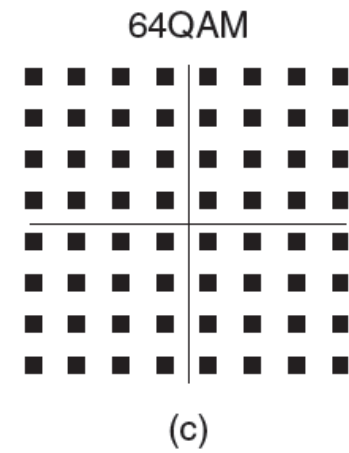
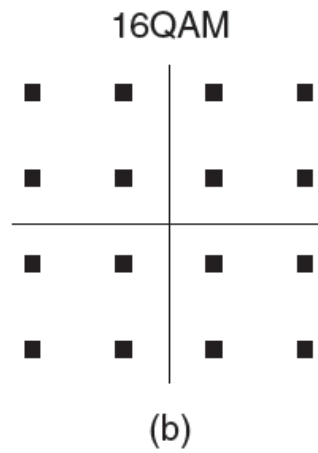
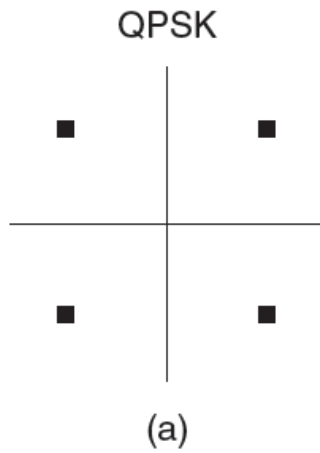
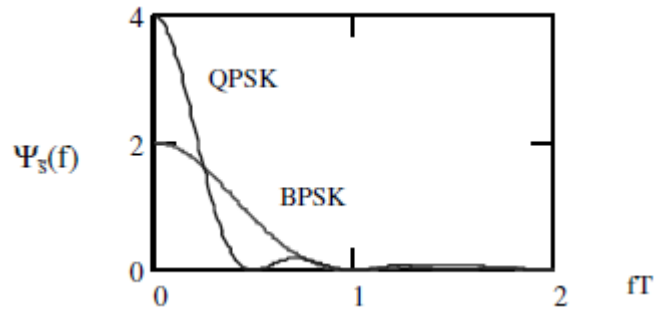


Constellations used in LTE:

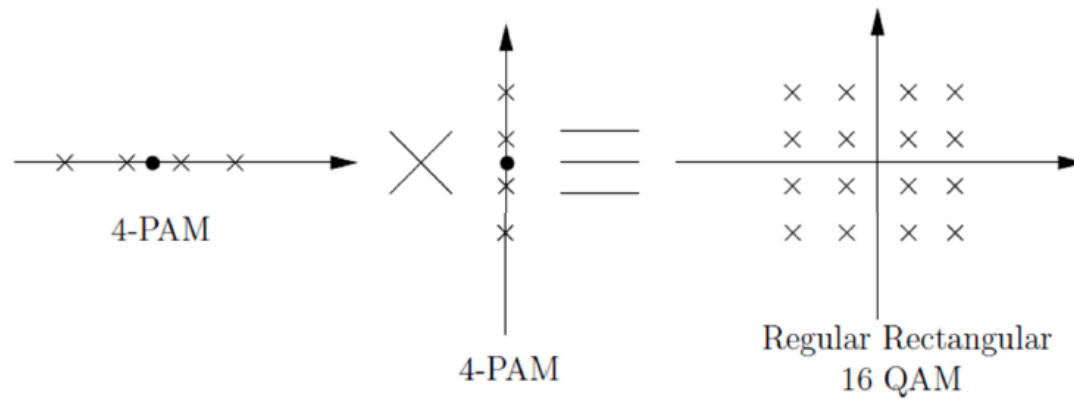




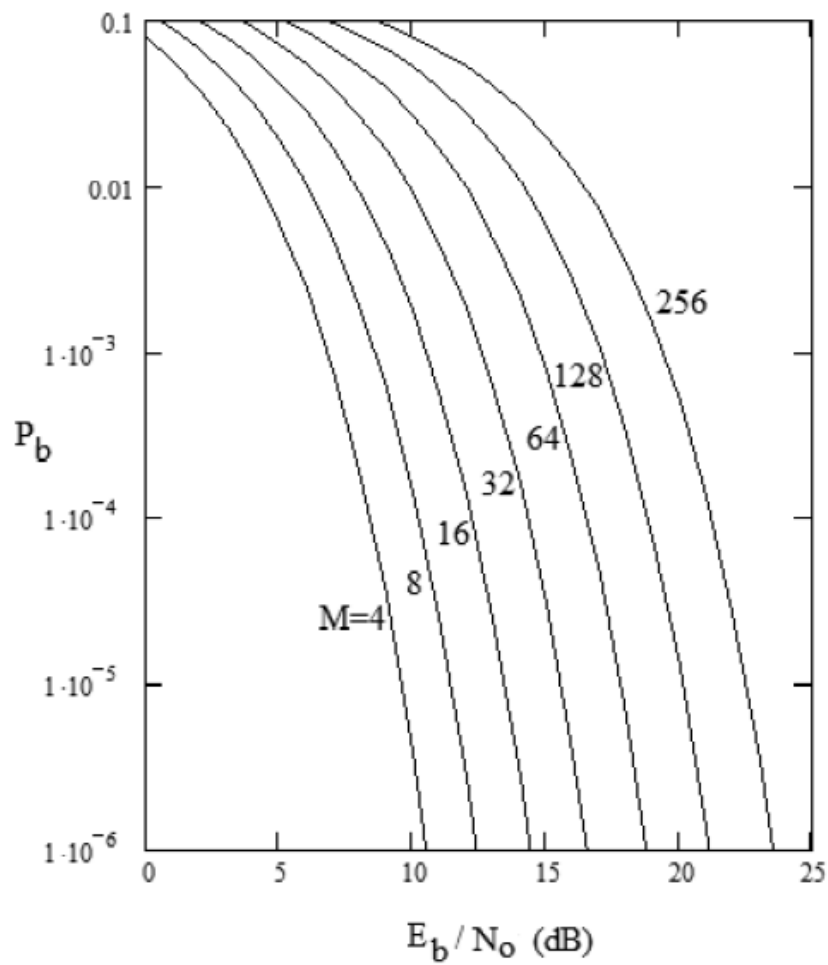
comparison of ESD BPSK and QPSK

M	R_M	$10 \log R_M$ (dB)
4	1	0
8	1.463	1.65
16	2.627	4.20
32	5.036	7.02
64	9.889	9.95
128	19.61	12.92
256	39.06	15.92

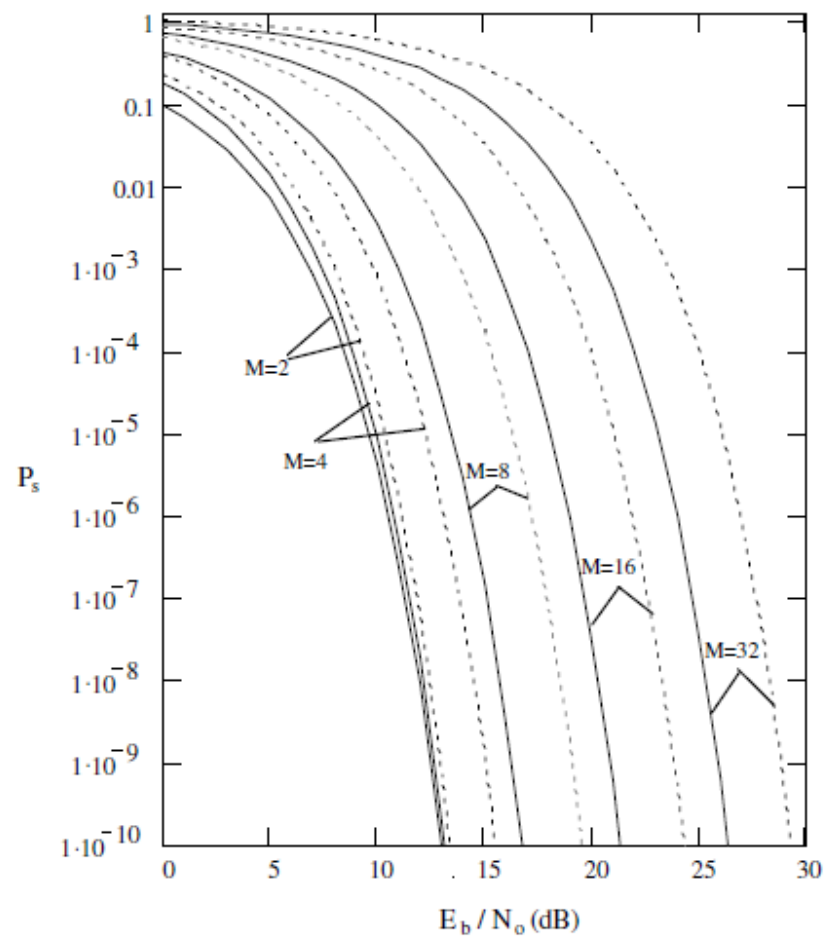
power savings of M -QAM compared to MPSK



generation of square M -QAM



square M -QAM



MPSK