Request for Proposal
For
High Frequency Acoustic Source of LN2 Vaporizer System

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Korea Aerospace Research Institute

Space Test Division

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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") as a research institutes for the purpose of the effective development of domestic & scientific satellites.

1.3 In the AITC, for the acoustic test, the high intensity acoustic chamber is operated and can generate the noise of 148dB OVSAL.

1.4 This acoustic chamber uses the low frequency interface and high frequency interface to generate the acoustic noise, which are parts of LN2 vaporizer system .

1.5 The purpose of this project is to change high frequency interface(source) of LN2 vaporizer system in order to maintain the system performance.

1.6 The supplier should summit the performance record showing the satisfaction of technical requirements

1.7 The supplier should submit the business showing of sales and installation records for acoustic source and acoustic chamber facilities.

1.8 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. Procedure of the project

The project shall be performed as follows:

1) Supply of high frequency acoustic source with amplifier

3. Requisites of participants

3.1 The supply should submit the bisiness showing of sales and installation records for acoustic source and chamber facilities.

4. Technical Requirements

For the acoustic facility, main components are :

- Reverberant chamber,
- LN2 vaporizer system
- Acoustic control system
- Monitoring & Safety system

Figure 1 shows a block diagram of a acoustic facility

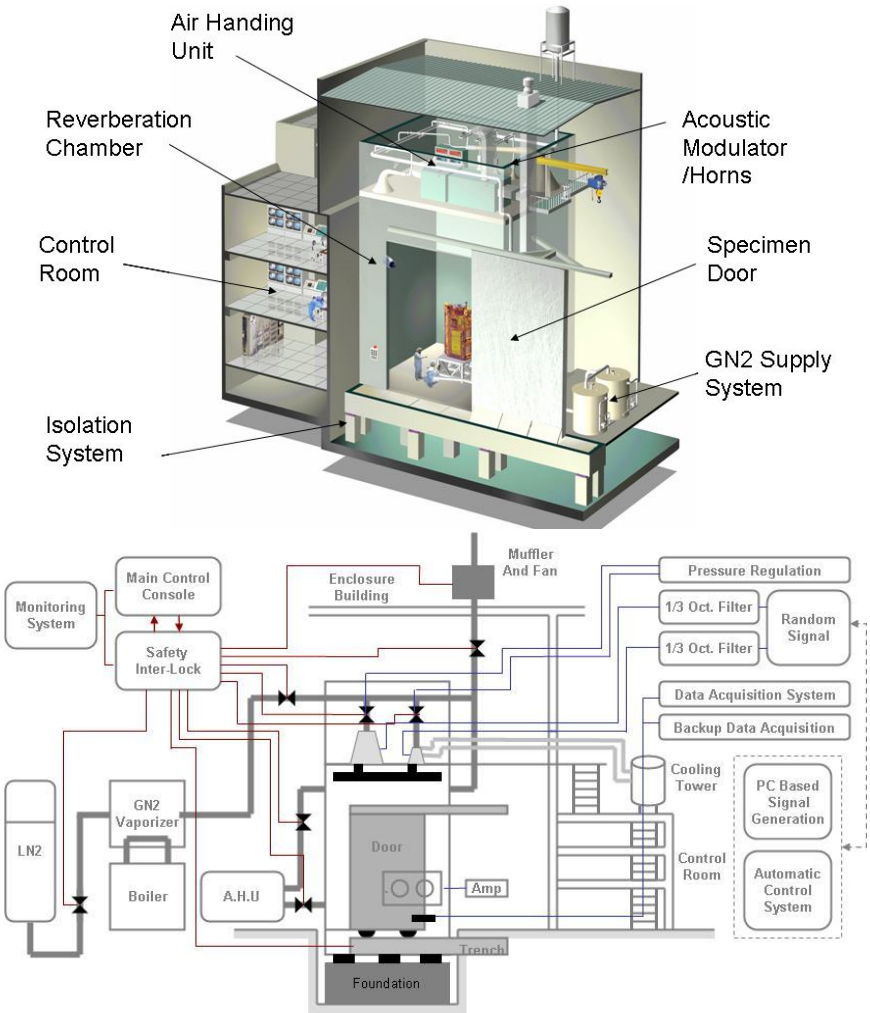

Figure 1 Block diagram of a acoustic facility

KARI LN2 vaporizer system is composed of GN2 vaporizer, boiler, source interface and connection pipes & vlaves.

At the end of LN2 vaporizer system, the acoustic source part is connected with acoustic chamber [Reverberation room]. KARI acoustic chamber employs the two type of interface which have cutoff frequencies of 25Hz and 125Hz are employed for acoustic impedance matching. Figure 2 shows the acoustic source interfaces of KARI.

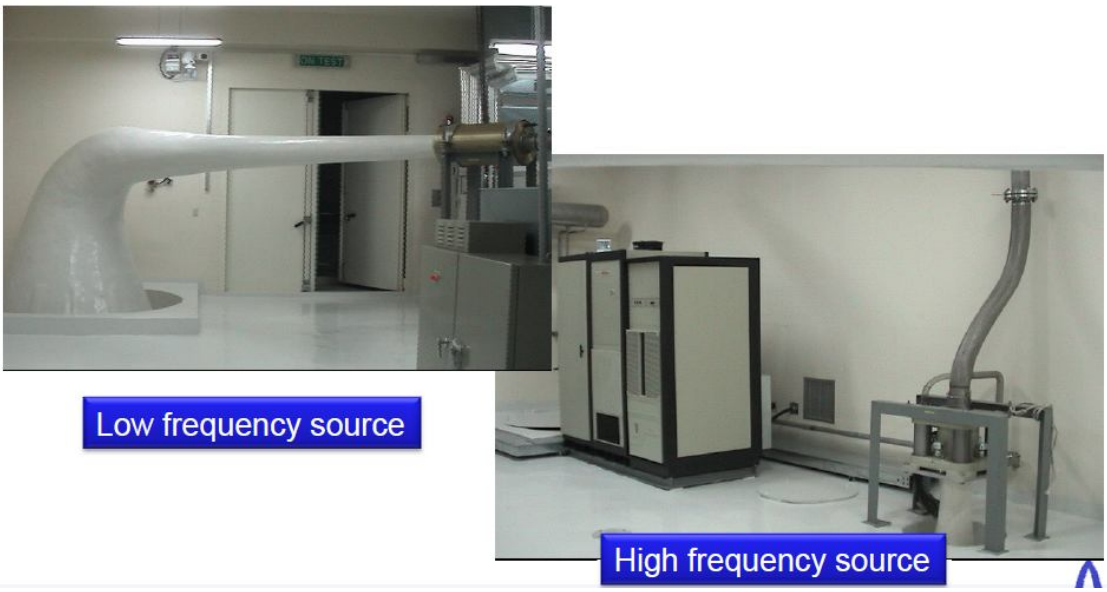

Figure 2 Acoustic source interface in KARI acoustic chamber

The purpose of this project is to change the high frequency acoustic source interface in order to maintain performance of LN2 vaporizer system and acoustic chamber.

4.1 Acoustic electro-pneumatic noise source with amplifier system

4.2 Air flow rate : 1kg/s

4.3 Air pressure required at exhaust plenum housing : 2.5 bar

4.4 Frequency response : 20 to 5000Hz

4.5 Controllability range : 200 to 2500Hz

4.6 Generate acoustic spectrum, which is defined at the Table 1 and Figure,

at KARI acoustic chamber (Volume of chamber : 1200m^3, Overall T60 : 17.5sec)

4.7 To show the capability of acoustic source interface, the supplier should submit the measurement results at the acoustic chamber of 1200m^3 or more larger space (Frequency range : 500Hz ~ 2.5kHz).

4.8 The acoustic source should be equipped with sensors to monitoring the status of source such as displacement of module, pressure, voltage and current.

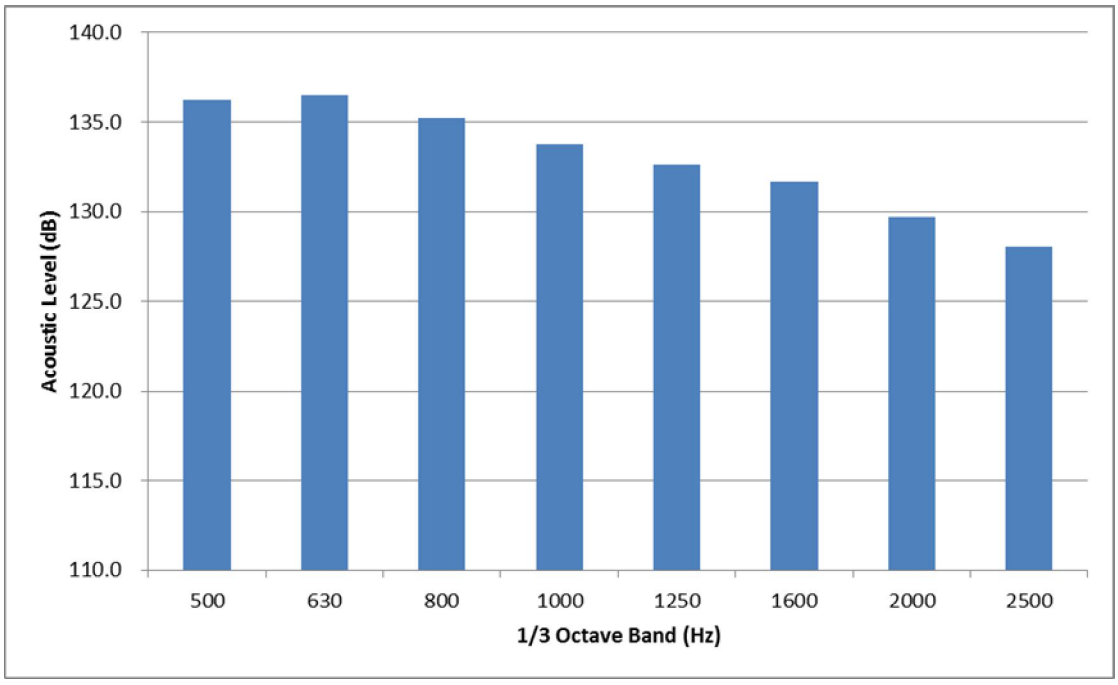

Figure 3 Acosutic Spectrum

Table 1 Acoustic spectrum & tolerance at 1200m³ chamber

1/3 Octave Band (Hz)	Level (dB)	Tolerance
500	**136.2**	+2/-3dB
630	**136.5**	+2/-3dB
800	**135.2**	+2/-3dB
1000	**133.7**	+2/-3dB
1250	**132.6**	+2/-3dB
1600	**131.7**	+2/-3dB
2000	**129.7**	+2/-3dB
2500	**128.0**	+2/-3dB
OVSPL	**143**	+/- 2dB