

PROGIRA®

Release notes PROGIRA® plan 6.0

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1 General/Introduction

The following document presents updates in PROGIRA® plan version 6.0. Both changes as well as new features and bug fixes are presented. If you should need further information regarding any of the modifications, please contact support@progira.com.

PROGIRA® plan version 6.0 is a major upgrade with many new features and improvements. Two new broadcast standards are supported in this version; ATSC 3.0, the new US television standard and DTMB-A, the enhanced Chinese Digital TV standard. Another important new feature is support for frequency planning according to the US FCC rules.

Handling of data is also easier as “Tags” are introduced. Tags make it possible to customize transmitter data with for example type of mast, postal address, coordination status, owner and much more.

A selection of other new features and updates:

- Support for latest ArcGIS version (10.4)
- 3D visualization of antennas
- Mechanical tilt can be applied on an antenna system with multiple vertical antennas diagrams
- Major upgrade of the T-DAB/T-DAB+ module
- Enhanced usable field strength summation

2 Base Module

2.1 General

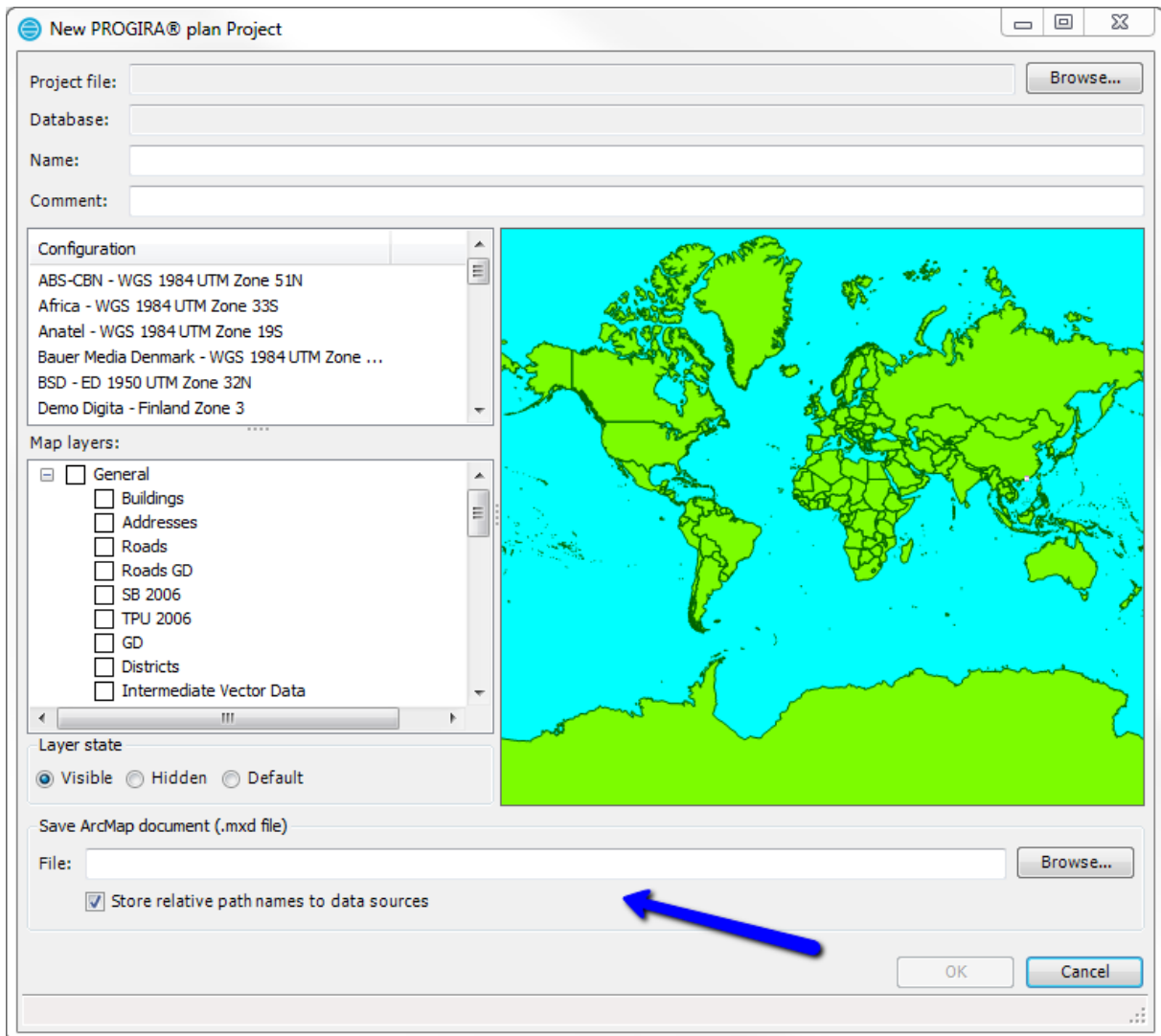
NEW: Support for ArcGIS 10.4

CHANGED: PROGIRA® plan is now capable of using more than 32 threads.

CHANGED: Memory usage by PROGIRA® plan was reduced considerably. This results in better responsiveness as well as faster project loading times.

2.2 New Project

CHANGED: When creating a new PROGIRA® plan project, it is now possible to create an ArcMap document automatically. If used, it is recommended to save the ArcMAP document in the same folder as the PROGIRA® plan project and check “Store relative path names to data sources”.



2.3 Tx

NEW: ATSC 3.0 transmitters can be created.

NEW: DTMB-A transmitters can be created.

CHANGED: T-DAB transmitter has been extended to include the T-DAB+ standard.

T-DAB System Parameters

Standard: DAB+

Mode: I

Bandwidth (MHz): 1.536

Symbol time (µs): 1000

Guard interval (µs): 246

Protection level: 3

Code rate: 0.50

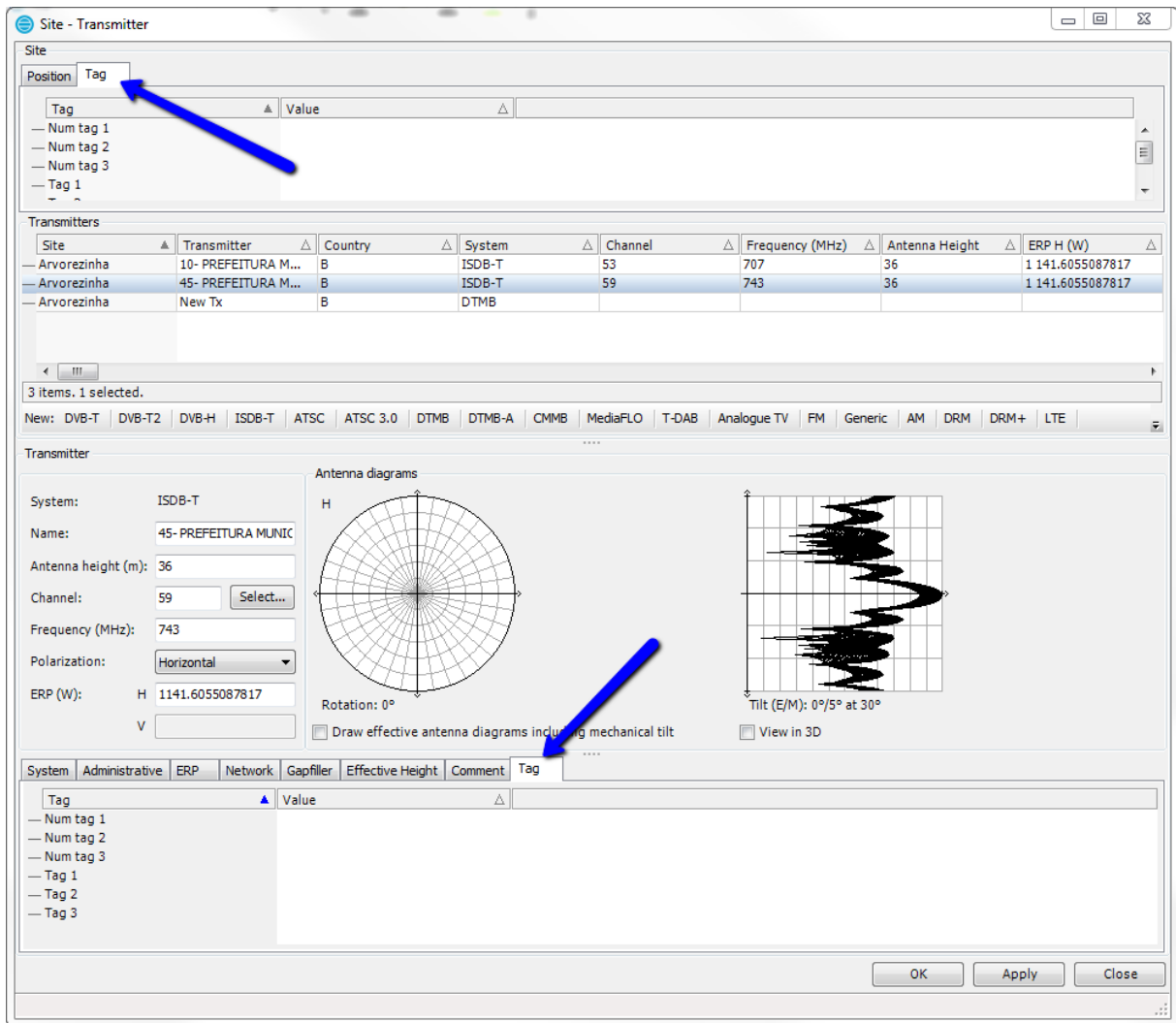
Bit-Rate (MBit/s): 1.15

Gauss C/N (dB): 5.7

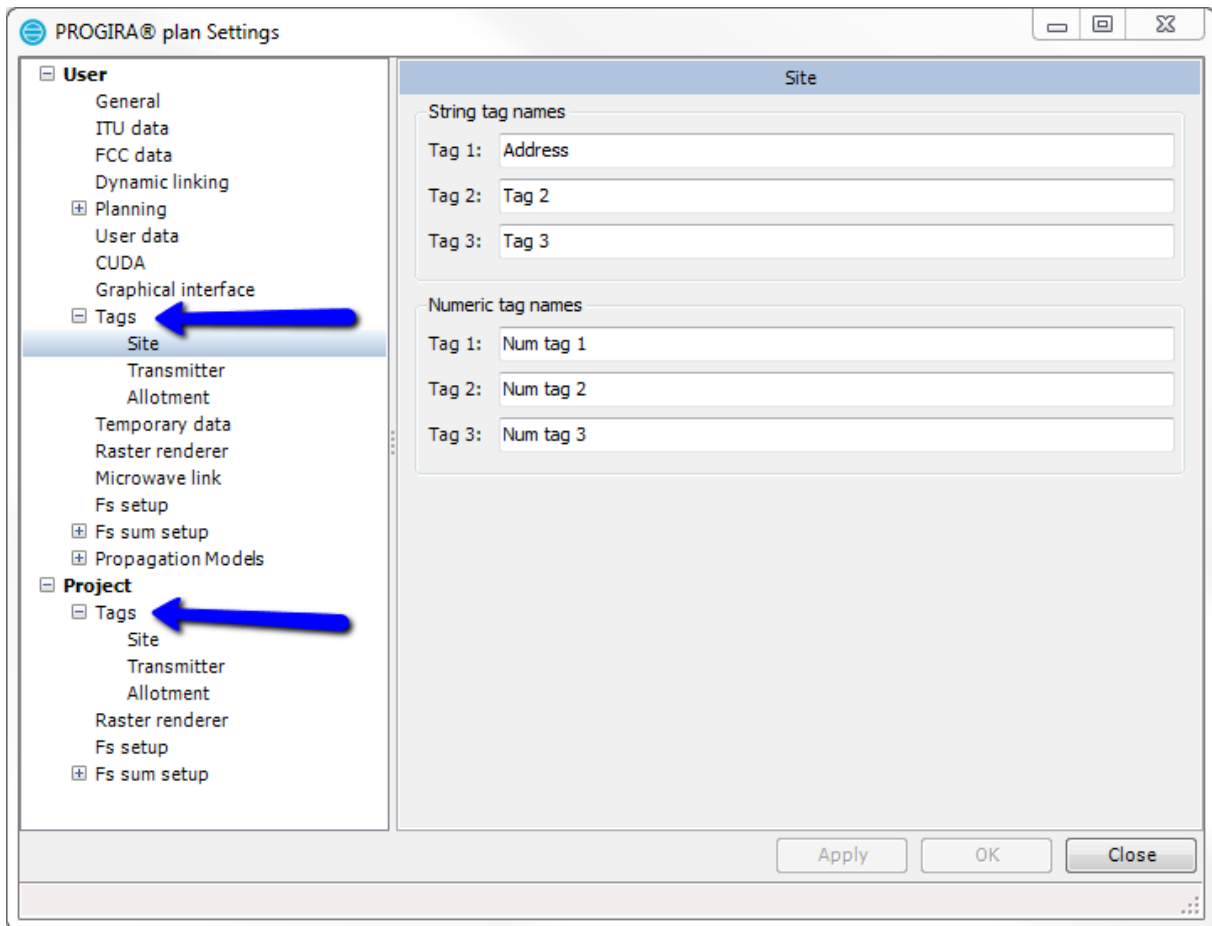
Rayleigh C/N (dB): 12

OK Close

NEW: “Tags” are added to Site, Transmitter and Allotments. Tags make it possible to customize transmitter data with for example type of mast, postal address, coordination status, owner and much more. 2 types of tags are introduced, 3 numerical- and 3 character tags.

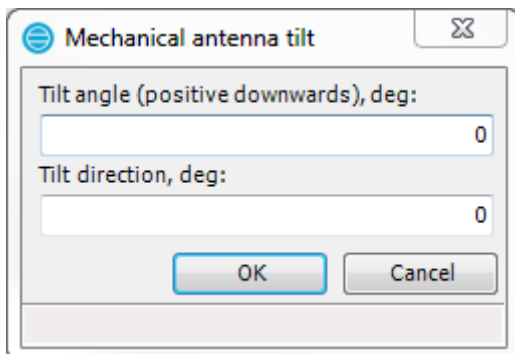


In “PROGIRA® plan Settings” menu, the name of the tags can be changed on user- or project level.

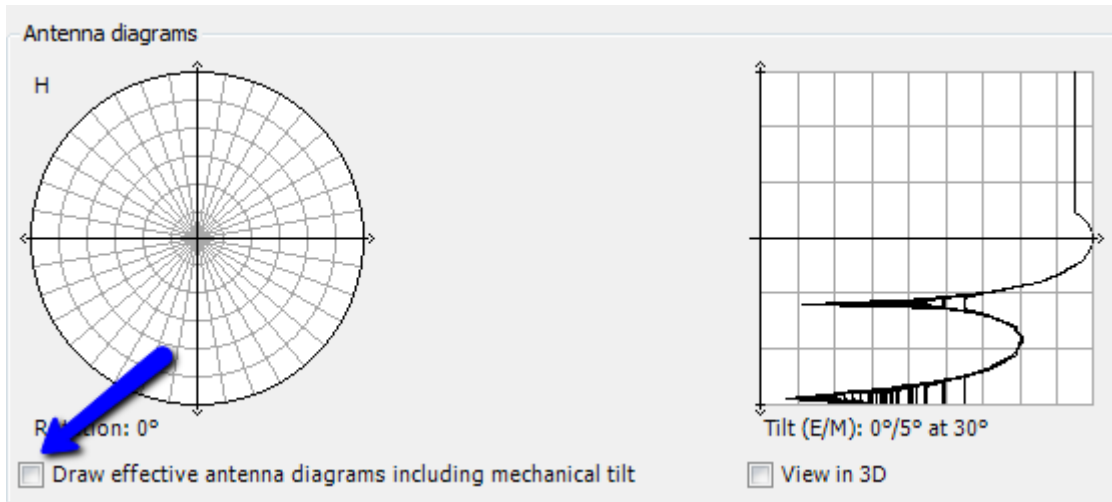


CHANGED: “Export to CEPT and ITU Notice file” functions have been modified. The vertical antenna diagram component in the horizontal plane is added to the horizontal antenna diagram at export.

CHANGED: Antenna diagram handling has been modified. Mechanical tilt can be applied on an antenna system with multiple vertical antennas diagrams. Mechanical tilt has been extended also with option to rotate the antenna system around its vertical axis. (Tilt direction).

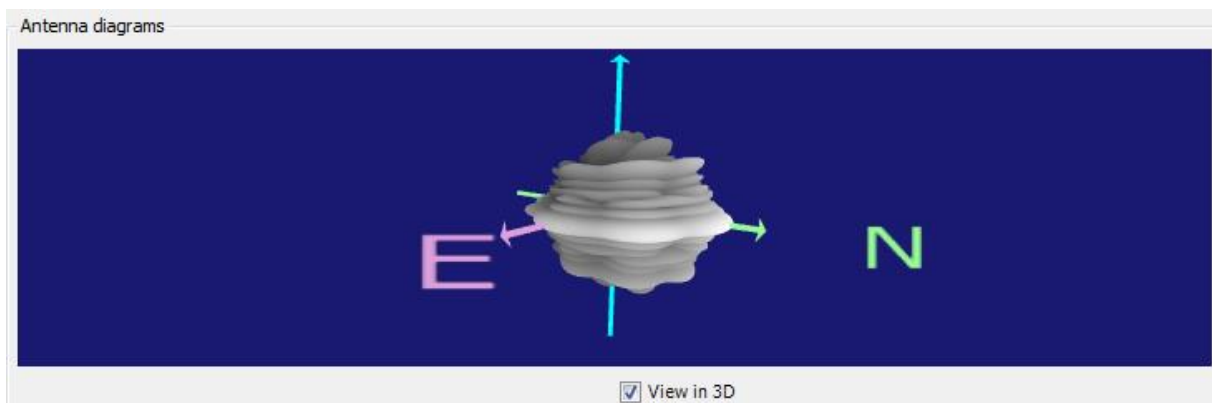


The applied mechanical tilt can be visualized in the antenna editor.



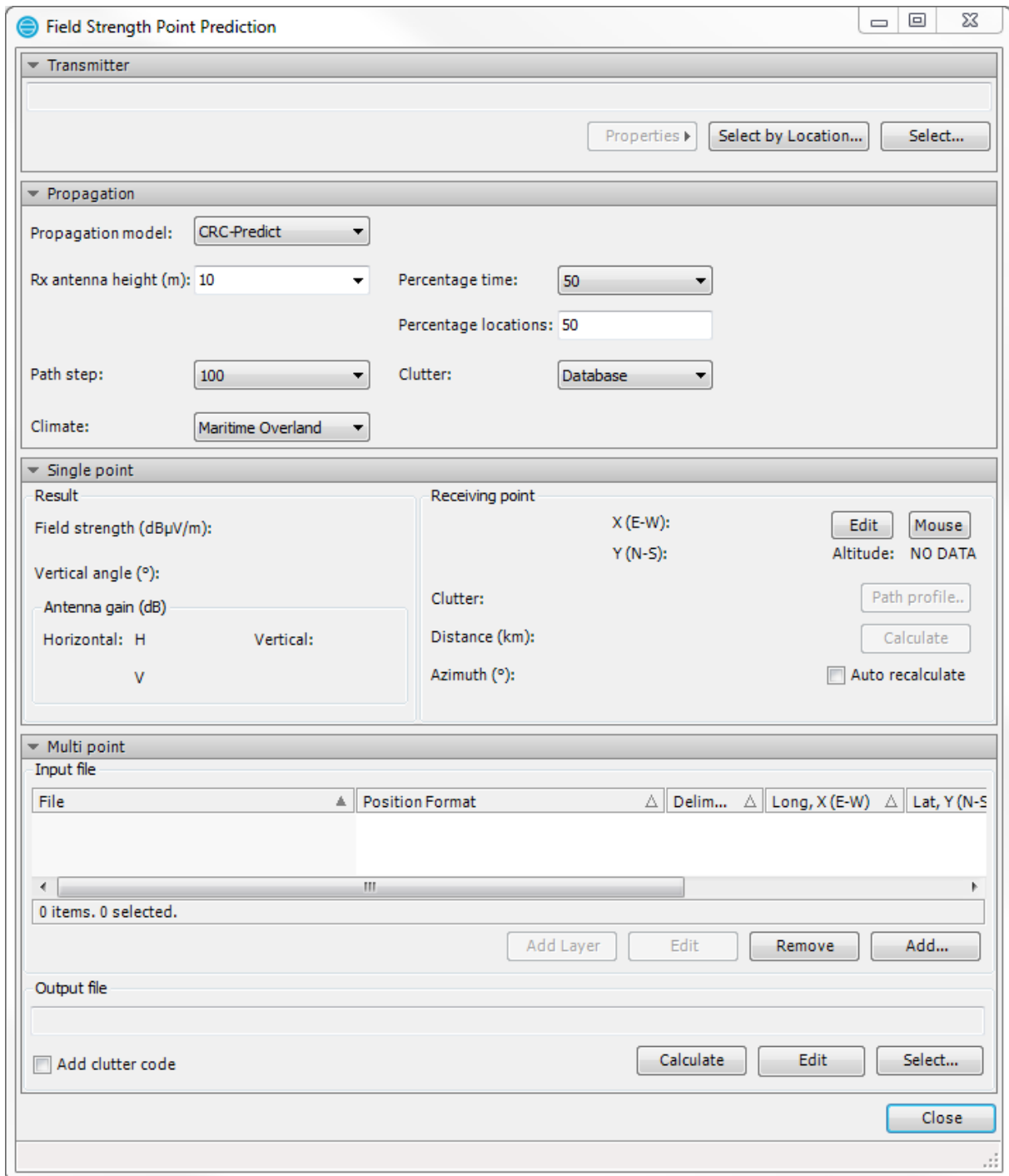
FIXED: When using mechanical tilt in previous versions, the antenna diagram interpolation routine resulted in incorrect values near the transmitter.

NEW: The antenna diagram can be viewed in 3D.



2.4 Fs Point Calculation

CHANGED: “Fs – Point Calculation – Single” and “Fs – Point Calculation – Multiple” merged into one GUI called “Fs – Point Calculation”.



2.5 IRT 2D/3D

CHANGED: Runs multithreaded for faster calculation.

3 Network planning module

3.1 Fs Sum

NEW: The source to C/N values used in “Fs Sum ...” functions is presented.

ATSC 3.0 Sum Setup

Name:

Wanted Tx

Fs	System	Channel	Tx Delay (µs)	Override Delay ...	Main Transmitter	Percentage Tin
WASHINGTON, DC - ...	ATSC 3.0	43				10

1 items. 0 selected.

Remove Add...

Unwanted Tx

Fs	System	Channel	PR Source	Default PR	Override PR	Percentage Tin
BUFFALO, NY - WN...	ATSC	43	Progira	18.69		10
CANTON, OH - W43...	ATSC	43	Progira	18.69		10
CLARKSBURG, WV - ...	ATSC	44	Progira	-30.31		10
ERIE, PA - WLEP-LD ...	ATSC	43	Progira	18.69		10
GOLDSBORO, NC - ...	ATSC	43	Progira	18.69		10
GREENSBORO, NC - ...	ATSC	43	Progira	18.69		10
HAGERSTOWN, MD ...	ATSC	44	Progira	-30.31		10

11 items. 0 selected.

Remove Add...

System EPT Receiver Fixed Reception Propagation Calculation

Outer code: none
 LDPC frame length: 64800
 Guard interval: GI7_2048 (296µs)
 Scattered pilot pattern: SP12_4
 Scattered pilot boost: 1
 Multi antenna type: SISO
 TDMA sub frame: False
 PAPR reduction: None
 Channel bonding: None
 Backstop noise (dB): -38
 Required C/N (dB):
 Rice: 18.69 (OET Bulletin 69)
 Rayleigh: 21.35 (OET Bulletin 69)

Calculation extent

CS: WGS_1984_UTM_Zone_18N

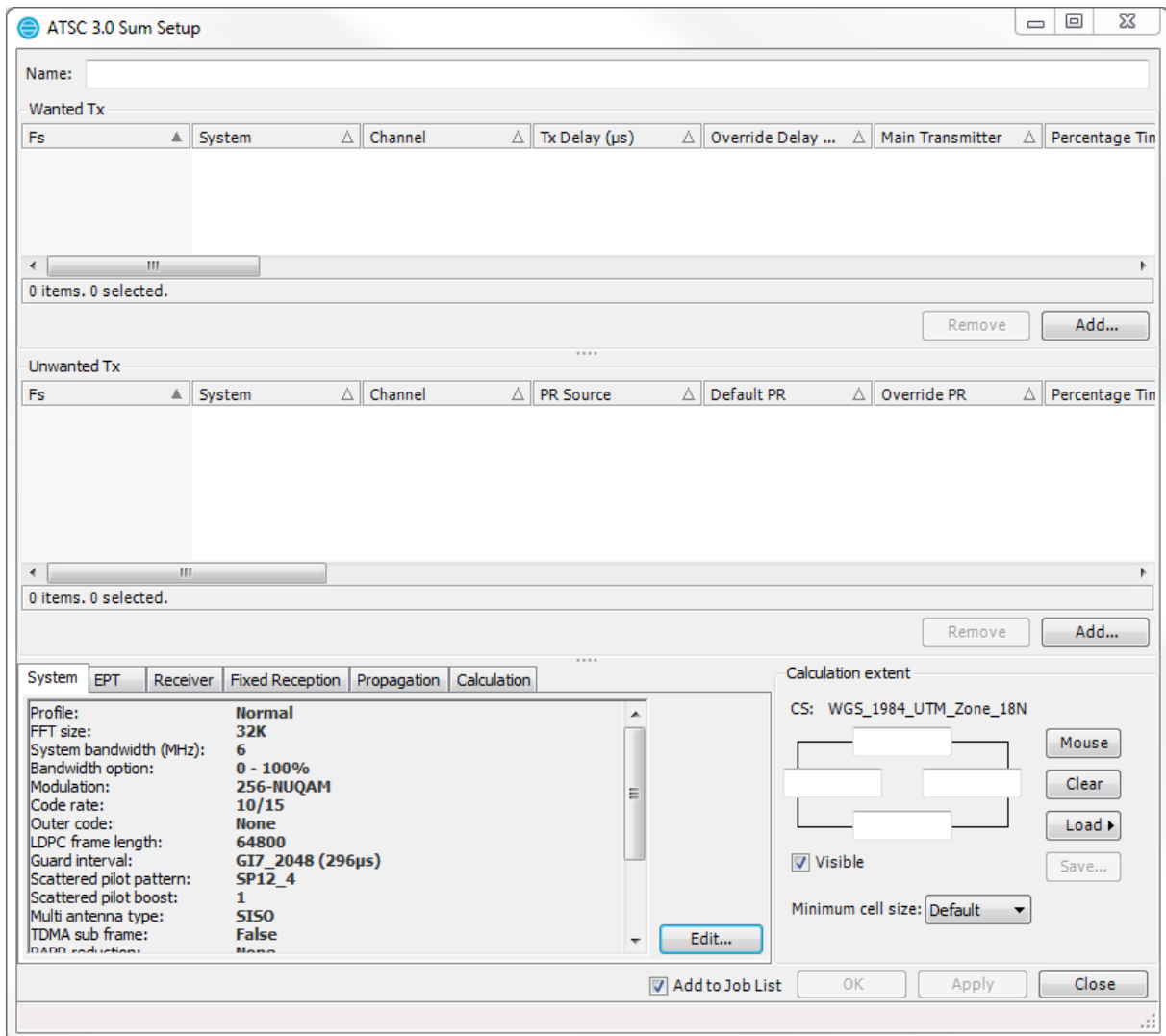
Mouse
 Clear
 Load
 Save...

Visible

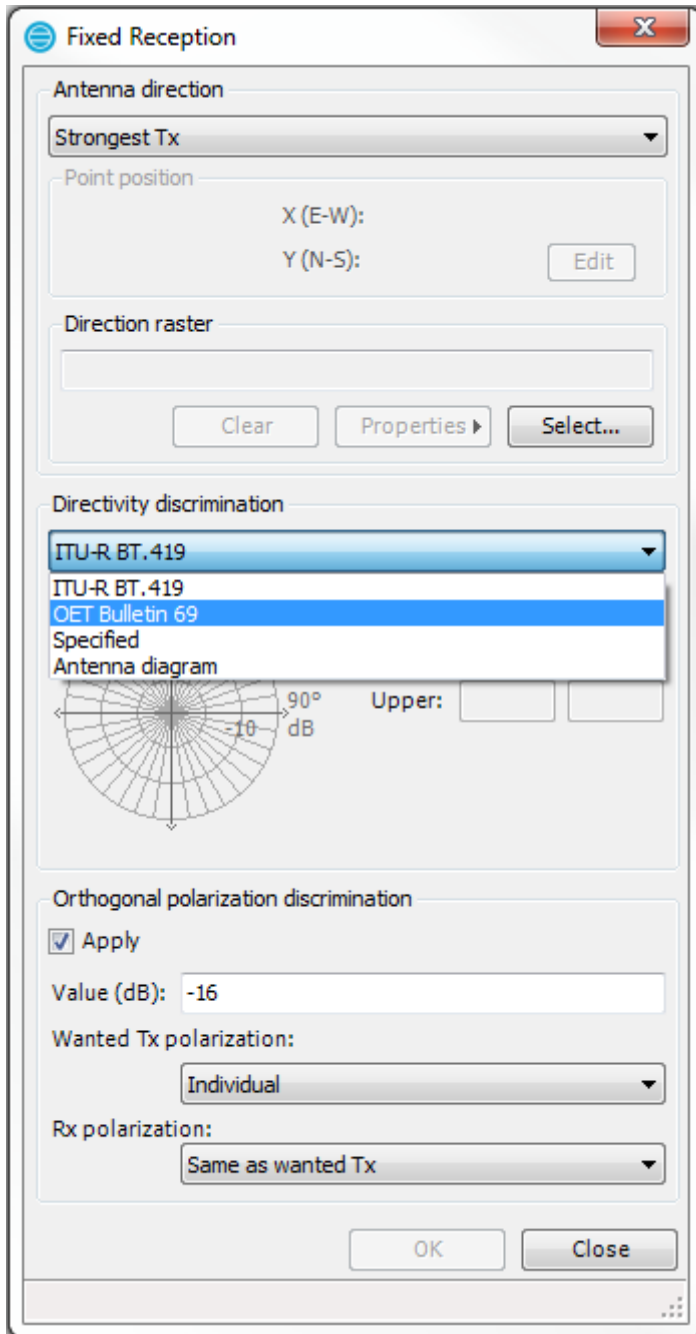
Minimum cell size: Default

Add to Job List OK Apply Close

NEW: "Fs Sum – ATSC 3.0 ..." function supports SFN/MFN summations for ATSC 3.0 standard.



NEW: “OET Bulletin 69” receiver antenna diagram has been added to the list of directivity discrimination options in the Fixed Reception parameters in the Fs Sum functions.



FIXED: “Antenna diagram” discrimination behavior has been corrected (see picture above), it did not work properly in previous PROGIRA® plan versions.

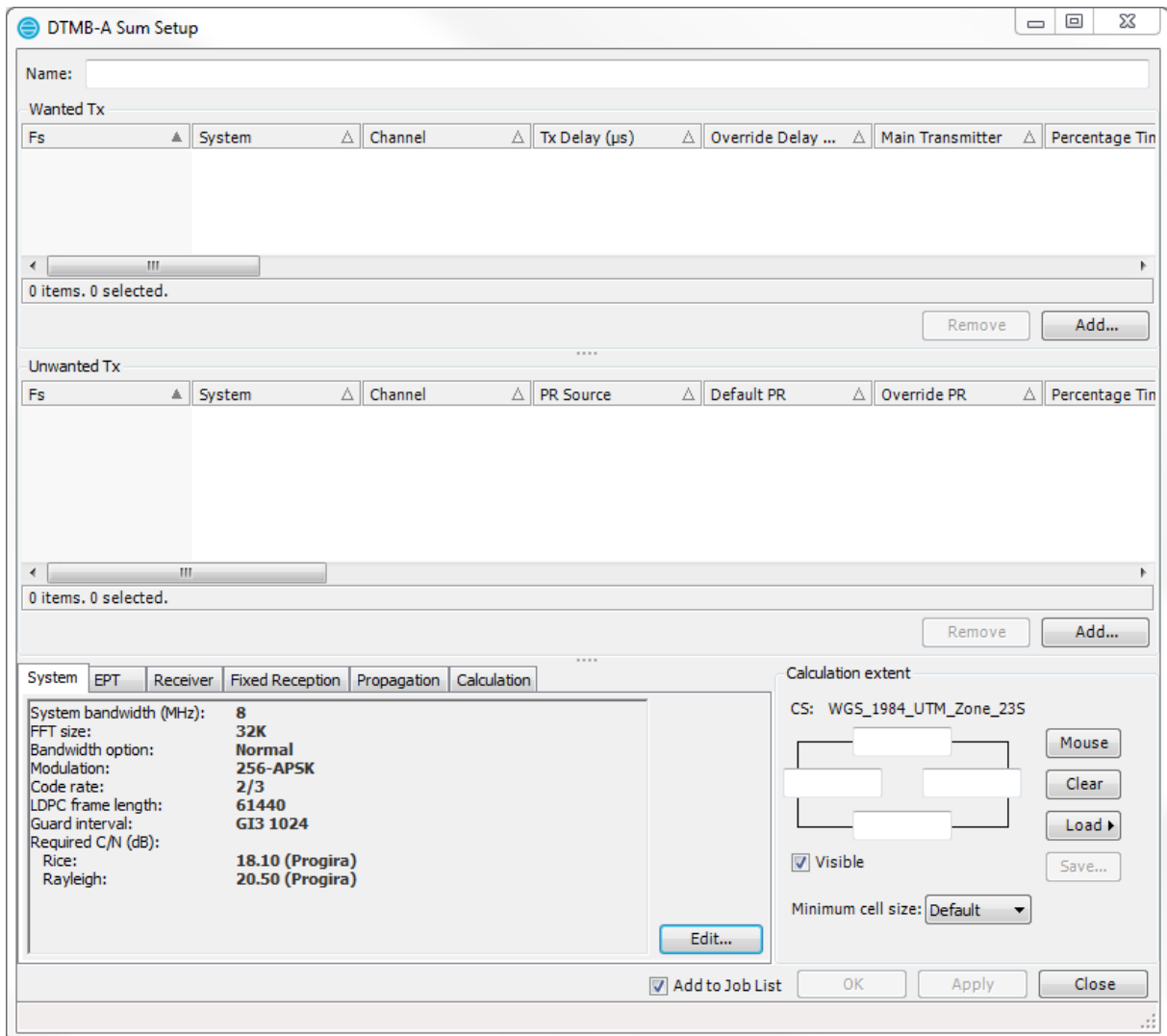
CHANGED: “Fs Sum – T-DAB Sum Receiver characteristics” has been updated to support the DAB+ standard. Receiving conditions has been extended with “Handheld” and “Kitchen radio”, “Antenna location” settings and “Antenna type” has been added. As a result of this the T-DMB summation setup has been removed.

The screenshot shows a dialog box titled "Receiver Characteristics" with the following fields and options:

- Frequency (MHz): 227.36 (with a "Select..." button)
- Receiving condition: Handheld (dropdown)
- Antenna location: Outdoor (dropdown)
- SFN synchronization section:
 - Method: First Tx (dropdown)
 - Trigger level (dB): (empty text field)
- Guard interval model: Continuous (dropdown)
- Noise figure (dB): 7
- Man-made noise margin (dB) section:
 - Built-up area: 2
 - Other: 0
- Antenna type: Integrated (dropdown)
- Antenna gain (dBd): -17
- Feeder loss (dB): 0
- Antenna height (m): 1.5

At the bottom of the dialog are "OK" and "Close" buttons.

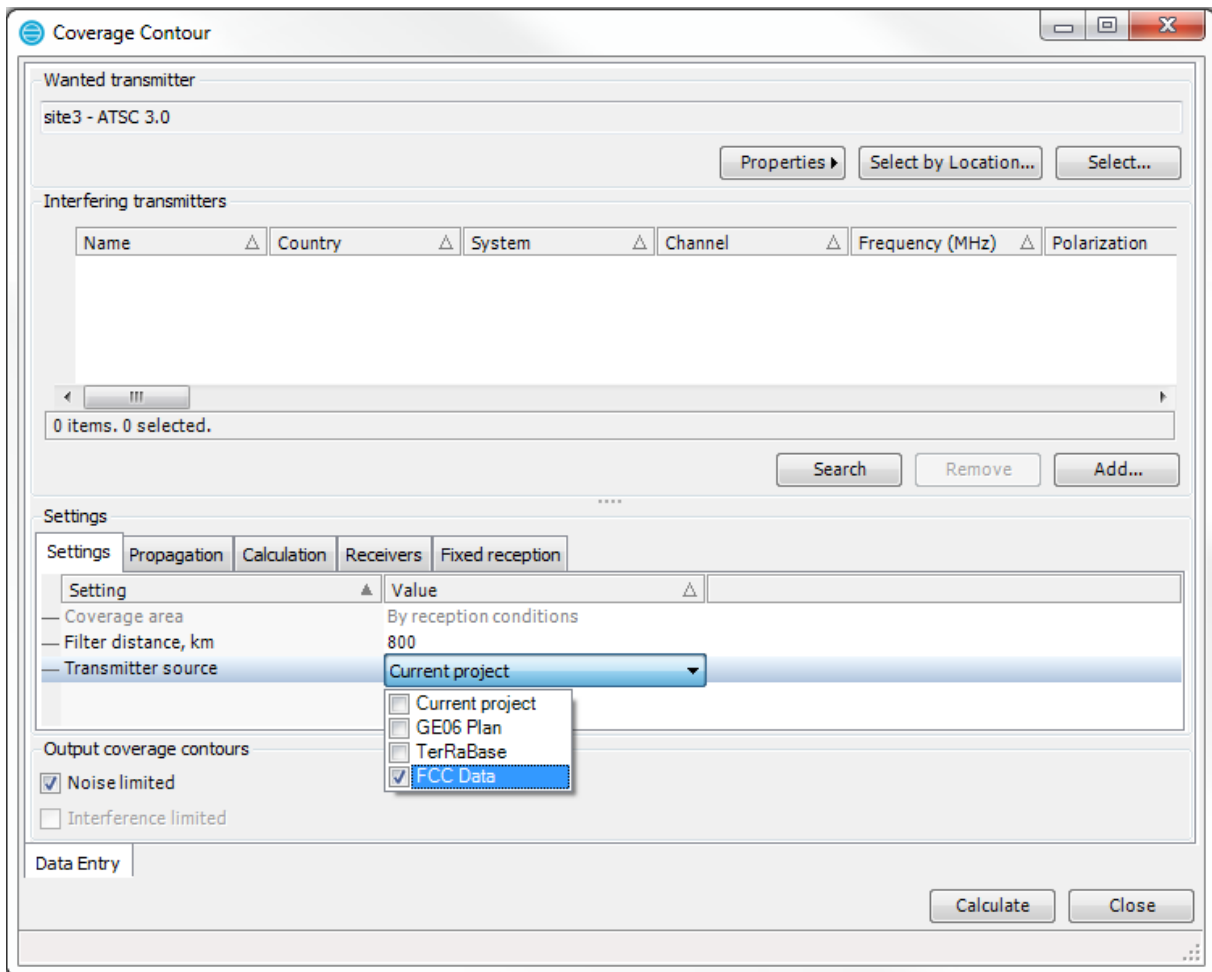
NEW: "Fs Sum – DTMB-A ..." function supports SFN/MFN summations for DTMB-A standard.



4 Frequency planning module

4.1 General

NEW: FCC database is accessible to all frequency planning functions in the same way as project data, GE06 plan and TeRaBase database. Picture below from coverage contour function.

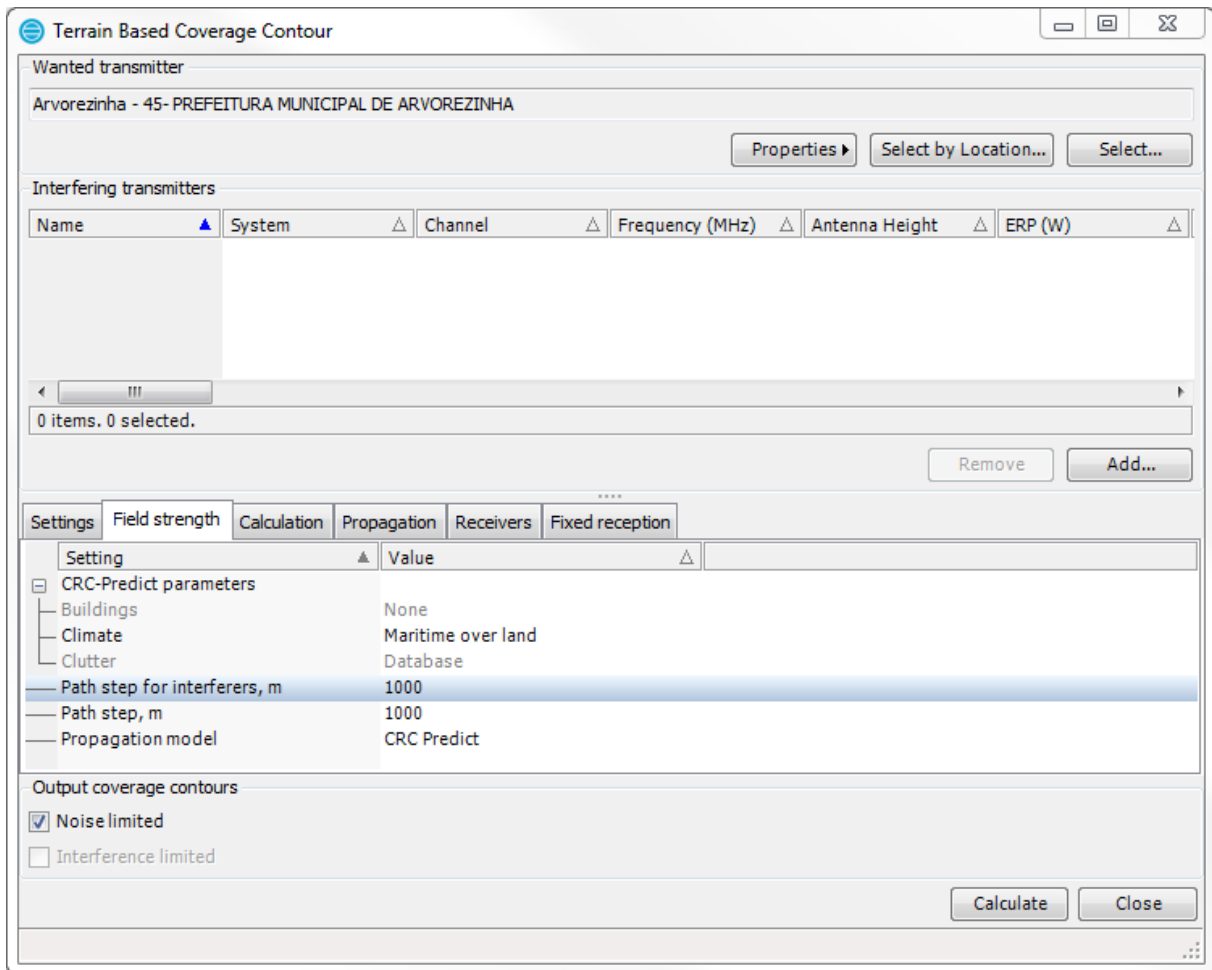


CHANGED: Vertical antenna reductions at horizontal plane are added to the horizontal antenna reductions in frequency planning functions. For example, when creating a coverage contour for a transmitter in previous PROGIRA® plan versions only the horizontal antenna reductions were applied. This modification makes it possible to see the effect of an antenna tilt.

CHANGED: FCC Propagation model uses the 2-10 miles' definition of effective antenna height.

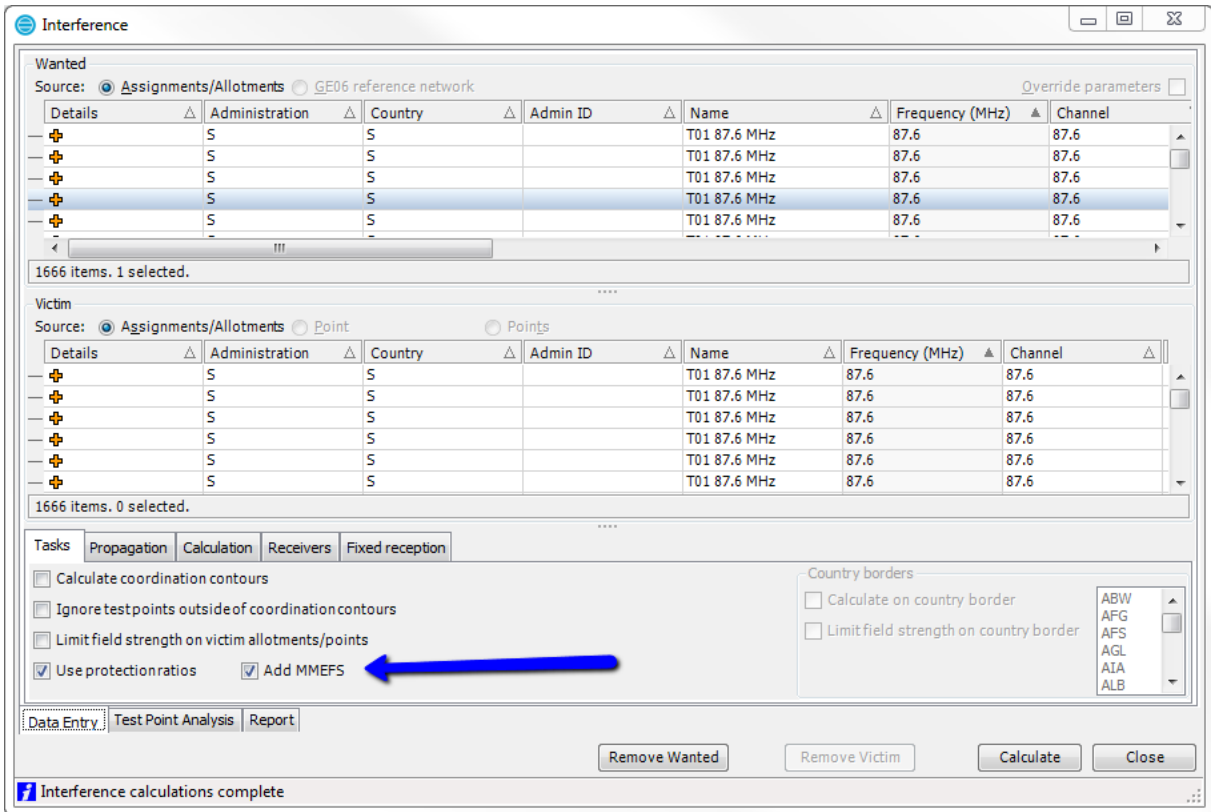
4.2 Terrain based coverage contour

CHANGED: The GUI has been updated to the same structure as other functions in PROGIRA® plan.



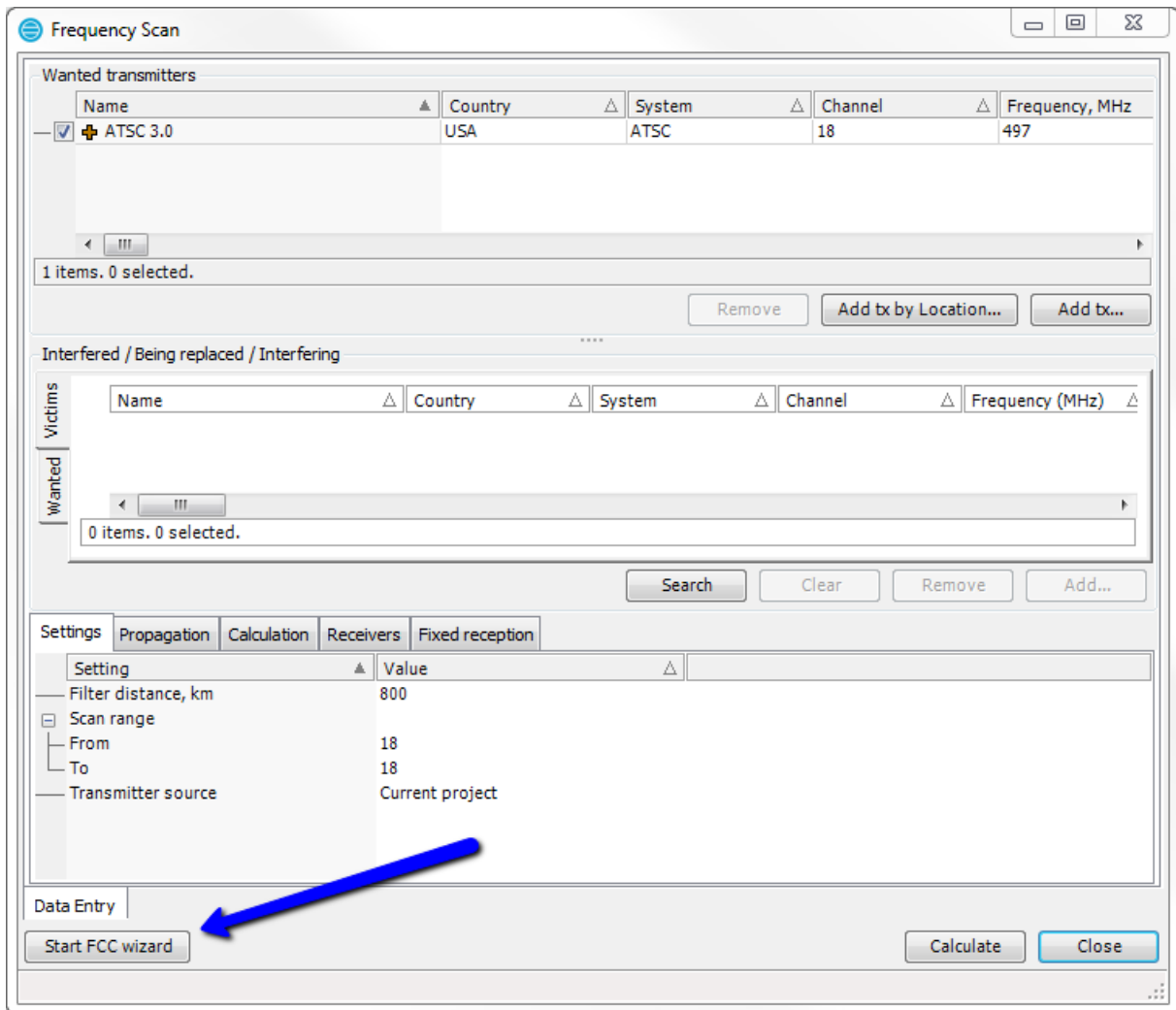
4.3 Interference

NEW: "Use protection ratios" and "Add MMEFS" options has been added In the "Tasks" tab. If "Use protection ratios" is checked the function will calculate the interfering field strength at Victim transmitter positions caused by the Wanted transmitters. If both are checked the Usable field strength is calculated instead.



4.4 FCC Wizard

NEW: Support for frequency planning procedure according to US FCC rules in accordance with OET-69. The FCC wizard is added as a part of the Frequency scanning function since first steps in FCC procedure coincides with the Frequency scanning procedure.



5 Network verification module

5.1 Sample raster

CHANGED: “Sample raster ...” and “Sample raster – Multiple ...” merged into one GUI called “Sample raster ...”.

Sample Raster
[min] [max] [close]

Input raster

Raster	Created	Type	Content	Project
0 items. 0 selected.				

Properties ▾ Remove Add External Raster... Add...

Single point

Receiving point

X (E-W):

Y (N-S):

Altitude: NO DATA

Edit Mouse

Clutter: Clear old result Discrete data Auto recalculate Calculate

Result

Type	Name	V...	Longitude	Latitude	Clutter
0 items. 0 selected.					

Multi point

Input file

File	Position Format	Delim...	Long, X (E-W)	Lat, Y (N-S)
0 items. 0 selected.				

Add Layer Edit Remove Add...

Output file

Add clutter code Discrete data Calculate Edit Select...

Close