Fast and accurate electric field estimation from a single ray tracing simulation

Author(s) - Institution(s):
Juan Pascual-García, UPCT
José-María Molina-Garcia-Pardo, UPCT
María-Teresa Martínez-Inglés, UPCT
José-Víctor Rodríguez, UPCT
Leandro Juan-Llácer, UPCT

Corresponding author email: josemaria.molina@upct.es

Corresponding WG group: WG1

Abstract:

In this TD an efficient field estimation technique is developed. This technique uses a single simulation of a ray tracing tool, in one spatial point at one frequency, to compute the field in the vicinity of the simulated point throughout a complete frequency range. The developed technique is a two-step procedure. Firstly, it operates over the images and field contributions generated by the ray tracing tool in the simulated receiver point to obtain an appropriate set of field contributions for each new receiver point. Secondly, once the new set of images and contributions at one frequency is obtained, a very simple extrapolation procedure is applied to obtain the electric field throughout a frequency range. The whole technique is computationally very efficient and it is also accurate as the measurements comparison shows.