

Test Report

in compliance with ICNIRP



Type of Inspection	Low Frequency (LF) EMF Survey
Date	14.1.2019
Subject	EMF substation testing concerning future planning of two new single-family townhouses.
Customer Address	London NW8 9ST

1. Introduction

Electromagnetic fields have recently become an intensely studied subject in both the medical and scientific fields.

The acronym EMF (Electromagnetic Fields) is widely used to express the exposure of humans to electromagnetic fields. The exposure to EMF covers a wide frequency range (0 Hz - 300 GHz). EMF is sometimes known as electromagnetic radiation (EMR) or electromagnetic energy (EME). Electromagnetic fields are present everywhere in our environment – the earth, sun and ionosphere are all natural sources of EMF.

Magnetic fields arise from the motion of electric charges (i.e. a current), are expressed in tesla (T), or more commonly in millitesla (mT) or microtesla (μ T).

These fields are not shielded by most common materials, and pass easily through them.

Underneath power lines, magnetic fields can be about 20 μ T.

*However, average residential power-frequency magnetic fields in homes are much lower - about **0.04 μ T (40 nT) in Europe** and **0.11 μ T (110 nT) in North America**.*

2. Exposure Limits

Guidance on exposure limits is given by the International Commission for Non-Ionizing Radiation Protection (ICNIRP), which has been adopted by over 80 countries, and the Institute of Electrical and Electronics Engineers (IEEE) in the US.

The public exposure limits that apply in the UK are the 1998 ICNIRP exposure guidelines, for public exposure in the terms of the 1999 EU Recommendation.

In 2010, **ICNIRP** published new exposure guidelines.

The 2010 ICNIRP Guidelines for general public exposure are displayed below

Low Frequency Magnetic field
reference levels
at 45 - 60 Hz

100 μ T (Microtesla)

Or

100 000 nT (Nanotesla)

For more information please visit:

<http://www.icnirp.org/>

<https://www.icnirp.org/cms/upload/publications/ICNIRPLFgdl.pdf>

<http://www.emfs.info/limits/limits-organisations/eu-1999/>

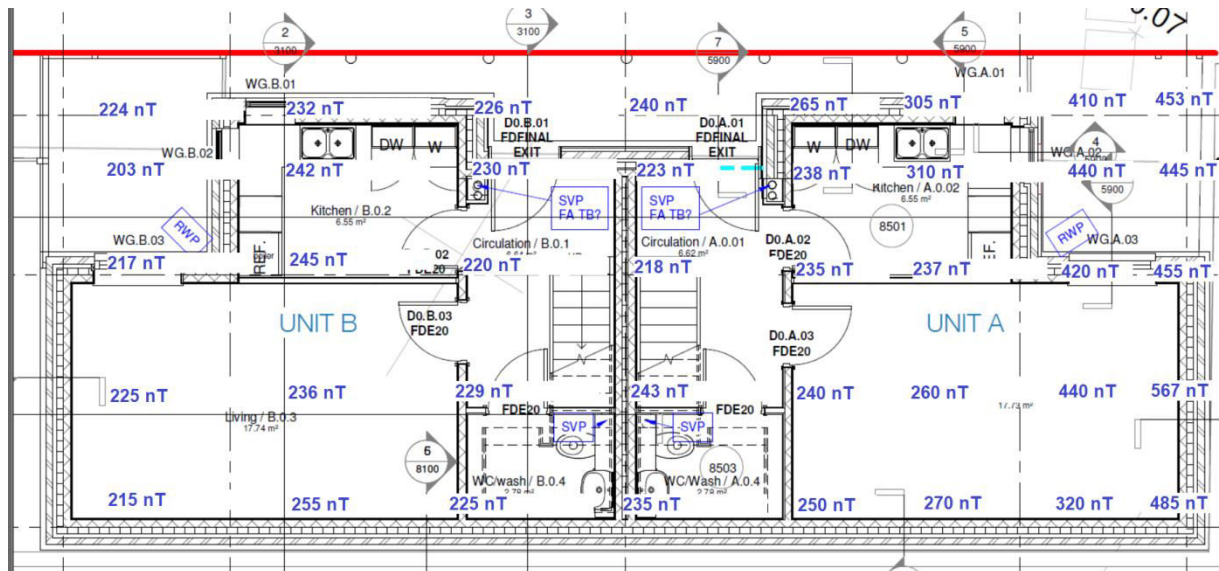
3. Results

Property Readings nT				Reading Comparison to UK Guidelines
Surveyed area	Lowest Reading	Upper Reading	Average Reading	Average reading expressed as % of UK REFERENCE level
Up to 1 meter from the substation	445	567	506	0.5060%
Up to 2 meters from the substation	320	443	381.5	0.3815%
Up to 3 meters from the substation	237	310	273.5	0.2735%
Up to 4 meters from the substation	235	265	250	0.2500%
Average reading in the area			352.75	0.3528%

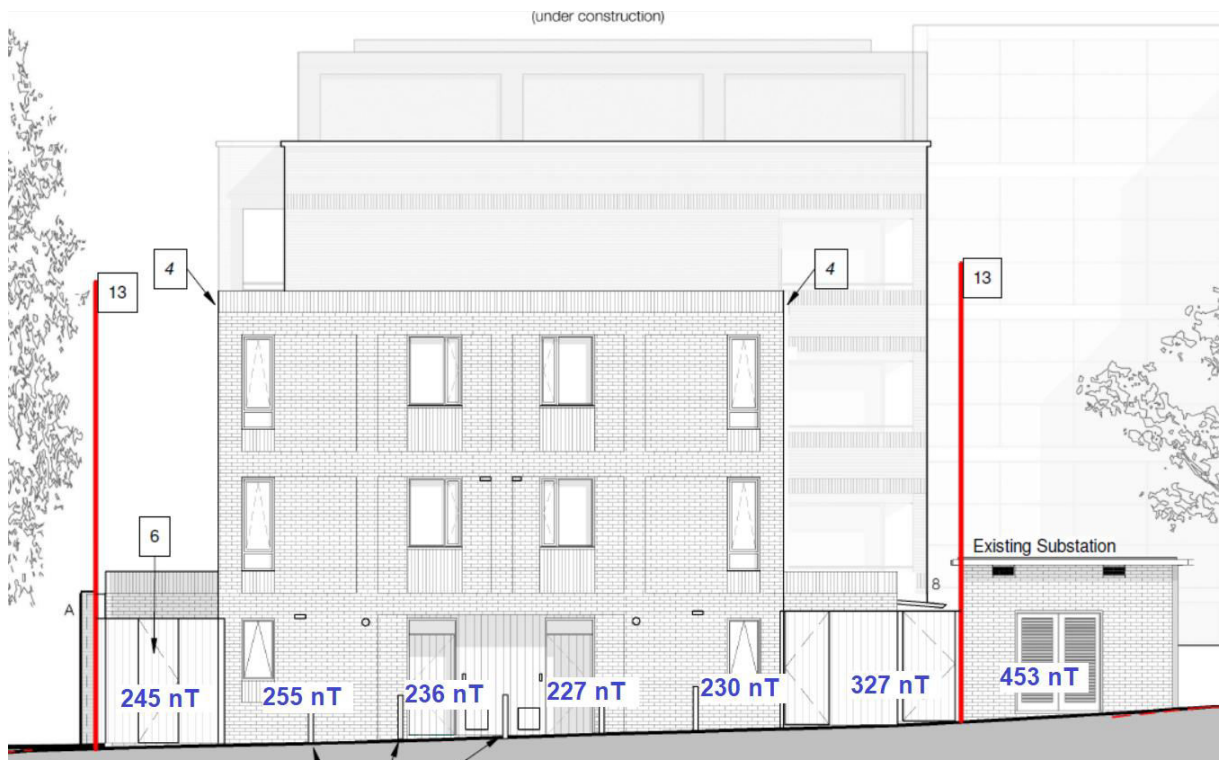
Risk Assessment expressed as % of UK REFERENCE level				
Surveyed premises	No or Low Radiation 0% - 20%	Slight Radiation 21% - 40%	Severe Radiation 41% - 80%	Extreme Radiation Over 80%
Up to 1 meter from the substation	X			
Up to 2 meters from the substation	X			
Up to 3 meters from the substation	X			
Up to 4 meters from the substation	X			

The electromagnetic field changes every second. The readings have been taken for a certain period of time – 3-5 minutes at distance of 1, 2, 3 and 4 meters from the substation. The range shows the lowest and the highest registered value.

Plotted readings – Ground floor



Plotted readings – front area



4. Summary

Readings taken in the area show that the EMFs generated by the nearby substation are not dangerous and they are completely acceptable.

Low frequency magnetic field in the range 45 Hz - 60 Hz does not exceed ICNIRP general public exposure limits.

The area is not overexposed to electro-magnetic field radiation.

No dirty electricity has been found.

No harmful EMF radiation levels detected.

Based on the readings taken, EMF shielding plates are not required in this case.

Signed,

Atanas Petkov

EMF Inspections Ltd.

*International House
12 Constance Street
London E16 2DQ*

