Visualyse^{GSO}

## Version 2 Description

Summary of Version 2 Features

Visualyse GSO Version 2 builds on the success of Version 1 and adds significant new features for satellite coordination engineers. Whereas, Version 1 was aimed at the regular processing of IFIC data, Version 2 is a more complete tool supporting the coordination process from start to finish.

The software includes four major functions

1. IFIC Check – use this feature to check for overlap, DT/T and worst case C/I against a fixed database e.g. an IFIC or the SRS

2. Custom Check – use this feature to add filters to the data imported, including filter by orbital location, date of protection network name and admin

3. Find Slots – search at a given orbital location for un-used frequency slots.

4. Modify Networks – create new networks and edit existing networks

These four functions allow you to perform many types of analysis that would be just impossible without the software.

We have also included a Detailed Coordination phase in the analysis – selected networks can be 'carried forward' into this phase.
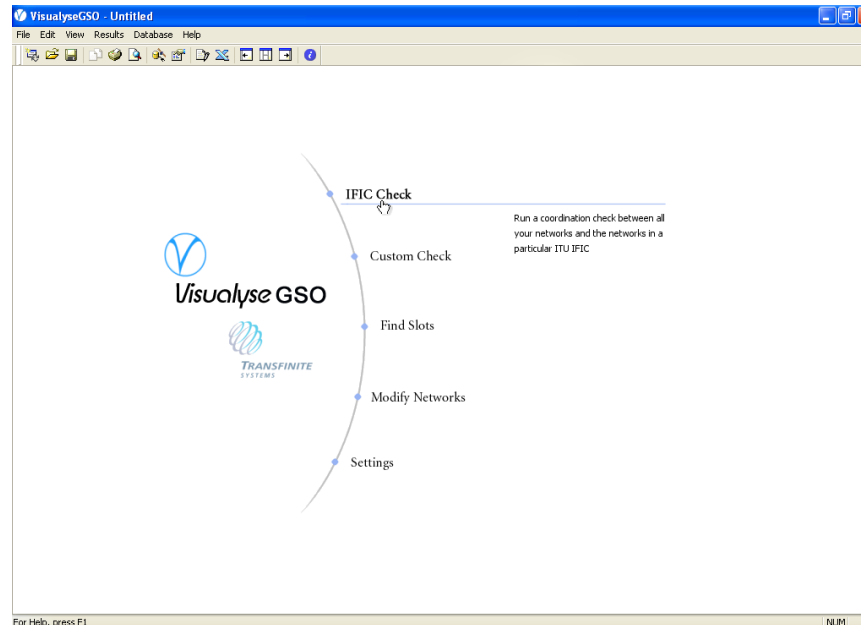
New Features

- Analysis of Regulatory Priority
- Custom Analysis of the SRS
- Free Frequency Search
- Detailed C/I Analysis
- Use of GIMS antennas,
- Parameter editing
- Graphic coverage display
- Graphical service area analysis
- C/I thresholds based on notified C/N targets

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Regulatory Priority

Priority Date

An important element of Version 2 is the possibility to deal with regulatory priority

When filings are received by the BR they are assigned a date. When coordinating with other filings after this date, the earlier filing will have priority.

Because coordination is a process of negotiation, priorities can be important in trade-offs made to reach an agreement.

Visualyse Version 2 shows you directly where you have priority in both the overlap list and graphically in the overlap diagram.

Priority dates are assigned to a group and are stored under d_prot_eff.

Displaying Priority

Priority is shown on the overlap diagram.

Bands where the network has priority are highlighted. The polarisations on which it has priority are shown.

Group level priority dates can be extracted during the detailed coordination phase

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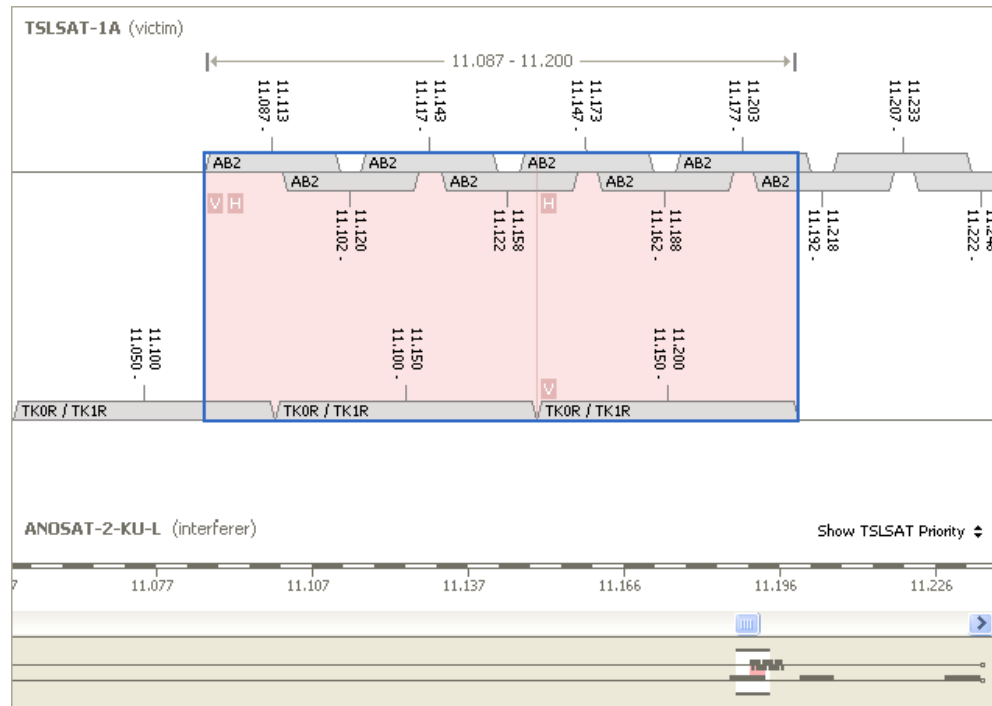
Building on and improving the functions of Version1, this feature allows you to keep track of emerging situations and newly filed networks.

See at a glance where you need to be concerned about a new network

Overlapping Networks

This shows all the networks in the IFIC that overlap with your networks.

For CRCs you can determine, at a glance, the notice type, whether further investigation is required, and the status of the 2 coordination triggers.

For APIs you can see the closing date for responses.

For Notifications you can check whether coordination has been completed with your administration.

Interference calculations are performed for all notice types

Frequency Overlaps

This shows all the individual overlaps with each of your networks.

Contiguous pairs of overlapping transponders are amalgamated into one continuous frequency overlap

The frequency overlaps pane is split into two. The top shows the overlap list. This is grouped by network.

The bottom shows the overlap

Calculations

This shows the calculations for the selected overlap.

There are two tabs, one for the high level coordination trigger assessment, the other for the detailed carrier vs. carrier C/I.

The coordination trigger page can be printed as a report for sending to the ITU.

Detailed C/I cases can be selected and taken forward to the detailed coordination analysis

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4 Overlapping Networks

Status Icons

Status icons indicate the action recommended by the software.

A red warning triangle indicates that excessive interference levels may be experienced and that coordination would be required
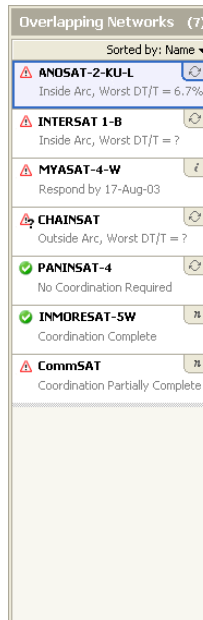
A green circle with a tick mark indicates no further action.

The criteria that define these states can be changed in the application settings – so for example you can display the warning sign if the network is within the coordination arc or has a DT/T over a threshold or both.

Triggers

The coordination arc trigger can be calculated as soon as the coordination check has been initiated. The result (inside or outside) is then displayed.

The DT/T trigger remains undefined

until you click on the network or until the software completes the calculation, which it does in the background. When the calculation is complete the display is updated with the worst DT/T result.

Note that triggers are only shown for coordination request notices.

Notice Type Icon

The notice type icon indicates the type of notice. If you hover your mouse over the notice icon a tool tip will appear to remind you of what kind of notice it is.

APIs

For an API, no trigger information is displayed. Instead the closing date for responses is shown.

Notifications

Trigger information is not shown for notifications either. Instead an indication of whether coordination has been achieved with your national administration is shown.

List Sorting

The list can be sorted by Name (alphabetical), Notice Type (API then CRC then NOTIF) or Status (Warning Triangle or OK)

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Coordination Triggering

Coordination Trigger

This displays all the information needed to respond to a request for coordination.

Sections of the data can be collapsed and expanded as required – you can display the details of the calculation to any level needed.

Exporting Data

Data can be copied and pasted to excel or other apps.

You can generate a report in Word or print directly from the application.

The report format can be changed in the application settings. This will allow you to modify the word document template.

Calculations

Frequency = 11.087-11.200

Coordination Trigger	Carrier vs Carrier C/I	
Networks		
Interfering Network	ANOSAT-2-KU-L	
Administration	CHN	
Orbital Location	9.0 deg W	
BR Publication	AR11/C/2718	
Dated	24-May-03	
Victim Network	TSLSAT-1A	
Administration	CHN	
Orbital Location	12.2 deg W	
Orbital Separation	3.2 deg	
Overlap Frequency	6.150 - 6.200 GHz	
Coordination Arc Trigger		
Coordination Arc Exists?	✔	
Size of Arc	10 deg	
Inside Coordination Arc	✔	
DT/T Trigger		
Satellite Power	-43	dBW/Hz
Satellite Gain	26.1	dBi
Freespace loss	194.94	dB
Earth Station Location	0.00 S 130.00 E	
Earth Station Gain	0	dBi
I (interference)	-211.84	dBW/Hz
N (noise)	-207.5	dBW
I/N	-4.35	dB
DT/T	0.37	%

Print...   Report...

Word Report

The report facility uses a template Word document with data fields inserted to indicate where the software should put the information.

This will allow us to let you edit the template and use a form that conforms to your company's document style.

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Carrier vs Carrier C/I

Carrier vs. Carrier C/I

The C/I tab shows the matrix of all carrier combinations over the whole overlap.

Negative C/I margins represent C/I levels that fall below their threshold and these are coloured red.

The lower part of the tab shows the matrix as a list. Selections in the matrix are reflected in the list.

Some carrier combinations may never occur within the overlap. These are crossed out in the matrix but are not shown in the list.

More Detail

The C/I margin column can be expanded to show more details of the calculation. You can see the bare C/I, the bandwidth adjustment, the adjusted C/I and the threshold used.

The carrier types can be expanded to show their class

Exporting Data

Data can be copied and pasted into excel or other applications.

Moving to Detailed Coordination

Calculations that require coordination can be ticked in the list. Clicking the Coordinate button will then take you to detailed coordination.

Detailed coordination is a separate process and only the selected overlaps are available in detailed coordination mode.

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Where an overlap is carried into Detailed Coordination, you have much more power and flexibility in the analysis. This phase is almost a separate function from the basic check

Filter Bar

Allows filtering of any parameter to be applied as you type. Grouping can be switched off so that you can focus on a specific set of calculations.

Interference Cases

This shows the interference cases brought in from the main application. Underneath each case is listed ALL the calculations for that combination of carriers within the overlap.

Individual beams, earth stations and polarisation are listed together with a final C/I margin. Bad cases are indicated.

Earth View

Displays the coverage areas of the two networks. Earth station locations are shown and can be modified.

Contours of C/I can be displayed for the coverage area so that earth station trouble spots can be identified.

Calculation Pane

This shows the complete C/I link budget calculation for the selected interference case.

Parameters can be changed and updates are reflected in the network.

Changes to parameters like gain that cannot be resolved to an individual network attribute are stored and flagged as objective figures.

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C/I Contours

The C/I contours option displays C/I contours over the coverage area. The contours show levels of C/I for different earth station positions. Areas of coverage where C/I is particularly low can then be identified.

C/I levels and beam footprints can be displayed simultaneously

When the C/I contours are displayed, the key shows the C/I levels. When both the contours and the beams are displayed, clicking the Key button will toggle between the beams key, the contour key and no key.

Contour Levels

Colours and contour levels are set-up automatically by the software. The colour key shows the mapping between the colours and the levels.

Moving Earth Stations

You can move the position of an earth station simply by clicking and dragging it to a new location. As you drag it, the lat/long is displayed next to the mouse cursor.

Boresights

Boresights can be moved in exactly the same way as earth stations, allowing you to repoint the satellite antenna

Note that this is not currently possible with GIMS antenna data.

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Other Networks

The only difference between custom coordination and an IFIC check is the way in which the other networks are specified.

You can choose a particular database or you can pick networks individually from any number of other databases.

You can then place a filter on the networks chosen. The filter will narrow down the networks that will be used in the check.

Choosing a Database

This option defaults to the SRS (or the database that you chose last time). To choose a different one, click the drop-list button. The list will show the SRS plus all other databases you have accessed recently. At the bottom you will see "Other…". Click here to go to the open file dialog and choose a different database.
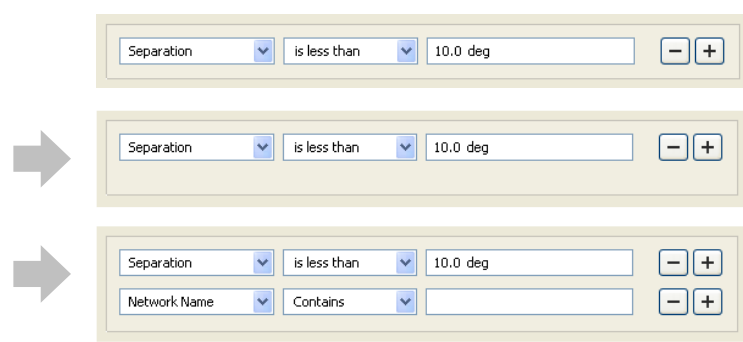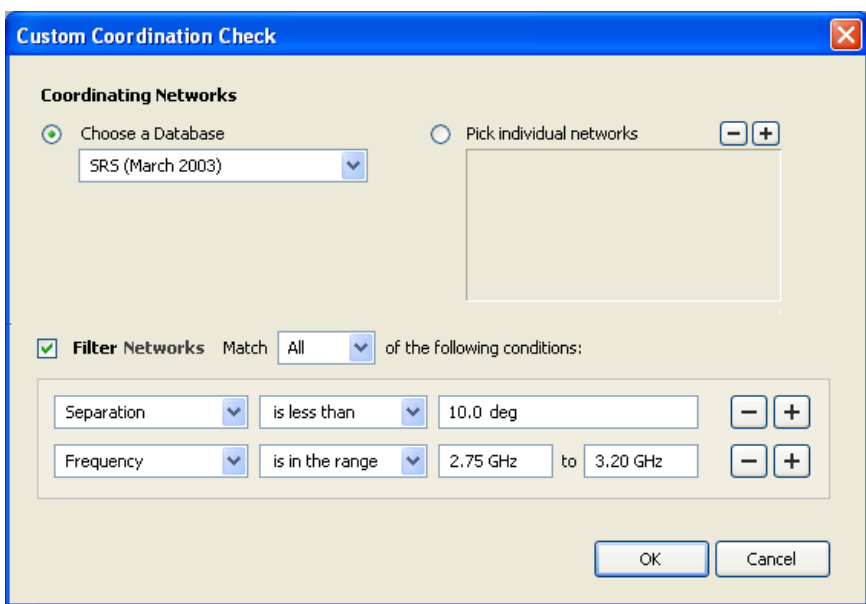
Individual Networks

Click the + and − buttons to add networks or remove selected ones.

The + button will open an equivalent dialog to the import networks dialog. From here you can select any number of networks from a particular database.

Filter Networks

You can filter by Separation angle, Frequency, Priority date, Network name and Administration.

The interface allows you to enter any number of conditions for the filter. Click any of the + buttons to add a condition. The box and the dialog expand (this is animated) to show the new controls (shown

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Slot Finder

The free slot finder is an independent tool for finding free frequency slots. It is split into two pages.

The first page gathers information about the search and the second page displays the results.

Search Criteria

This page is very similar to the custom coordination check dialog. It allows you to specify a set of networks to search for free slots.

You can place filters on a set of networks or set a minimum required slot size.

Results

When you click Search the search begins. The results page is displayed and the results are shown as they are found. A progress bar is also shown.

When the calculations are complete, you can click on the graphical representation or in the list. Results can be copied and pasted.

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