JAPAN MARINE SCIENCE INC.

Dear Sirs,

JMS Large-Scale 3-Axis Shaking Table Testing Guide

1)location:

5-32-84, Sugita, Isogo-ku, Yokohama-city, Kanagawa-ken 235-0033, Japan.

(13 minutes walk from Shin-Sugita Station on the JR Keihin Tohoku Line)

2)Usage time:

Our business hours are from 9:00 a.m. to 5:00 p.m. on weekdays (with a lunch break normally taken from 12:30 p.m. to 1:30 p.m.). Both vehicles and visitors may enter the facility from 8:30 a.m. onward.

3)Vibration Testing fee:

[Basic test fee]: JPY 2.4 million/day for the first day, and JPY 2.1 million/day from the second consecutive day onward (including items A to D below).

A Work details: Attachment of accelerometers, operation of the shaking table, and output of measurement result graphs.
*Test specimen installation is the responsibility of the customer.

B Acceleration measurement: 39 channels
Simultaneous three-axis acceleration measurement at up to 13 locations (1 location on the shaking table and up to 12 locations on the test specimen), providing a total of 39 channels.
Equipment Used:Tokyo Sokki Kenkyujo Co., Ltd. strain-gauge accelerometer, ARF-200A
(Single-axis type, standard full scale: ±400 m/s²)

C Report creation: 1 copy (Japanese) *Deliverables (reports, various CSV data, etc.) will be shipped within 10 business days after the final day of the test.

D Lunch

4)Optional Services:

①Preparation / Installation / Removal Work Day
: JPY 1.8 million/day
: JPY 0.9 million per half day
Half-day work is available only for test programs lasting two or more days.
Work will be carried out during either the morning session (9:00-12:30) or the afternoon session (13:30-17:00). No lunch service will be provided.

②Overtime Work
: When testing is conducted: JPY 400,000/hour (until 7:00 p.m.)
: When only setup or removal work is performed: JPY 300,000/hour (until 8:00 p.m.)
Please consult us separately regarding testing or work on weekends and public holidays.
Due to vibration table warm-up requirements, no work may be performed on the vibration table before 9:00 a.m.

③ Contingency Day

JPY 2.1 million/day

④ Strain Measurement

Sensor procurement: JPY 2,000/channel

Strain gauge installation: JPY 10,000/channel

Measurement: JPY 6,000/channel (standard FS: ±4,000 μm/m)

Approximately 30 minutes is required for installation at each measurement point.

As adhesive curing time is also required, installation during a preparation work day or advance installation by the customer is recommended.

⑤ Additional Accelerometers

JPY 18,000/channel

The maximum number of measurement channels, including strain measurement channels, is limited to 60 channels.

Please place your order at least two months in advance to allow sufficient time for procurement.

⑥ Relative Displacement Measurement

[Laser Displacement Measurement]

JPY 180,000/test specimen

Equipment Used: KEYENCE Laser Displacement Sensor (Model IL-2000)

Up to three test specimens can be measured simultaneously.

(Two-axis measurement (X and Y directions) for each test specimen.)

Measurement is possible when the test specimens are installed near the corners of the vibration table.

Please contact us separately for details regarding installation locations.

[Motion Capture Measurement]

JPY 220,000/basic measurement

(One measurement point, three-axis measurement in X, Y, and Z directions)

System Used:OptiTrack Motion Capture System by Acuity Inc.

For measurements at two or more points: JPY 33,000 per measurement point.

Detailed measurement specifications will be determined through consultation.

⑦ Seismic Intensity Meter Installation

JPY 150,000 for the first day

JPY 100,000/day from the second day onward

Equipment:RION Co., Ltd. Seismic Intensity Meter compliant with the requirements of the Japan Meteorological Agency Notification No. 4.

⑧ Video Recording and Data Delivery

JPY 100,000 for the first day

JPY 50,000/day from the second day onward

Display layouts of 4, 6, or 9 split screens are available.

Selectable information includes test status, excitation acceleration, seismic intensity, sweep frequency, and other test data.

Single-screen extraction and disc creation:JPY 10,000/test(Advance order required.)

Additional DVD copies:JPY 10,000/set

⑨ Weight and Center of Gravity Measurement

JPY 60,000 per test specimen

⑩ Calibration Certificate

JPY 11,000 per instrument

⑪ Additional Test Report

Additional report copies or preparation in an alternative format:JPY 120,000/report

JPY 250,000/report (English version)

Reissuance of a test report:JPY 60,000/report

⑫ Crane Operation Service

JPY 5,000/hour

JPY 15,000/half day

(The minimum billing unit is one hour.)

⑬ Forklift Arrangement

Forklifts can be arranged either with or without an operator.

⑭ Waveform Development

Basic waveform development fee: from JPY 500,000 per axis

(Details will be determined through consultation.)

⑮ Trial Excitation Test

First waveform: Free of charge

From the second waveform onward: JPY 100,000 per waveform and up

The fee varies depending on the duration of the waveform.

5)Order:

Please place your order using the customer's specified purchase order form or the JMS order form.

No tentative reservations are accepted. The test date is confirmed upon receipt of the purchase order.

6)Cancellation fee:

Cancellation fees apply to test cancellations and schedule changes as shown below.

They also apply when the test schedule is shortened as a result of the test.

① Reservations of 1–2 days

- Cancellation from 2 months to 1 month before the confirmed test date: 50%
- Cancellation from 1 month before the confirmed test date: 100%

② Reservations of 3–5 days

- Cancellation from 3 months to 1.5 months before the confirmed test date: 50%
- Cancellation from 1.5 months before the confirmed test date: 100%

③ Reservations of 6–10 days

- Cancellation from 4 months to 2 months before the confirmed test date: 50%
- Cancellation from 2 months before the confirmed test date: 100%

④ Reservations of 11 days or more

- Cancellation from 6 months to 4 months before the confirmed test date: 50%
- Cancellation from 4 months before the confirmed test date: 100%

7) Payment terms:

Please remit the full amount to the bank account designated by JMS by the end of the month following the invoice month.

The bank transfer fee shall be borne by the customer.

We may also request advance payment of the test fee.

8) Inquiries and applications:

Please contact each person in charge via email or telephone below.

E-mail: JMS.ML.YHLAB_PR@jms-inc.jp

Phone: +81-45-772-1324

FAX: +81-45-772-1475

URL: https://www.jms-inc.jp/service/shaking-table/

<General Inquiries and Applications>

Please contact Makoto Okumura or Fumiya Yamazaki at YOKOHAMA LAB.

<Technical Inquiries >

Please contact Mr. Toshikazu Takahashi in YOKOHAMA LAB