



**Supplementary Figure 1.** TF maps of HRV, respiration and spectral coherence of a five minutes period. The TF map of the respiratory signal,  $\hat{S}_r(t, f)$ , is on (top) and the TF map of the HRV modulating signal,  $\hat{S}_m(t, f)$ , is in the (middle). The TF map of the quadratic spectral coherence between respiration and HRV,  $\hat{\gamma}^2(t, f)$ , is in the (bottom). The black-dotted lines in the TF map of  $\hat{S}_m(t, f)$  and  $\hat{\gamma}^2(t, f)$ , represent the HF band centred at the respiratory frequency,  $\Omega_{\text{HF}}^r(t)$ . The regions of coherence with statistical significance within the HF band centred at the  $F_r$ ,  $\Omega_{\text{HF}}^{r,c}(t, f)$ , are the red-colored area in the  $\hat{\gamma}^2(t, f)$  map. For further information, see<sup>36</sup>.