Fig. 17: SER in the MAC stage assuming uncoded detection with CSIR in AWGN, Rayleigh and Rice $K = 10$ dB fading channel of binary full-response CPM $\kappa = 1/2$ (MSK) with REC, RC and proposed SRC pulse. Additionally, we depict UMP-BPSK as a reference.

Fig. 18: SER in the MAC stage assuming uncoded detection with CSIR in AWGN, Rayleigh and Rice $K = 10$ dB fading channel of quaternary full-response CPM $\kappa = 1/2$ (QMSK) with REC, RC and proposed SRC pulse. Additionally, we depict non-UMP QPSK as a reference.

Fig. 19: Average power spectral densities of binary and quaternary full-response CPM $\kappa = 1/2$ (MSK and QMSK) for several different values of parameter $p$.  

\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle = (0, 0, 0)
\]

\[
\Rightarrow \langle s_{a,d}, s_{b,d} \rangle = 0
\]

Fig. 20: Possible geometrical configurations 
\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle = (0, 0, 0) \text{ imply } \langle s_{a,d}, s_{b,d} \rangle = 0.
\]

\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle = (1, 1, 1)
\]

\[
\Rightarrow \langle s_{a,d}, s_{b,d} \rangle = 1
\]

Fig. 22: Possible geometrical configurations 
\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle, \langle s_{a,d}, s_{b,d} \rangle = (-1, -1, -1) \text{ imply } \langle s_{a,d}, s_{b,d} \rangle = -1.
\]

\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle = (1, 1, -1)
\]

\[
\Rightarrow \langle s_{a,d}, s_{b,d} \rangle = -1
\]

Fig. 23: Possible geometrical configurations 
\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle, \langle s_{a,d}, s_{b,d} \rangle = (1, 1, -1) \text{ imply } \langle s_{a,d}, s_{b,d} \rangle = -1.
\]

\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle = (1, -1, -1)
\]

\[
\Rightarrow \langle s_{a,d}, s_{b,d} \rangle = 1
\]

Fig. 24: Possible geometrical configurations 
\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle, \langle s_{a,d}, s_{b,d} \rangle = (1, -1, -1) \text{ imply } \langle s_{a,d}, s_{b,d} \rangle = 1.
\]

\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle, \langle s_{a,d}, s_{b,d} \rangle = (0, 0, -1, -1)
\]

Fig. 25: One possible geometrical configuration of 
\[
\langle s_{a,d}, s_{b,d} \rangle, \langle s_{a,d}', s_{b,d}' \rangle, \langle s_{a,d}, s_{b,d} \rangle = (0, 0, -1, -1).
\]