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A Study on assessment of Electro Magnetic Field Radiation in various parts of Chennai Metro city.

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ABSTRACT

Background: Electromagnetic fields (EMF) are present everywhere in our environment. Everyone is exposed to EMF radiation both at home and at work. This may lead to direct and indirect effect on our health. **Objectives:** To measure electromagnetic waves in various parts of Chennai; To propose protective measures to minimize the EMF risk. **Methods:** Type: cross-sectional Study. Location: commercial, residential and educational institutes of various parts of Chennai. Duration of the study: January and February 2018. Sampling Method: Simple Random Sampling method was followed. Information Collected: The EMF values were collected using Gaussmeter (5Hz to 3500MHz). Electric fields (E) are created by differences in voltage. Magnetic fields (H) are created when electric current flows. Both E and H values are measured in each area using the equipment. Threshold kept for this study: Electric Filed-40V/m, Magnetic field-0.4μT. **Results:** The average E value was 169.73V/m and 2.71V/m at 3 cm from the source. The Highest E values recorded in fluorescent light (2000 V/m) and 500V/m in induction electric stove, UPS-Inverter 400 V/m, water heater 486V/m. The highest H value was recorded in AC stabilizer (31.39μT) and 21.17μT at hair dryer, 8.12μT metro train, 7.45μT in MRTS train, 7.41μT in water heater, 5.88 in iron box. The residential areas near high tension electric line reported high E and H values (at 25 Meter: 223V & 1.23μT, 50 meter: 195V, 0.93μT; 100 meter: 90V, 0.53μT). The two wheeler seat area had 20 V & 9.52μT. Most of the mobiles (oppo, Le, vivo etc.) discharge 26V & 0.6μT at 3 cm and become 0 at 15-30cm. **Conclusion:** All the electrical equipment, electrical wires had some amount of E&H values. Hence it is advised to stay away from these gadgets as far as possible.

Key Words: Electromagnetic fields, EMF, Gaussmeter, Chennai