axis. For the acceleration responses, however, the RMS acceleration changes slightly in the wind directions of -90° to 90°. In the wind direction of 0°, the along-wind RMS acceleration of the central tower (Y1 or Y3) is close to that of the side tower (Y2 or Y4) at the same height. Meanwhile, the along-wind and cross-wind RMS acceleration responses at 0° are in the same order of magnitude. In other words, the effect of cross-wind vibration is significant, which should be noticed further in the design. What's more, for the substation gantry composed of three towers and two crossbeams, the central tower's wind-induced vibration is dominated by the resonance component of the first mode in direction of perpendicular to the span, whereas the contribution of high-order modes cannot be ignored for the side towers' vibration in this direction. In addition, the gust response factors by the the inertial wind load method and the gust loading factor method: $\beta_L(z)$ and $\beta_D(z)$, are both between 1.35 to 1.59, providing references for estimating the performance of similar substation gantries subjected to wind.

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