0. Assessment Statement

Environmental impact of metro systems

The planning stage for a metro system in the Tel-Aviv metropolis is in full swing. The routes for three lines have been established and published to the general public. Line M2 will pass the community of Ramat-Gan. The plan has two alternative routes when passing the Bar-Ilan University, of which one will be choosen and be built.

The construction of a new metro system will have environmental impact such as (but not limited to) dust, vibration, noise and so-called electromagnetic emission both during construction and during operation. New electrical systems cause new electromagnetic phenomena in their environment and electromagnetic compatibility (EMC) with equipment already present in that environment must be managed.

The M2 is planned to pass the University at close range (northern route) or even beneath the University buildings (southern route). The University uses all types of scientific instruments in education and research. A new metro system is very well capable of causing electromagnetic fields that disturb the proper operation of the instruments, which would cause certain research to become very difficult or even impossible.

Assignment

The Bar-Ilan University instructed Microsim to perform an assessment on the risks of electromagnetic effects of metro operation, based on presently available information. Microsim has knowledge of and experience with investigating similar situations and has engineered solutions both in the Netherlands and abroad.

Scope

The technical scope of the assessment is: electromagnetic interference by M2 with scientific instruments of the University in the low and extremely low frequency bands. Interference in those frequency bands is presently not addressed in any EMC standard or guideline, so it has to be assessed on a situation specific basis.

Assessment

The outcome of this assessment for the Southern route is, that all listed instruments will suffer from electromagnetic interference caused by M2, most of them very severely. It is estimated that only very drastic mitigating measures will be adequate, like relocation to other existing buildings or even buildings that must be built entirely new. Construction of M2 along the southern route is not acceptable to Bar-Ilan University.

The outcome of this assessment for the Northern route is, that the expected emission of M2 will not rise above the immunity levels of the presently installed instruments, given certain assumptions on the design and construction of M2. However, after construction of the northern M2 route, Bar-Ilan University will face substantial location limitations when purchasing and installing new instruments.

Leusden, The Netherlands,
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(authorized signature)

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