

land mobile module

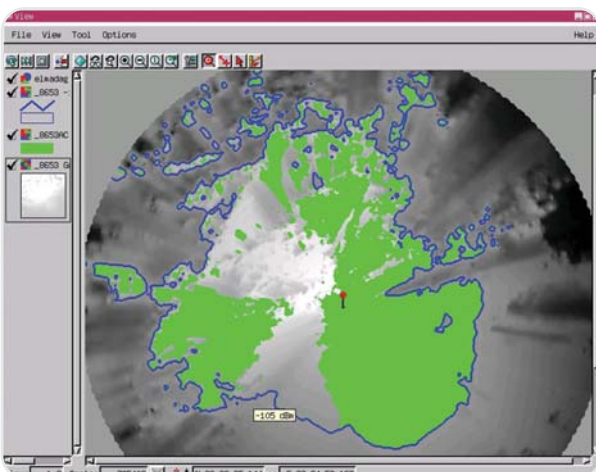
SES – Land Mobile Module is the right tool for your land mobile interference analysis studies and intermodulation analyses in VHF and UHF bands. Just as in other SES products, this module provides comfort during the network design and analysis studies besides achieving cost reductions.

SES – Land Mobile Module focuses on the following issues:

- Intra/Inter-Service Interference Analysis
 - Land Mobile
 - Broadcasting – Fixed / Mobile
- Intermodulation Interference Analysis

LAND MOBILE INTERFERENCE ANALYSIS

Land mobile networks are still one of the most popular ways of communication in relatively short distances. SES – Land Mobile Module gives you the opportunity to analyze the interference among land mobile stations in order to make more reliable communications within your service area. With land mobile interference analysis, it is possible to study both existing and new stations together and you are able to find out the interference-free coverage areas for all stations included in your study.



► Interference-free coverage area of a land mobile base station

In order to perform land mobile interference analysis, this module makes use of SES – Basic Module for defining station parameters and finding their coverage areas. You are able to define the analysis parameters such as minimum required field strength, co-channel and adjacent channel protection ratios, and channel separation. To identify the stations suffering from interference, you can also define a threshold for the percentage of failing test points that does not satisfy the protection ratios.

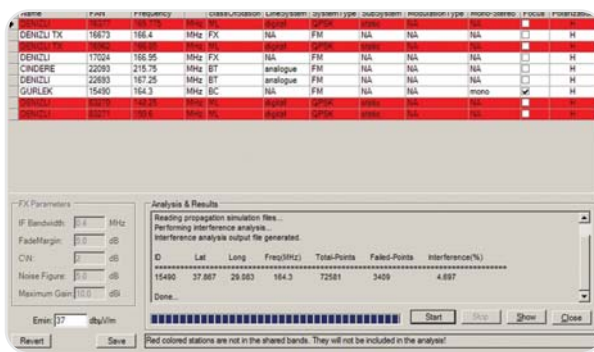
The study results of both co-channel and adjacent channel analyses are available in the form of text files and can be displayed graphically. You can determine the total number of interfered and clear points and also the percentage of interference for the co-channel and adjacent channel frequencies of the existing stations. For each of these frequencies, the stations which have highest interference are listed in an output file.

BROADCASTING–FIXED/MOBILE INTERFERENCE ANALYSIS

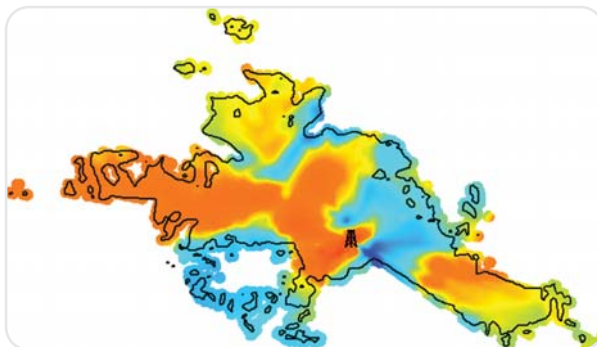
UHF and VHF bands are shared by broadcasting, fixed and mobile services which may cause interference with each other. Therefore, it is important to protect:

- Broadcasting services from fixed and land mobile services
- Fixed services from broadcasting services
- Mobile services from broadcasting services

SES – Land Mobile Module lets you examine your service area based on the inter-service interference analysis in an excellent way. Study



► GUI of the Broadcasting - Fixed / Mobile interference analysis



► Coverage contour and interfered areas for a base station

results showing the interfered areas and the amount of interference in the coverage areas of land mobile base stations are generated. During the analysis of inter-service interference, Rec. ITU-R SM.851 is followed.

Within SES – Land Mobile Module, you are able to define your study area based on its radius and center coordinates. The powerful database of SES provides you with the technical parameters of existing stations. After performing a database search to find the existing stations in your study area, you can select either all of the stations or some of them to include in the analysis. The protection ratios are automatically set to default values by the module.

INTERMODULATION INTERFERENCE ANALYSIS

Intermodulation interference is the unwanted interaction of two or more signals generating a frequency product which is at or near the tuned frequency of a wanted receiver. This module follows the interference calculation procedures presented in Rec. ITU-R SM.1134. There are two types of intermodulation interference considered:

- **Transmitter intermodulation:** Two signals can interact and generate an undesired signal at the frequency of the wanted receiver by a transmitter which is different than the wanted transmitter. This may happen if the antennas of two transmitters are very close to each other.
- **Receiver intermodulation:** The intermodulation product can be generated by the wanted receiver due to non-linear behavior of its input and IF stages. Two or three signals different than the desired signal may reach the wanted receiver input and the intermodulation interference may occur depending on some conditions.

With SES – Land Mobile Module, you are able to identify the stations causing intermodulation interference to your wanted receiver. Calculation results are provided for both transmitter and receiver intermodulation interference cases. You can find out the coordinates, frequencies and powers of the unwanted transmitters involved in an intermodulation interference case.

