VIB : Vibration testing

Number of participants: 11

1. Did you watch the two videos on vibration testing ?

4 correct answers
out of 5 respondents

✔	Yes	80%	4 votes
	No	20%	1 vote
	Partly	0%	0 votes

2. An electrodynamic sensor can be used to measure

3 correct answers
out of 7 respondents

✔	velocity	43%	3 votes
	acceleration	57%	4 votes
	strain	0%	0 votes

3. Piezoelectric transducers convert which of the following quantities into electric charge or voltage ?

3 correct answers
out of 9 respondents

	Displacement	56%	5 votes
	Acceleration	11%	1 vote
✔	Strain	33%	3 votes

4. In a piezoresistive sensor, strain results in a change of

6 correct answers
out of 8 respondents

	The wavelength of the reflected light	13%	1 vote
✔	Electrical resistance of the sensor	75%	6 votes
	Electrical capacitance of the sensor	13%	1 vote

5. A FBGS (fiber optics) sensor can be used to directly measure

0 correct answer
out of 9 respondents

✔	Strain	67%	6 votes
✔	Temperature	33%	3 votes
	Acceleration	56%	5 votes

6. A capacitive sensor is aimed at measuring

5 correct answers
out of 8 respondents

✔	relative displacement	63%	5 votes
	relative velocity	0%	0 votes
	relative acceleration	38%	3 votes

7. What is the reason for using inertial sensors in practical applications ?

0 correct answer
out of 3 respondents

Position of center of gravity

Cause there is no référence

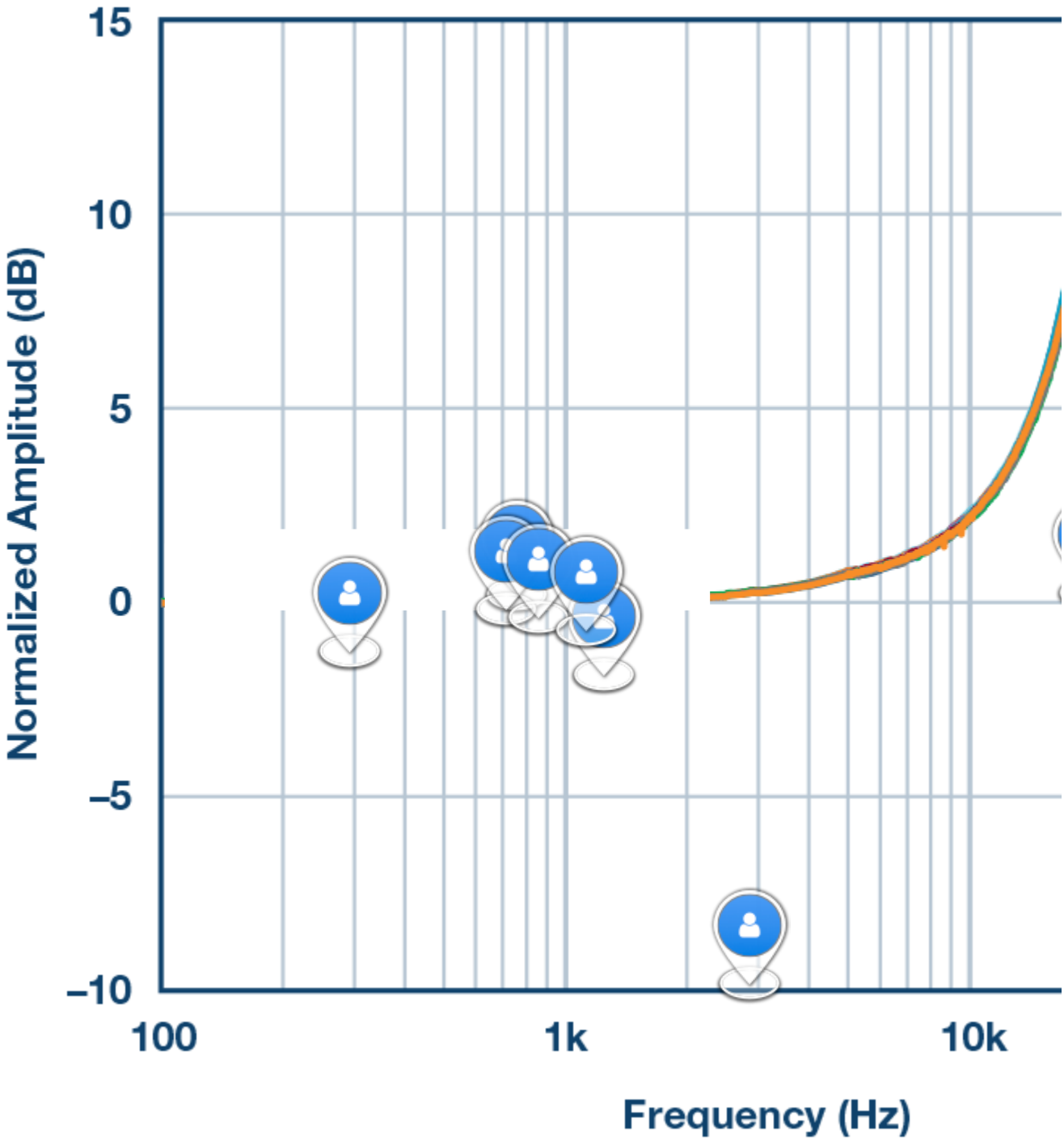
Measure velocity

Correct answer

Because there is no fixed reference to attach one of the parts of the sensor

8. What is the usable frequency band of an inertial accelerometer?

9 respondents



9. What are the most common actuators used for vibration testing ?

2 correct answers
out of 6 respondents

Compactor

Hammer

Shaker

Hamer

Shaker table

Hammer

Correct answers

Electrodynamic shaker

Hammer

Piezoelectric element

Inertial shakers

Hydraulic shakers

10. Which of the following statements related to measurement hardware are correct? (Multiple answers)

0 correct answer
out of 10 respondents

	The heavier an accelerometer, the wider its frequency band	30%	3 votes
✔	The heavier an accelerometer, the higher its sensitivity	50%	5 votes
✔	Ideally the sensor is many times lighter than the structure of interest	60%	6 votes
	Shakers are best accompanied by an additional force sensor, installed as close as possible to the shaker before the stinger	40%	4 votes
✔	Laser Doppler Vibrometers allow for quickly measuring across a large surface area	40%	4 votes
✔	A lot of measurement technology is sensitive to temperature	70%	7 votes

11. When exciting a structure with a periodic signal, the quality of the estimated FRF can be increased by

1 correct answer
out of 9 respondents

	increasing the length of the measurement	33%	3 votes
✔	performing averages	11%	1 vote
	using a hanning window	56%	5 votes

12. For periodic signals, it is important to synchronise the meausrement time with the period of the signal

7 correct answers
out of 8 respondents

	to decrease memory storage	0%	0 votes
✔	to avoid leakage	88%	7 votes
	to obtain a better signal to noise ratio	13%	1 vote

13. When using impulse excitation, and measuring acceleration on the structure, one should use

5 correct answers
out of 7 respondents

	An exponential window for both the acceleromter and the force sensor	0%	0 votes
	A hanning window for the accelerometer and a force window for the force sensor	29%	2 votes
✔	An expontential window for the accelerometer and a force window for the force sensor	71%	5 votes

14. For random excitation, the best window to measure FRF is

5 correct answers
out of 7 respondents

	No window	14%	1 vote
	The exponential window	14%	1 vote
✔	The hanning window	71%	5 votes

15. For periodic excitation, the best window to measure FRF is

8 correct answers
out of 9 respondents

✔	No window	89%	8 votes
	The exponential window	11%	1 vote
	The hanning window	0%	0 votes