consider a stiffer bridge in comparison with the real behavior. Based on these values, the dynamic analysis would be stopped. It underlines the fact that the OMA method correctly captures the real dynamic behavior and improves dynamic studies.

The maximal accelerations are calculated with the numerical model considering an additional modal mass which represents pedestrians and is applied in such a way that the load respects the modal shape of the studied mode. Then they are applied either in the longitudinal direction or as a flexional shape. The results are synthesized in Table 2. One can notice that the simulated accelerations are higher than the expected threshold in the longitudinal direction, whereas they are in line with the expectations in the transversal directions. Consequently, the expected comfort standards are not respected in the longitudinal direction and the bridge has to be reinforced so as to increase its stiffness and to decrease the maximum accelerations.

Table 2. Synthesis of the maximal accelerations allowed and calculated by direction and studied modal shapes

Mode	Dir long.	Dir. Trans.	Dir. Vert	Maximal allowed acceleration
Mode 1 longitudinal translation	0,70	0,01	0,00	< 0,30 m/s²
Mode 2 transversal flexural mode	0,01	0,08	0,00	

6 CONCLUSIONS

In this study several analyses were carried out on a decommissioned bridge using the OMA. A first study was made to compare the accuracy of new developed sensors with standard ones. The results highlighted that using data obtained with developed sensors leads to a better dynamic identification than using data captured with standard sensors which results are quite noisy. Indeed, due to the fact that the temporal data are less noisy and the synchronization is much better, the modal shapes are more accurately identified. A second study was also carried out to highlight how the OMA can support an engineering study regarding dynamic behavior. Indeed OMA was performed to capture the real dynamic properties of the bridge. Then these data were used to calibrate an FE model used to verify whether the structure can be used as a pedestrian bridge satisfying the French dedicated regulations. The results show that the use of the OMA parameter made the FE model more representative than the theoretical model. Indeed, using the theoretical model, the bridge would be compliant with requirements whereas, if the transversal dynamic behavior is in line with requirements, the longitudinal behavior does not respect defined comfort standards. This critical point was correctly captured thanks to the data provided by the OMA method. This method is consequently appropriate for supporting an asset management program, especially when it comes to analyzing the real structural state in the case of either maintenance or feasibility studies.

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