

■ White Paper
Février 2005

Statistics menus
in ICS telecom *nG*

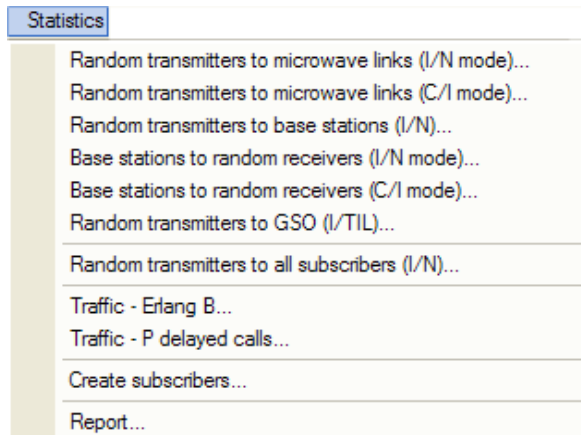
Thomas Garand



STATISTICS MENU IN ICS TELECOM

Access to the Statistics menu:

In order to access the menu statistics, select menu *Statistics*.



The option *Create subscribers* can be used in order to create random subscribers. The option *Report* gives you the possibility to recall previously saved statistic simulations.

Interferences simulation

This menu is based on a deterministic approach which provides estimations directly derived from the path profile and based on the random positions of the transmitters or receivers.

If you are using this menu that means that your situation is as following: you have a network but you don't know where the others station are (opposite networks), where the interferers are and which stations will be interfered. So the goal is to simulate a "virtual" network (opposite network) in order to predict what will be the interferences on the existing network due to this network.

For that, the user defines his existing network then thanks to the Monte-Carlo simulator defines the characteristics of the opposite network (type of transmitters or receivers, area and technical parameters) and then starts the simulation.

Parameters of the problem

First of all, set the parameters of the existing network (M/W or base stations). Then select the type of problem you intend to simulate:

- Random transmitters to microwave links (I/N or C/I mode).
- Random transmitters to base stations (I/N mode)
- Base stations to random receivers (I/N or C/I mode)
- Random transmitters to GSO (I/TIL).
- Random transmitters to all subscribers (I/N mode)
- Traffic - Erlang B
- Traffic - P delayed calls

The option "Traffic - Erlang B" simulates a network based on the Grade Of Service calculation according to the Erlang B law (blocking probability) And the option "Traffic – P delayed calls" simulates a network based on GOS calculation from the probability that a new call suffers a delay.

In the following screen (Monte Carlo Simulator Setup), the user must set up the characteristics of the simulation and the characteristics of the opposite network.

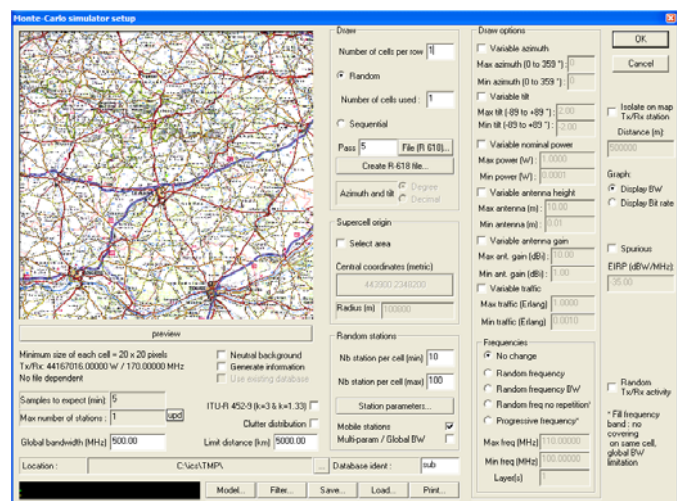


Figure 1: Monte Carlo simulator



Simulation characteristics

The user has to define one or several areas on which he wants to carry out the simulation.

For that, the user can:

- Give the number of cells he intends to use;
- Define the number of simultaneous cells he wants to use;
- Define if these rows will be simulated simultaneously or one at a time;

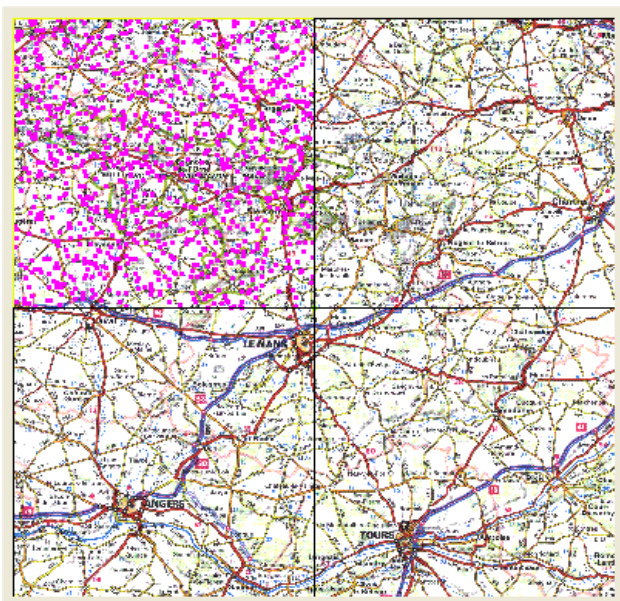


Figure 2: Areas definition

Opposite network characteristics

The user has also the possibility to define the characteristics of the opposite network.

For that, he has to:

- Define the station parameters;
- Define a minimum and maximum number of stations which will be simulated in each selected cell.
- Select random parameters for these stations (azimuth, tilt, power, height of antennas ...).
- Set up the interference rejection factor before starting the simulation.



Figure 3: interference analysis

Thus, ICS Telecom analyses all the possible interferences between the random transmitters defined (opposite network) and the microwave link existing and then displays the result of the simulation.

Results of the simulation:

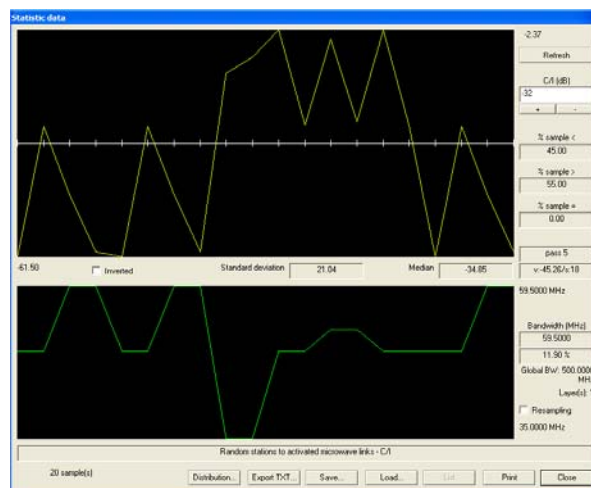


Figure 4: simulation results

On the result screen, the user can change the C/I level considered as acceptable and he will be prompted with the percentage of simulations where this protection ratio is respected.

This result can be saved for a future use and displayed as a list of distribution.

ATDI SA

8, rue de l'Arcade
75008 Paris - France
Tel. +33 (0) 53 30 89 40
Fax +33 (0)1 53 30 89 49
e-mail : atdi@atdi.com
<http://www.atdi.com>

ATDI Inc.

2, Pidgeon Hill Drive, Suite 560
Sterling - VA 20165 - USA
Tel. +1 703 433 54 50
Fax +1 703 433 54 52
e-mail : americas@atdi.com
<http://www.atdi-us.com>

ATDI Ibérica

c/Manuel González Longoria,8
28010 Madrid - Spain
Tel. +34 91 44 67 252
Fax +34 91 44 50 383
e-mail : southern-europe@atdi.com
<http://www.atdi.es>

ATDI Ltd.

Kingsland Court - Three Bridges Road
Crawley - West Sussex - RH10 1HL - UK
Tel. +44 (0)1293 522052
Fax +44 (0)1293 522521
e-mail : northern-europe@atdi.com
<http://www.atdi.co.uk>

ATDI SAL

812 Tabaris, Avenue Charles Malek
Achrafieh, Beirut - Lebanon
Tel. +961 1 330 331
Fax +961 1 216 206
e-mail : mea@atdi.com
<http://www.atdi.com>

ATDI EST

Bd. Aviatorilor, 59
Bucharest
Romania
Tel +40 21 222 42 10
Fax +40 21 222 42 13
e-mail : eastern-europe@atdi.com
<http://www.atdi.ro>