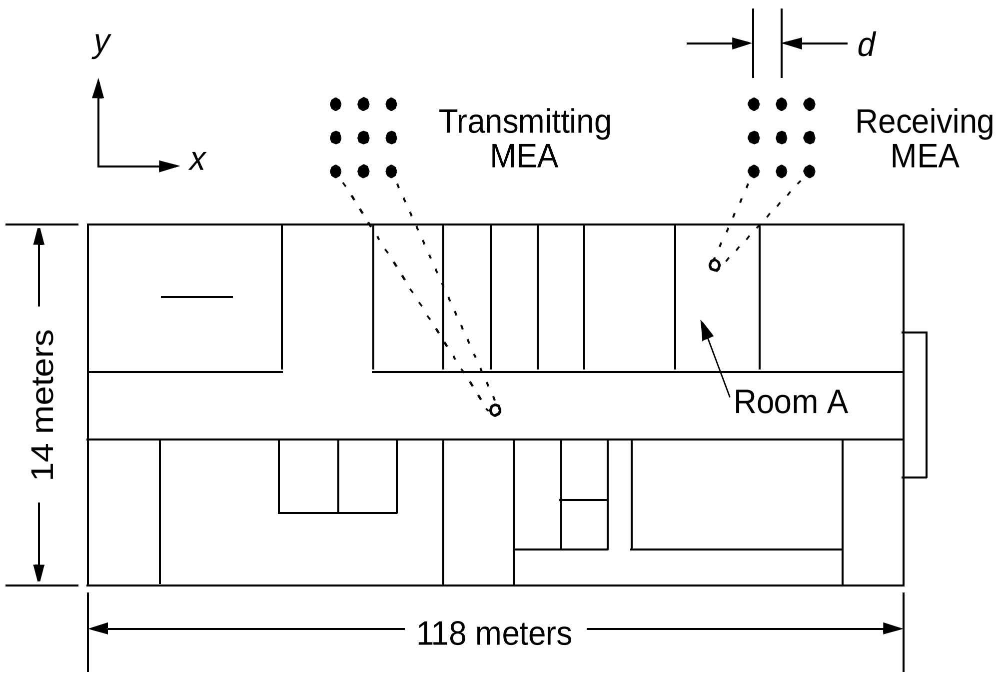

Figure 1: Floor Plan for the first floor of an office building at Crawford Hill New Jersey. Receivers with antennas positioned in linear or square grids are placed randomly at 1000 locations in Room A. The transmitting MEA is placed with its adjacent sides parallel to *x*-axis and *y*-axis, respectively. The receiving MEA is placed in a random orientation at each of the sample locations.

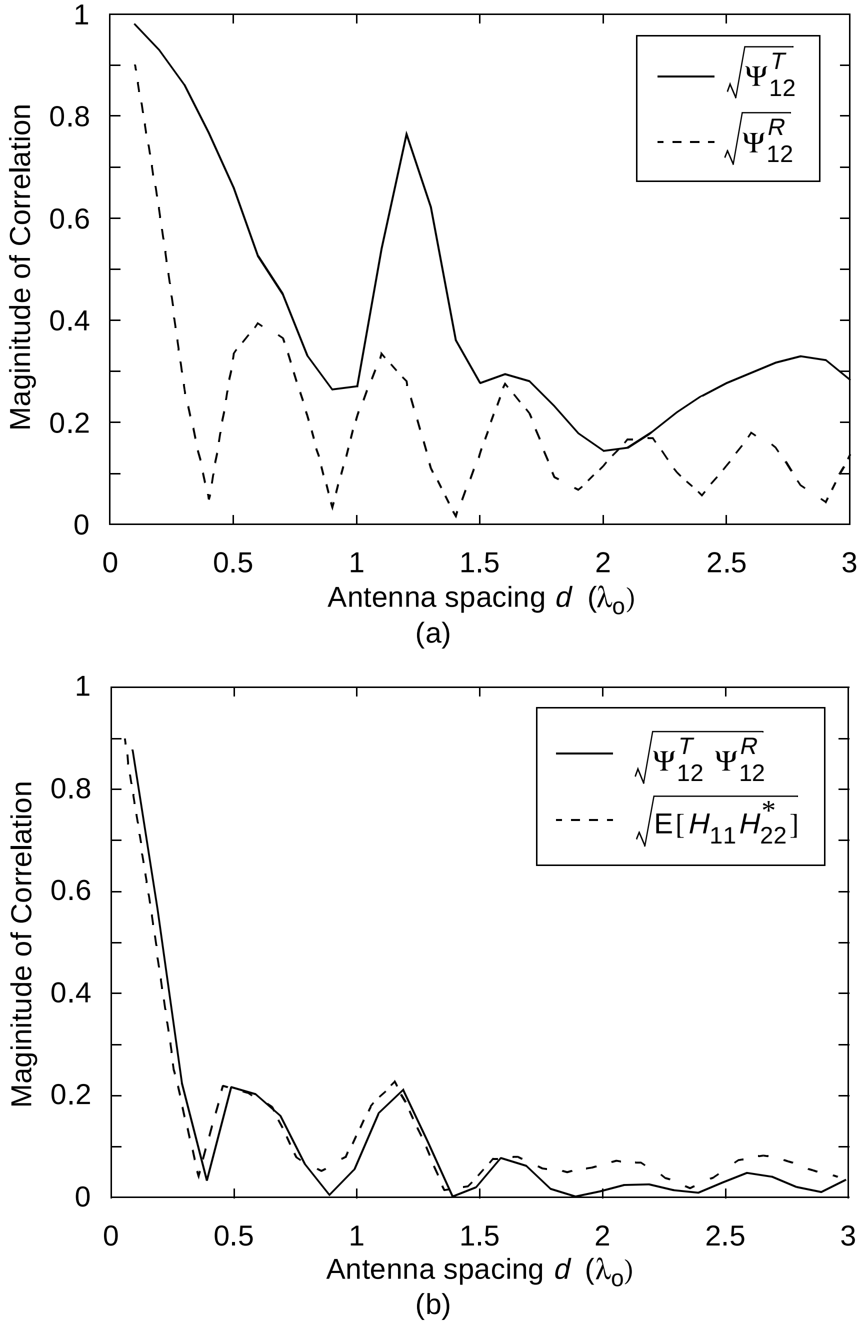

Figure 2: (a) Magnitude of correlations, Ψ_{12}^T and Ψ_{12}^R (as defined in Section 4), for antenna spacings ranging from 0 to 3 λ_o. (b) Magnitude of the normalized correlation $E[H_{11}H_{22}*]$ compared to the magnitude of the product $\Psi_{12}^T\Psi_{12}^R$.

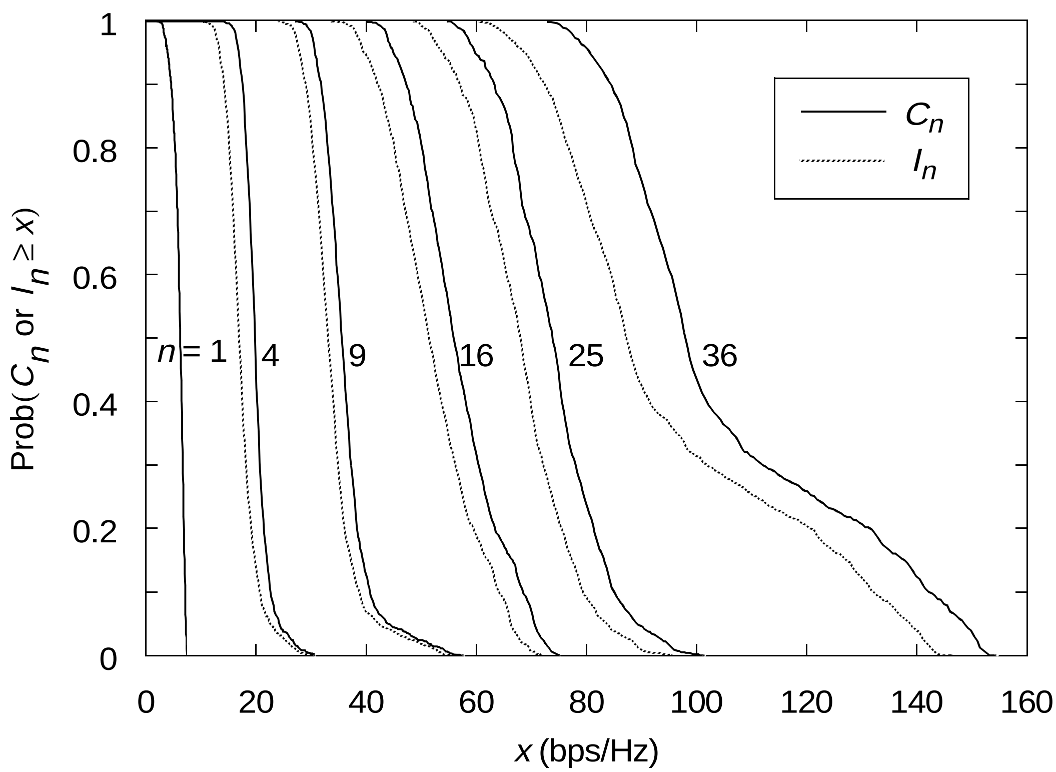

Figure 3: The CCDFs of C_n (achieved via water-filling) and I_n (with equal power allocation) for n = 1, 4, 9, 16, 25 and 36 at ρ = 18 dB. MEAs are arranged in square grids with $d = 0.5\,\lambda_o$.

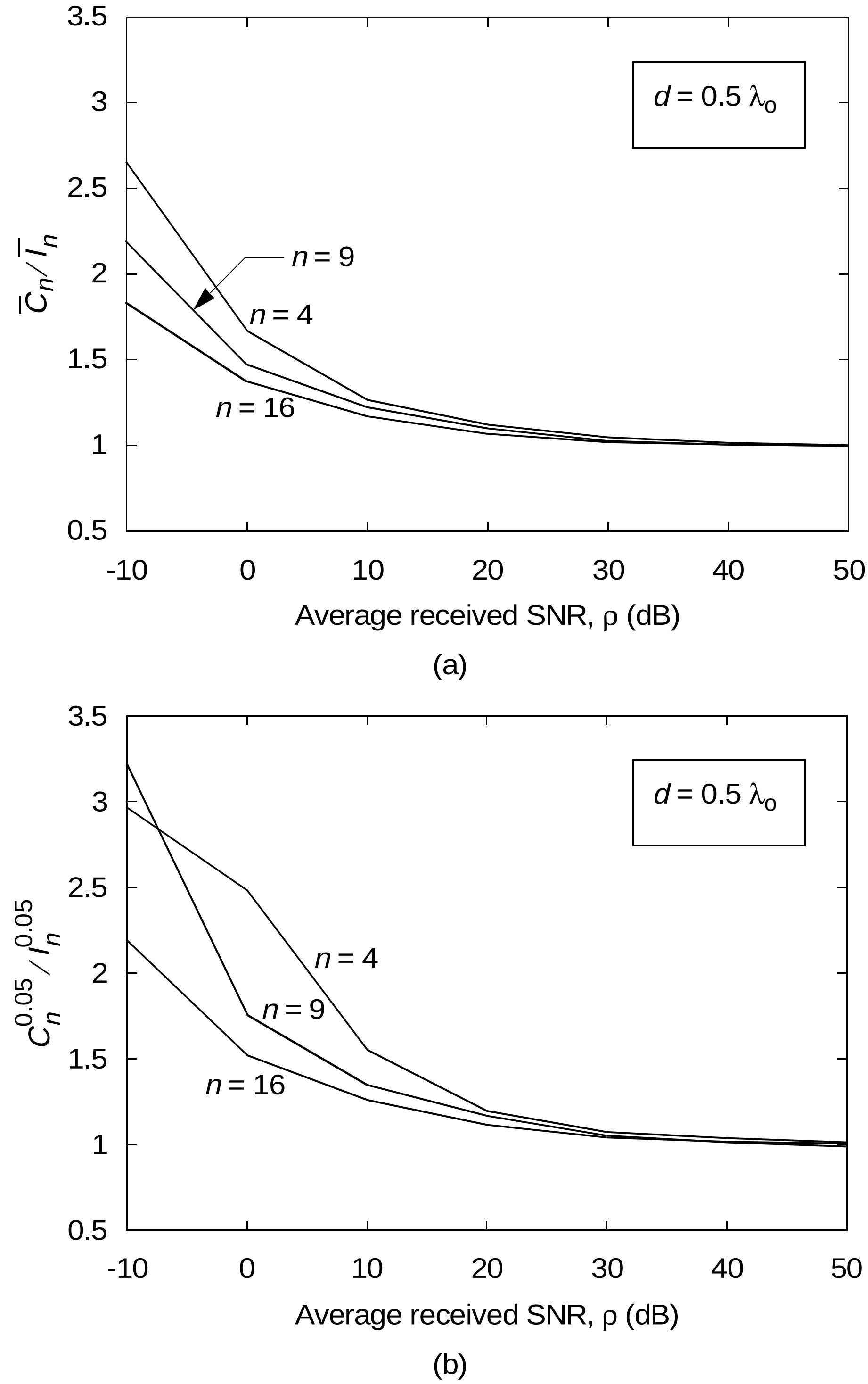

Figure 4: (a) Ratio of average capacity with water-filling to that with equal power allocation, $\bar{C}_n/\bar{I}_n$ at varying average received SNR ρ, for n = 4, 9 and 16. (b) Ratio of 5% outage capacity with water-filling to that with equal power allocation, $C_n^{0.05}/I_n^{0.05}$, over different ρ, for n = 4, 9 and 16. In both (a) and (b) MEAs at both the transmitter and the receiver are arranged in square grids.

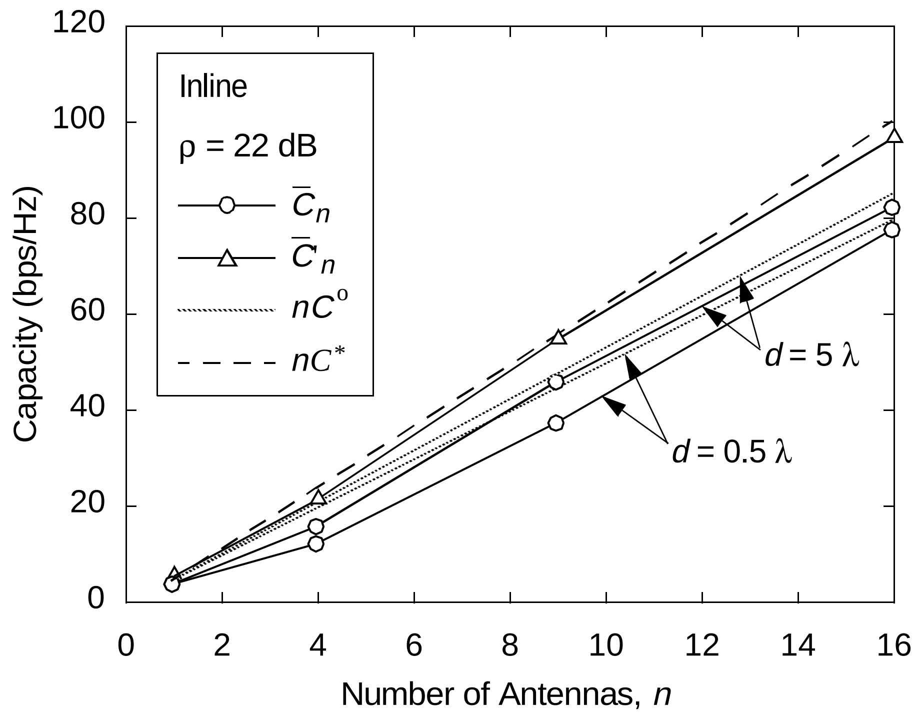

Figure 5: Average capacity $\bar{C}_n$ versus n for inline case. We consider linear arrays with two antenna spacings: $d = 0.5\ \lambda_o$ and $d = 5\ \lambda_o$. The transmitting MEA is placed parallel to the x-axis. The receiving MEA is placed in a random orientation at 1000 random locations in Room A. $\bar{C}'_n$ is the average capacity obtained when the transmit and receive antenna elements lie at i.i.d. locations within their respective workspaces, i.e., they are not constrained to regular linear arrays. nC^* and nC^o are asymptotic results for correlated and independent H_{ij}, respectively.

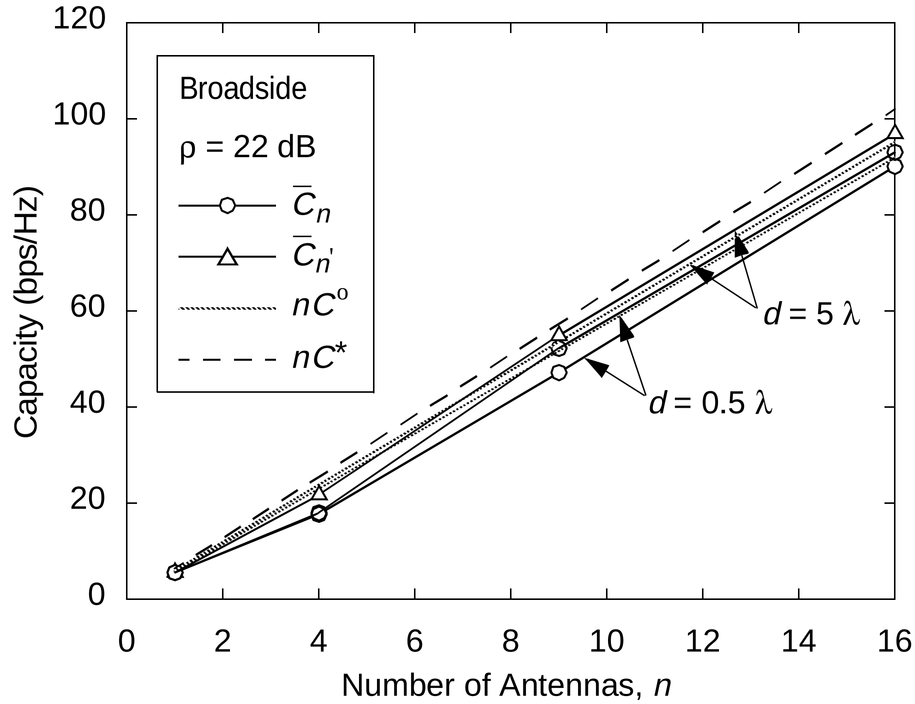

Figure 6: Average capacity $\bar{C}_n$ versus n for broadside case. We consider linear arrays with two antenna spacings: $d = 0.5\ \lambda_o$ and $d = 5\ \lambda_o$. The transmitting MEA is placed parallel to the y-axis. The receiving MEA is placed in a random orientation at 1000 random locations in Room A. $\bar{C}'_n$ is the average capacity obtained when the transmit and receive antenna elements lie at i.i.d. locations within their respective workspaces, i.e., they are not constrained to regular linear arrays. nC^* and nC^o are asymptotic results for correlated and independent H_{ij}, respectively.

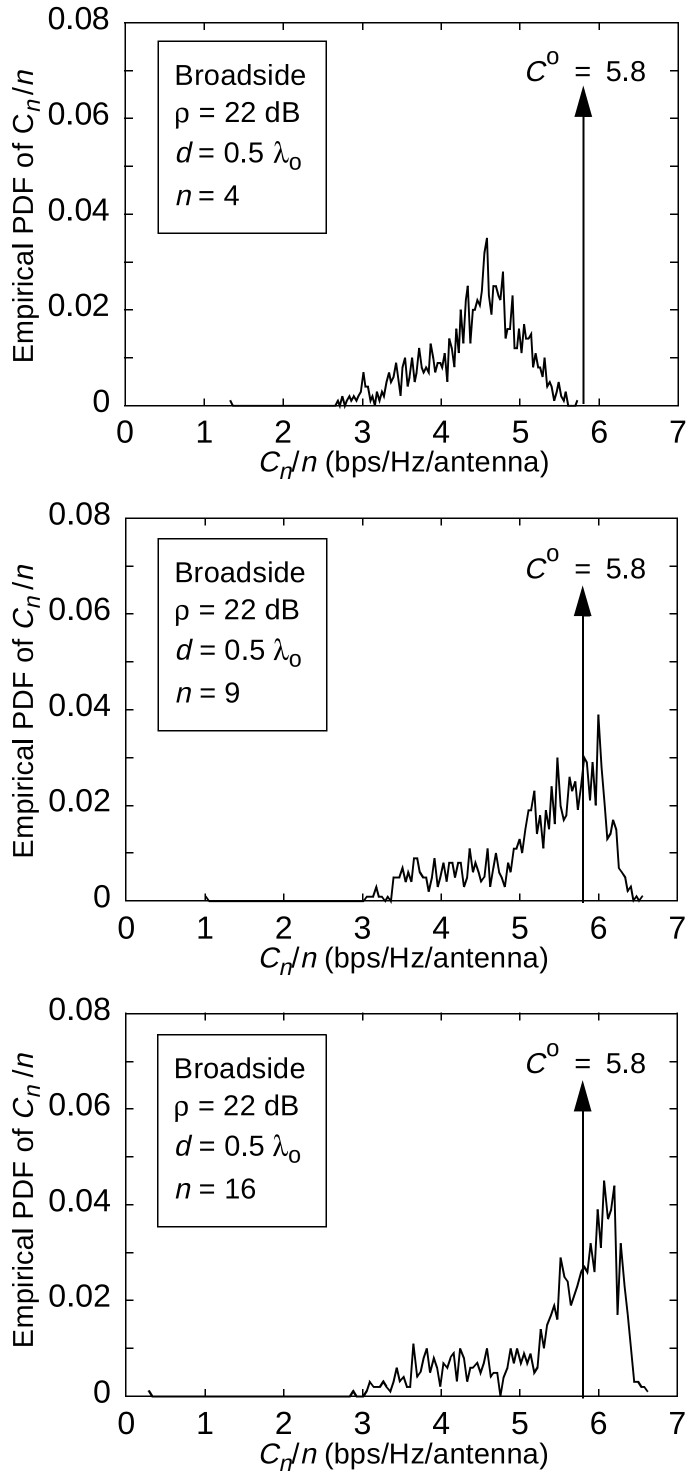

Figure 7: Empirical probability density function of the normalized capacity for n = 4, 9 and 16. We consider linear arrays with antenna elements separated by 0.5 λ_o. The reference value is C^o as predicted by the asymptotic theory considering correlated H_{ij}.

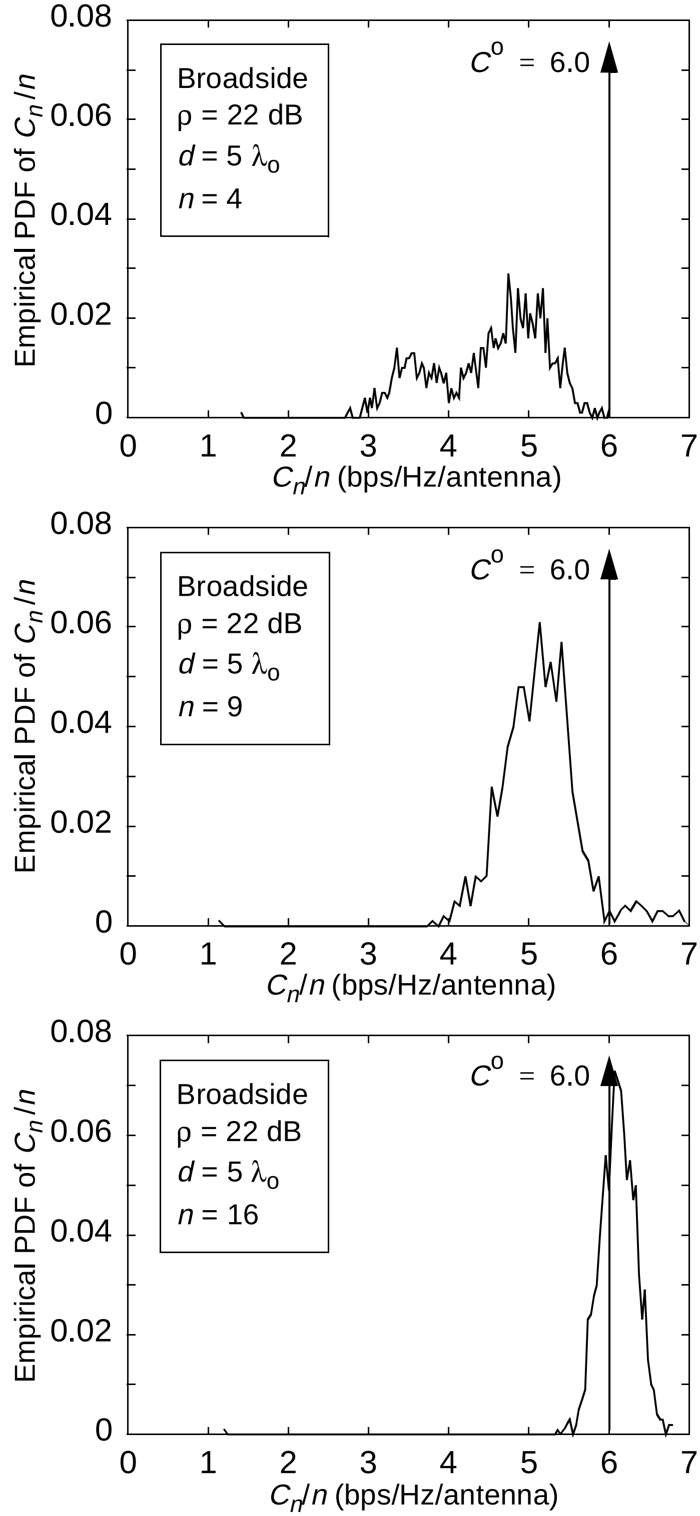

Figure 8: Empirical probability density function of the normalized capacity for n = 4, 9 and 16. We consider linear arrays with antenna elements separated by 5 λ_o. The reference value is C^o as predicted by the asymptotic theory considering correlated H_{ij}.