

ABSTRACT. We introduce different notions of wave front set for the functionals in the dual of the Colombeau algebra $\mathcal{G}_c(\Omega)$ providing a way to measure the \mathcal{G} and the \mathcal{G}^∞ -regularity in $\mathcal{L}(\mathcal{G}_c(\Omega), \tilde{\mathbb{C}})$. For the smaller family of functionals having a “basic structure” we obtain a Fourier transform-characterization for this type of generalized wave front sets and results of noncharacteristic \mathcal{G} and \mathcal{G}^∞ -regularity.