response CPM. Let us consider 4-ary full-generalized for any alphabet cardinality, for simplicity we will see that the error performance of these schemes are close to be UMP. In the last section with numerical results, we firm the UMP property of the proposed scheme. We conclude that minimal distance of non-UMP schemes with REC and RC are far to be UMP, scheme with RC pulse has even lower δ\text{\scriptsize{min}} than REC pulse. The parameter values are 4 signals in the set, thus there are six different signal pairs that must be mutually orthonormal. Let us assume a sum of squared absolute values of individual correlation coefficients are close to be UMP, see Fig. 14. Contrary to binary case, the minimal distance of non-UMP schemes with REC and RC are practically identical. However, in the case of quaternary/higher order alphabet the differences are more significant. In this section, we numerically evaluate Symbol Error Rate (SER) in HDF MAC stage for several alphabets. We assume simple AWGN channel, frequency-flat uncorrelated Rayleigh/Rice (with Rician factor K = 10dB) fading. As we discussed in Sec. II-B, we assume uncoded communication and complete channel state information available at the receiving side (CSIR). In Fig. 15, we depict following memoryless modulations: QPSK, QFSK κ = 1/2, UMP-QFSK κ = 1 and UMP-QFSK κ = 5/6.