F-crystals with real multiplication

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Abstract. Dieudonné and Manin provided a classification up to isogeny (respectively up to isomorphism) of so-called Dieudonné modules over the Witt vectors. These modules are useful to understand commutative formal groups, in particular p-divisible groups arising from abelian varieties in characteristic p and the local deformation theory of such. We extended Manin's techniques to cover Dieudonné modules over totally ramified extensions of the Witt vectors arising from abelian varieties with real multiplication and derive interesting consequences regarding the corresponding Hilbert-Siegel moduli spaces.