1176-94-8 **Vladimir D Tonchev*** (math@mtu.edu), Michigan Technological University, 1400 Townsend Drive, Houghton, MI 49931. *Pless symmetry codes, ternary QR codes, and related Hadamard matrices and designs.*

We consider a code $L(q)$ which is monomially equivalent to the Pless symmetry code $C(q)$ of length $2q+2$ that contains the (0,1)-incidence matrix of a Hadamard 3-$(2q+2, q+1, (q-1)/2)$ design $D(q)$ associated with a Paley-Hadamard matrix of type II. Similarly, any ternary extended quadratic residue code contains the incidence matrix of a Hadamard 3-design associated with a Paley-Hadamard matrix of type I. If $q = 5, 11, 17$ and 23 then the full permutation automorphism group of $L(q)$ coincides with the full automorphism group of $D(q)$, and a similar result holds for the ternary extended quadratic residue codes of lengths 24 and 48. All Hadamard matrices of order 36 formed by codewords of the Pless symmetry code $C(17)$ are enumerated and classified up to equivalence. There are two equivalence classes of such matrices: the Paley-Hadamard matrix H of type I with a full automorphism group of order 19584, and a second regular Hadamard matrix H' such that the symmetric 2-$(36, 15, 6)$ design D associated with H' has trivial full automorphism group, and the incidence matrix of D spans a ternary code equivalent to $C(17)$. (Received December 14, 2021)