in KARI acoustic chamber system.
- 1.4 All the descriptions in this RFP are minimum requirements and the supplier can suggest the better one to improve the overall performance and cost. But in this case, the proposal should clearly indicate the improvements from KARI's requirements.

2. Requisites of participants

- 2.1 The participants shall also have experience of manufacturing, integration, installation and operation for acoustic chamber of over 1,000m³.

3. Scope of the contract

- 3.1 The Contract shall supply the following;
 - ✓ Perform acoustic testing in KARI with specified test spectrum
 - ✓ Supply the acoustic test report
 - ✓ Supply the facility safety logic

II. Technical Requirements

1. Total System configuration

The size of KARI acoustic chamber is volume of 1,200m³ .Two acoustic sources are equipped in chamber to generate the high intensity acoustic test. For the low frequency excitation, WAS 3000 is installed on the 25Hz acoustic horn.



Figure 1 KARI Acoustic Chamber

2. Requirements for acoustic testing

2.1 KARI interface requirements for acoustic testing

- Contractor shall supply the required all interfaces to perform the acoustic testing with acoustic source of contractor.
 - KARI don't supply the additional interface or modification of facility to contractor.
 - Contractor shall send the acoustic engineers to perform the acoustic test with KARI engineers.
-
- ✓ GN2 flow rate supplied to acoustic source : Max. 2.5kg/sec at 2 bar
 - ✓ Electrical power : 220 Volts
 - ✓ Acoustic chamber volume : 1,200m³
 - ✓ Amplifier of WAS 3000 & Interface [Refer to Figure 2]
 - ✓ Acoustic horn and pipe interface [Refer to Figure 3]
 - ✓ Acoustic controller : KARI software & M+P controller



Figure 2 Amplifier of WAS 3000 & Interface



Figure 3 Acoustic horn and pipe interface

2.2 Acoustic testing requirements

- With the acoustic source of contractor, contractor shall perform the acoustic test in KARI site and show the satisfaction of the test spectrum within the tolerance defined in Table 1.
- Contractor shall install the acoustic source and interface
- Contractor shall use the Low & High frequency sources
- KARI engineer shall perform the acoustic control under the participation of engineer of contractor
- Performance test period is 4 days in KARI
- Acoustic test shall be performed until 20th of February of 2015.
- After finishing the acoustic test, contractor shall supply the test report

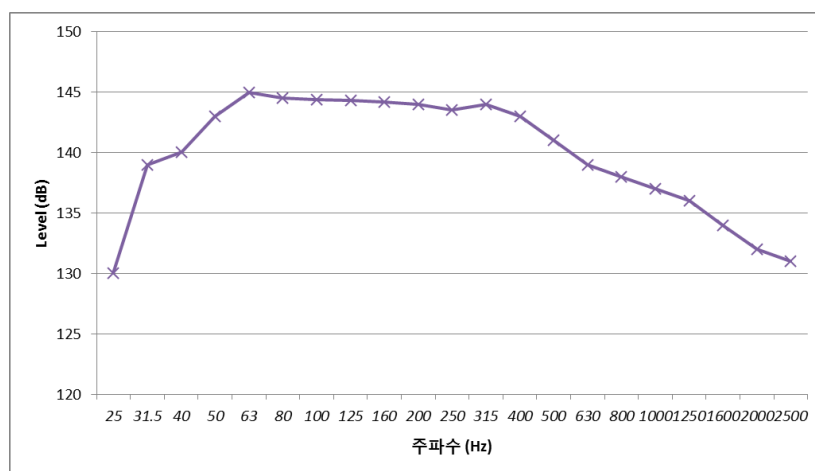


Figure 4. Acoustic spectrum [1/3 octave band]

Table 1 Acoustic test requirement for spectrum and tolerance at KARI Chamber

1/3 Freq (Hz)	Test Spectrum	Tolerance
25	132	+3/-3
31.5	139	+3/-3
40	140	+3/-3
50	143	+3/-3
63	145	+3/-3
80	144.5	+3/-3
100	144.4	+3/-3
125	144.3	+3/-3
160	144.2	+3/-3
200	144	+3/-3
250	143.5	+3/-3
315	144	+3/-3
400	143	+3/-3
500	141	+3/-3
630	139	+3/-3
800	138	+3/-3
1000	137	+3/-3
1250	136	+3/-3
1600	134	+3/-3
2000	132	+3/-3
2500	131	+3/-3
OV SPL	155	+1/-3

2.3 Logical diagram for safety system

- Contract shall supply the logical diagram for safety on KARI vibration facility
- After analyzing the KARI facility components, make a logical diagram for safe testing

2.4 Deliverable items

- ✓ Acoustic test report
- ✓ Logical diagram for safety system