

Title:	Exposure Level Assessment Study of High Frequency Radiation from Hebron Two-Way Radio Tower
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Abstract: A study of the Hebron two-way radio tower in Halhul, which is part of the two-way radio network that links Bethlehem tower in the West Bank to Khan Younes tower in Gaza strip, was conducted. Hebron Tower was built over the highest spot in the region, 1027 m above the sea level. Analysis reveal that the power density of 226 mW/m², in the constant near field region that extends to 4.66 meters from the antenna surface, falls below the MPE threshold safe levels at $f = 422$ MHz, as per FCC and ICNIRP guidelines. The maximum power density in the far-field that starts at 11.18 meters works out to be 94.2 mW/m²; 3.4% of the designated MPE by FCC Standards and 4.5% of the designated MPE by ICNIRP Standards, which degrades in proportion with $1/R^2$ (R is the propagation distance). Measurements of signal power was conducted for Hebron tower and compared to various other transmitting towers seen from the area. Analysis reveal that power densities of all towers are invariably safe and their power densities fall below international safe standards. Results show that power densities from Orange cellular tower, 3500 m away and Marah radio tower, 2350 m away from Hebron tower were indeed higher than all others measured, when all power densities were referenced back to 30 m of their respective tower antenna positions. It is worth mentioning that FCC sets an average time of 30 minutes for public exposure to its safe limits and astonishingly no time periods for power densities less than the set thresholds. As far as the Hebron tower is concerned, its height of 111m provides a relative safe umbrella, from electromagnetic radiation hazard, away from the main radiation beam, over the area below it. However the real risk appears from a lack of genuine mesh grounding with ground inserted metal rods, round the tower base, together with the lack of required bonding along the tower