Visualyse Professional

Version 7

1 Visualyse Professional Version 7

What's in Version 7?

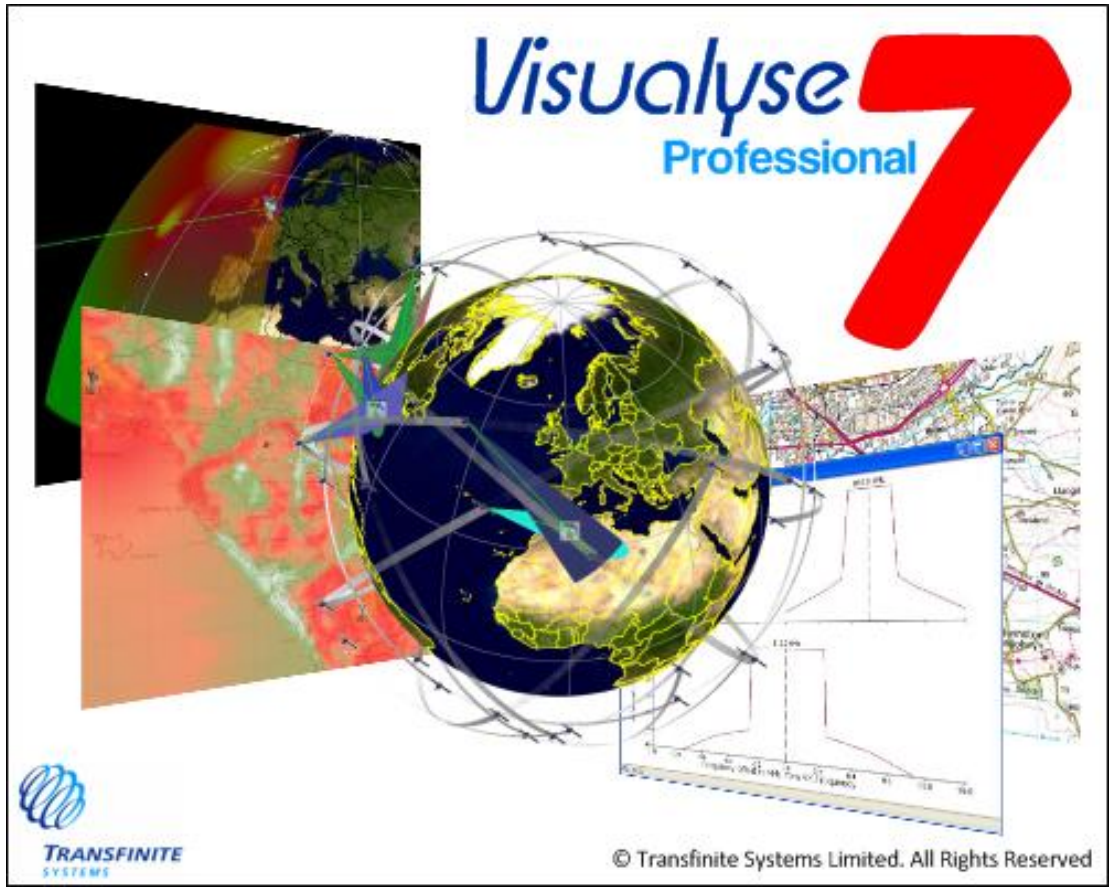
Version 7 is a major upgrade to Visualyse Professional.

It represents a significant step forward in features, benefits and technology

In this document we will highlight some of the new features and show you some screenshots

For detailed technical information or if you have specific question please contact us at

info@transfinite.com



2 It looks Different

3D View

… is now really 3D.

Open GL technology allows for faster and more flexible manipulation of the 3D view, when compared to our previous orthomorphic projection.

It also allows us to wrap bitmaps on the globe, effectively giving the whole visualisation aspect of the software a facelift.

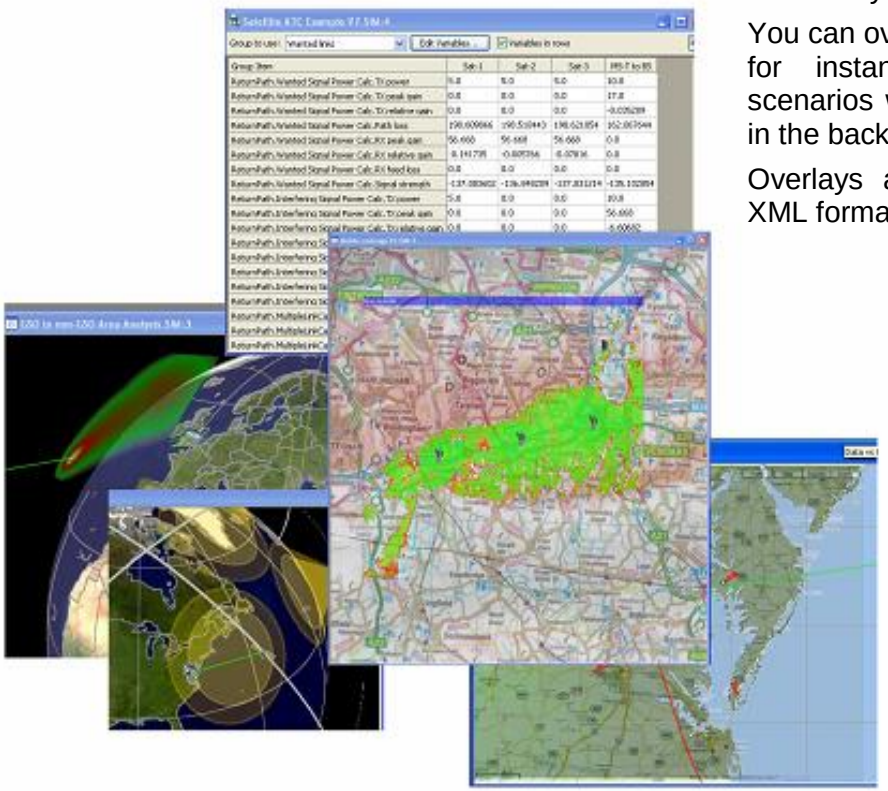
You can now see Area Analysis, Path Profiles and Terrain Data in the 3D View.

Scrolling and zooming controls are also improved

A new Way to Look at Things

Table View – look at parameters across a group of objects.

E.g. see the I/N level at many stations simultaneously



Maps and Overlays

Map views can now be shown in Plate-Carree and Mercator Projections. This helps us provide maximum compatibility with external data sources for overlays

You can overlay bit maps, for instance to show scenarios with a map tile in the background

Overlays are defined in XML format

3 It's More Flexible

Visualyse Professional has always been a flexible tool. Flexibility derives from the software architecture. Complex scenarios are built from a number of basic objects. By using appropriate data for the objects (antennas, stations links etc) faithful representations of a very wide range of systems can be developed

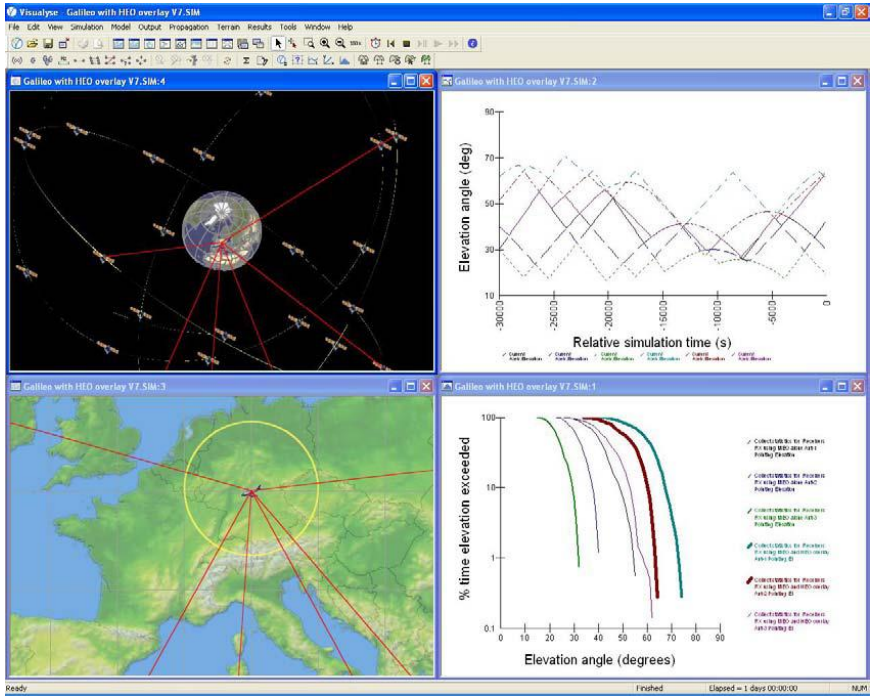
Among the types of things that can be simulated in Version 7 are

- Aeronautical Systems
- Digital Dividend
- Earth station coordination
- Fixed planning and coordination
- GSO to GSO Satellite
- Maritime
- Military
- Network Coverage
- Non-GSO Satellites
- Others
- PCS/AWS
- Radiolocation
- Satellite & Terrestrial
- Short range devices
- Space Science Service

Any number of different systems can be included in one Visualyse Professional simulation.

Hence you can look at multiple interference paths between multiple systems

Whether satellite or terrestrial, fixed or mobile, direct simulation or Monte Carlo – Visualyse Professional can meet your modelling requirements



Terrestrial Radio Modelling

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Not just for satellites

Visualyse Professional has a long pedigree in satellite system analysis. Our market research shows a strong association with satellite coordination and non-GSO networks is widely perceived.

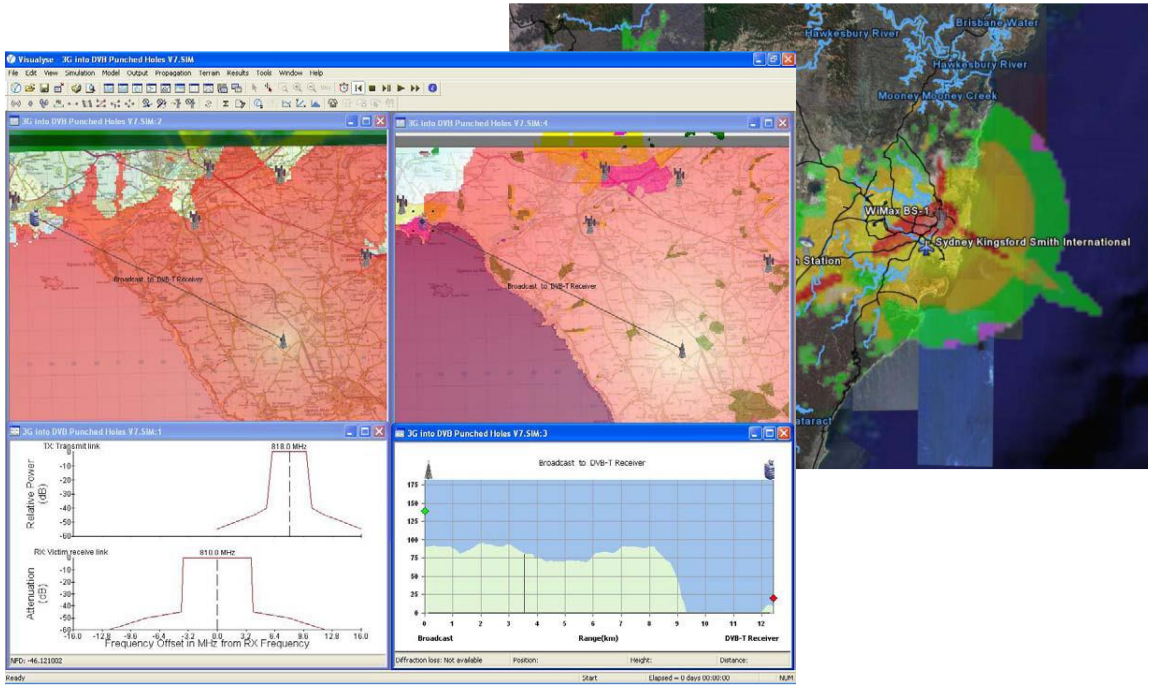
Less well known but equally powerful is the software's ability to model and simulate terrestrial networks. This was something we built in from the first commercial release and which has become more important over the intervening years.

In Version 3 we added the capability to handle terrain data and use that data to calculate propagation loss.

In Version 5 we extended the range of propagation models to include Recommendation ITU-R P. 1546 and update our library to include the Hata and Egli models.

At the same time we were continuously improving the way terrestrial systems were defined and managed. Our FS Wizard allowed data to be imported from external sources via a simply formatted Excel spreadsheet.

Many other incremental improvements lead to significant overall benefits.



Now in Versioni 7 we have taken some larger steps in this direction. New ways to get data in from external sources, new ways to display maps (overlays, Google Earth) and use of spectrum masks all help make Visualyse Professional a powerful tool for terrestrial network modelling

Hexagons,Coverage, Clutter, Land Use and Terrain

We have also improved the way the software interacts with the SRTM data.

Clutter

Local clutter is a very important factor in determining the coverage and the interference for terrestrial networks. Whilst the models are relatively simple, the historical problem has been to get the local parameters into the software.

Our Land Usage database interface solves this issue, allowing you to load and display land use data directly in a simulation

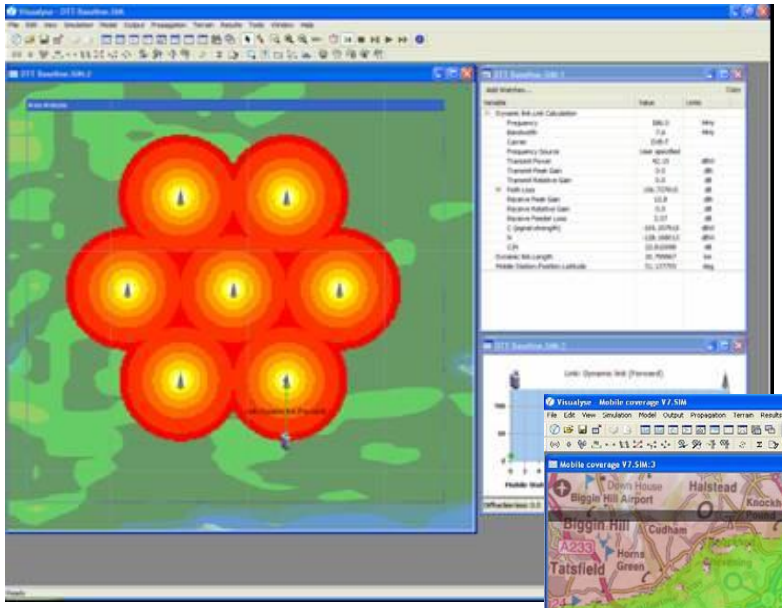
Hexagons

The deployment of cellular networks in hexagons is now directly support by the station group wizards.

Coverage Maps

Having defined your network Visualyse Professional will quickly generate a map showing coverage levels – either colour coded or as labelled contours.

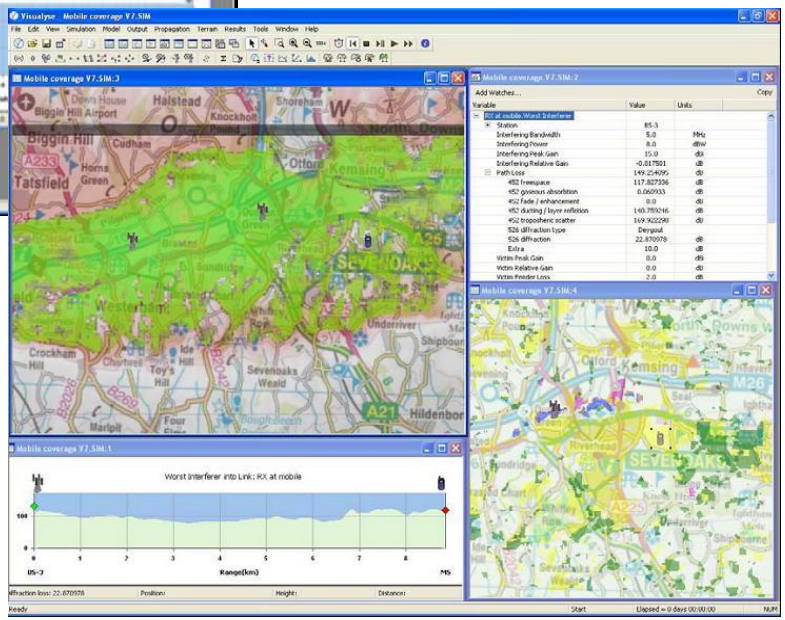
Improved interaction with terrain data makes it easier to import and use spot heights from the widely available SRTM database and other sources



Maps, Overlays and Google Earth

A great benefit for terrestrial networks is the ability to display the calculated data and Visualyse Professional objects against bitmaps and to export to Google Earth.

The Google Earth interaction has been significantly upgraded in Version 7



Terrestrial IFICs, Table View

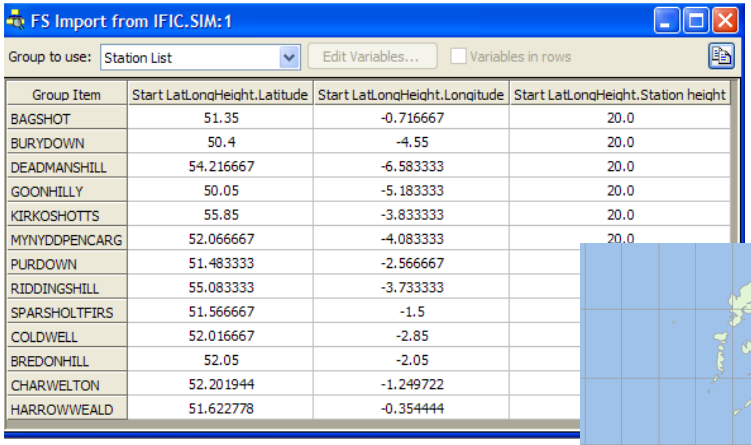
Getting Data In

Visualyse Professional has always had features that help in the definition and management of large sharing scenarios:

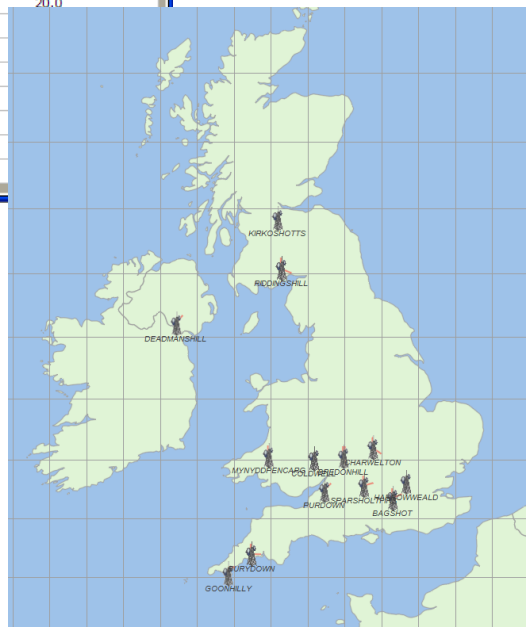
- Station Groups and Link Groups and their wizards allow you to quickly define multiple objects
- The Change Variable Wizard allows you to modify variables in many objects at once
- Data import for Fixed Links and for the satellite IFIC give you a way to get data from external sources

Now in Version 7 we have extended this functionality to include the import of networks in the ITU's terrestrial IFIC format.

Terrestrial IFIC compatibility not only gives you access to data that are notified to ITU, but also provides a well understood standard format with which to manage you own data.



Group Item	Start LatLongHeight.Latitude	Start LatLongHeight.Longitude	Start LatLongHeight.Station height
BAGSHOT	51.35	-0.716667	20.0
BURYDOWN	50.4	-4.55	20.0
DEADMANSHILL	54.216667	-6.583333	20.0
GOONHILLY	50.05	-5.183333	20.0
KIRKOSHOTTS	55.85	-3.833333	20.0
MYNYDDPENCARG	52.066667	-4.083333	20.0
PURDOWN	51.483333	-2.566667	
RIDDINGSHILL	55.083333	-3.733333	
SPARSHOLTFIRS	51.566667	-1.5	
COLDWELL	52.016667	-2.85	
BREDONHILL	52.05	-2.05	
CHARWELTON	52.201944	-1.249722	
HARROWWEALD	51.622778	-0.354444	



Select and filter data to import by administration, location, receipt date, frequency, notice type and service type

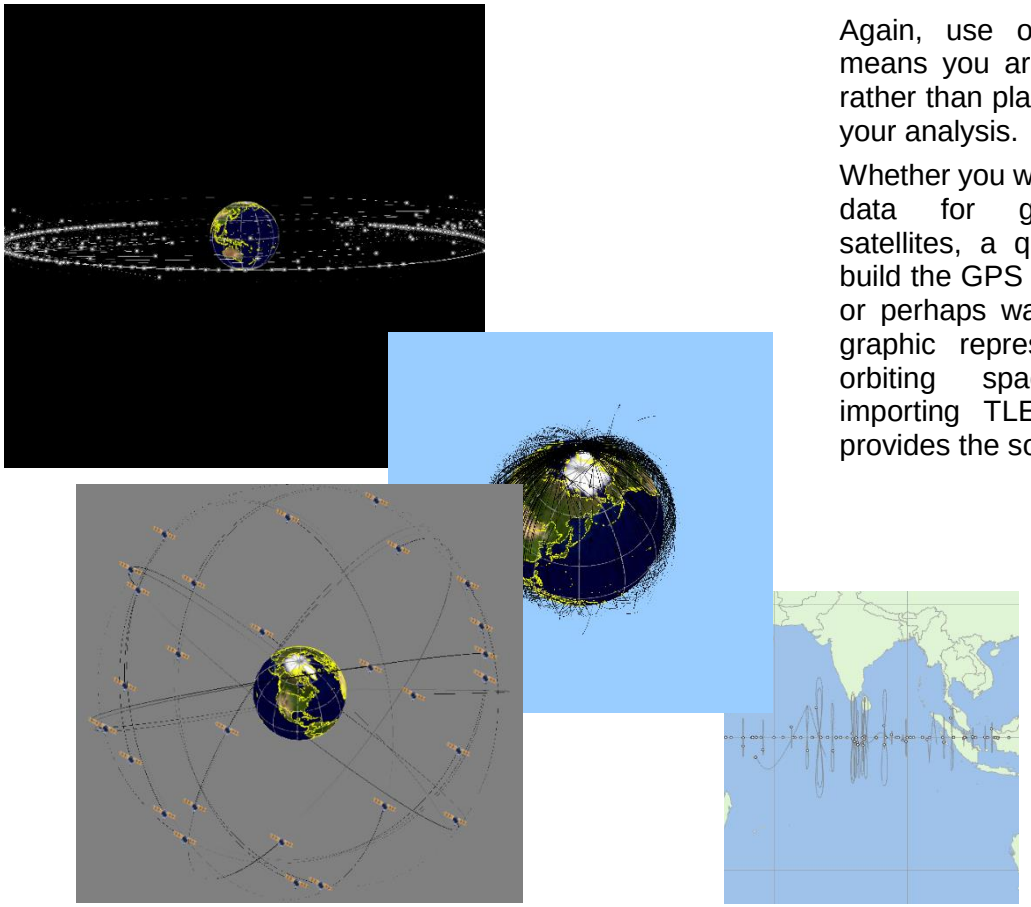
Table View is new window that gives you simultaneously sight of the parameters of many objects in a group (for instance stations just imported from an IFIC, maybe – as in our example here

Two Line Element Sets

TLEs are a standard format for satellite orbit data. Using this option could speed up definition of a group of satellites and also let you use real orbit data which is updated regularly on several internet sites.

Satellites defined as geostationary are very often not exactly in circular orbit about the equator. Use of TLEs rather than filed satellite data reveals the differences between planned and actual parameters.

Non-GSO constellations, filed and planned with symmetry between and within planes do not in practise maintain these symmetries throughout their life.



Again, use of TLE sets means you are using real rather than planned data in your analysis.

Whether you want accurate data for geostationary satellites, a quick way to build the GPS constellation or perhaps want to see a graphic representation of orbiting space debris, importing TLE data sets provides the solution

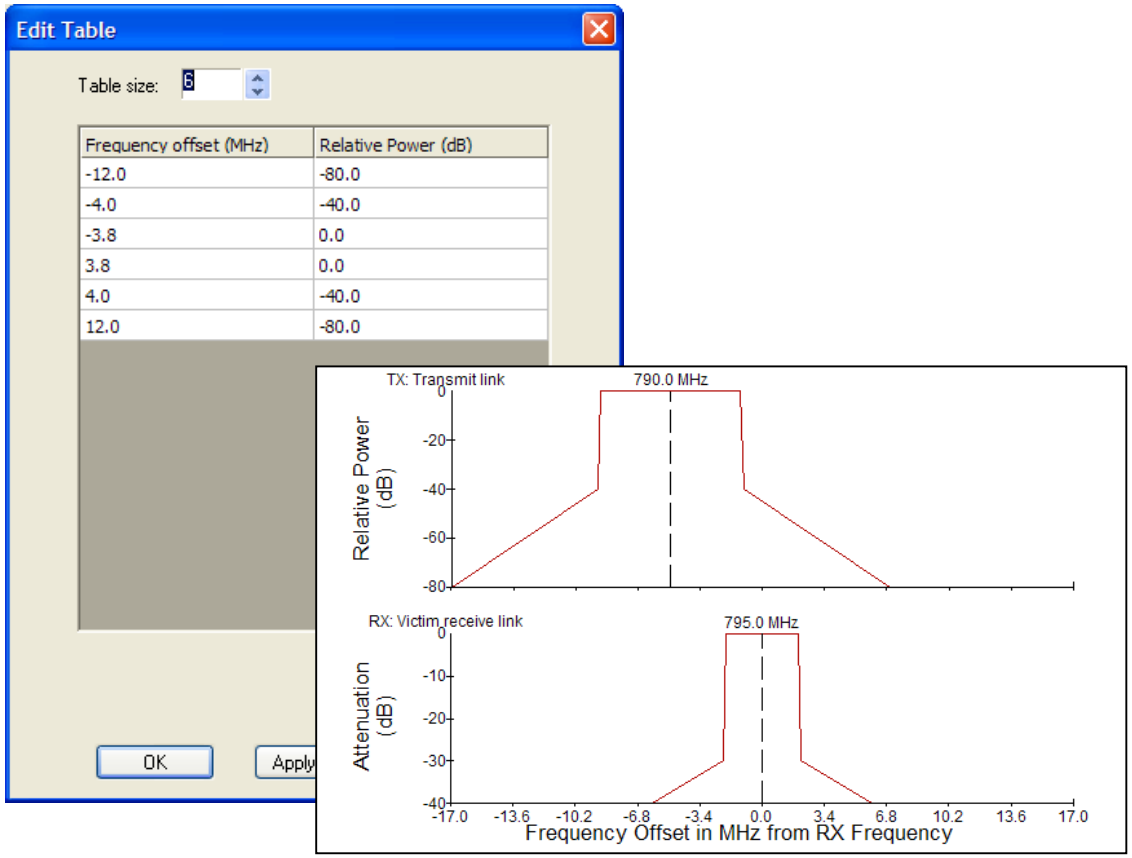
8 Spectrum Masks – Frequency View and Net Filter Discrimination

Out of band emissions, covered by frequency masks can be modelled explicitly in Visualyse Professional

You define, for each carrier a mask in a table of frequency offset versus relative power.

Visualyse Professional looks at the centre frequencies of the wanted and interfering carrier and performs a convolution of the transmit and receive masks to give a Net Filter Discrimination (NFD) – which is automatically included in the calculations.

The frequency view shows the two masks and the resulting discrimination



9 GIS

Visualyse Professional Version 7 includes major new visualisation and graphical information system (GIS) features.

The user interface includes integrated

- Plate Carree view
- Mercator view
- 3D views

powered by the latest Open GL technology.

On all of the views it is possible to overlay information such as raster data (maps) and vector data (roads, borders, etc).

In addition you can show on all of these views Visualyse Professional's powerful Area Analysis output, plus terrain and land usage information.

For example

- analysis of a private mobile network's coverage overlaid on top of a map
- displaying in 3D a large non-GSO constellation