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Optical Beam Former

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Abstract - Literature reported, design and simulation of optical beam former for cellular coherent optical OFDM (CO - OFDM) system with high data rate. We first discuss the generation of CO - OFDM symbols and then present the MEMS (Micro Electro Mechanical Systems) based optical beam former. The optical OFDM signal destined for a mobile terminal is split into eight equal- intensity signals. Each signal is complex weighted by controlling the phase and amplitude using a pair of micromirrors is herodyned with phase local optical signal. The resulting weighted microwave signal is then fed to the corresponding element of the 1x 8 antenna array . The complex weights are computed using Maximum Directivity (M D) algorithm for secified direction of arrival of signals and interferences. The radiation patterns of the proposed multibeam forming network are simulated using MATLAB and SIMULINK for different sets of look directions and null directions. The beam steering is found to be satisfactory in a 120 sector.