The Hausdorff and Packing Dimensions
of Some Sets Related to Sierpiński Carpets

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Abstract. The Sierpiński carpets first considered by C. McMullen and later studied by Y. Peres are modified by insisting that the allowed digits in the expansions occur with prescribed frequencies. This paper (i) calculates the Hausdorff, box (or Minkowski), and packing dimensions of the modified Sierpiński carpets and (ii) shows that for these sets the Hausdorff and packing measures in their dimension are never zero and gives necessary and sufficient conditions for these measures to be infinite.