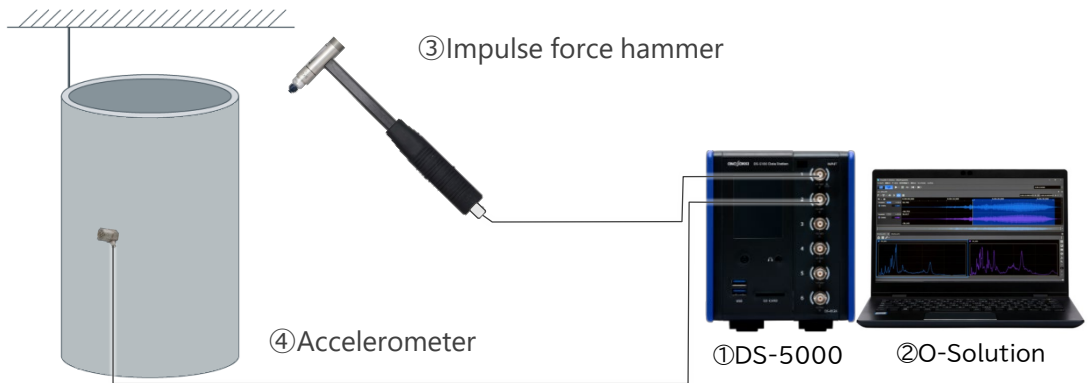


Measuring natural vibration frequency and damping ratio of cylindrical object

~Overview~

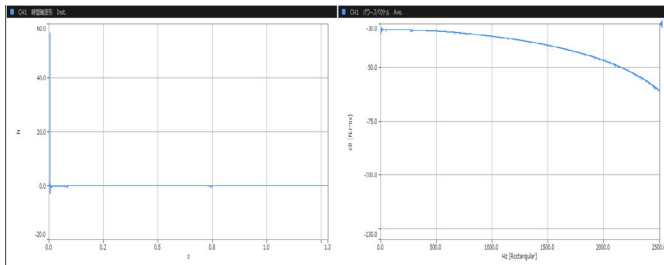
Check if the target value of the product matches the experimental value at the natural frequency. Hit a cylinder with an impulse hammer, and acquire the response waveform with an accelerometer. The natural frequency is obtained from the frequency response function obtained by the ratio of the exciting force (N) and the detected acceleration (m/s^2). Also, obtain the damping ratio at the target frequency.

~Measurement~

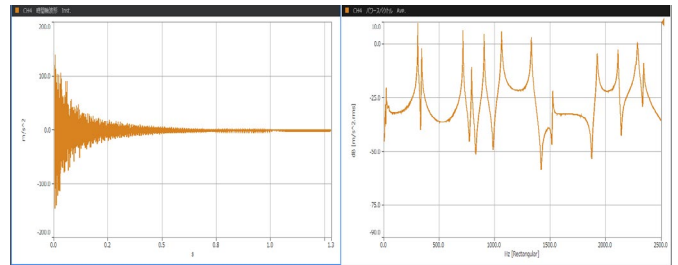


~Analysis~

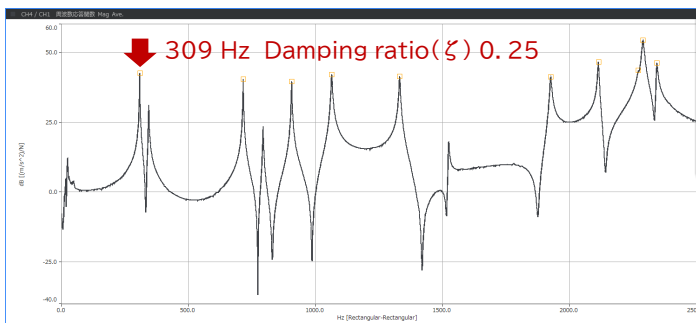
<Exciting force(N)>



<Acceleration(m/s^2)>



<Frequency response function>



Mag	Freq	Phase
309.4	47.5	88
716.4	46.4	-126
907.0	29.3	-107
1,056.8	41.9	-102
1,022.6	41.3	87
1,122.8	21.2	-93
2,114.1	45.3	96
2,276.2	43.3	126
2,286.1	54.3	88
2,342.8	46.2	76

Peak list display
 • peak frequency(Hz)
 • amplitude(Mag)
 • phase($^{\circ}$)
 • damping ratio ζ

~Results~

- Confirmed that the natural frequency of the cylinder matches the target value from the frequency response function.
- Obtained the damping ratio (0.25) at the target natural frequency (309 Hz).

~System configuration~

	Model	Product name
①	DS-5100	Main unit
①	DS-0526	6ch 40kHz Input unit
②	OS-5100	Platform
②	OS-0522	FFT Analysis Function
②	OS-0512	Hardware Connection Function

	Model	Product name
③	GK-3100	Impulse hammer
④	NP-3412	Accelerometer with built-in preamplifier

*The above is provided as "6 ch FFT set".

* Contents of this document may change without prior notice.