

## Features

- Support for MS2090A Flux Density measurements
  - Added option under Settings menu to display power units ("dBm/m<sup>2</sup>/MHz", "dBW/m<sup>2</sup>/MHz").
  - Flux Density menu options available only if connected instrument is MS2090A.
  - Added visual indicator showing active antenna selected on MS2090A for flux density measurements.
  - Added option to hide the location estimate when doing flux density measurements..
- Enhanced color control options for displaying channel power
  - New context menu for color control. (right-click menu on powerbar)
  - Added ability to set color scaling and power scaling.
  - Added ability to set custom colors for power bars.

## Bug Fixes

- Fixed issue causing out-of-memory errors with very large picture maps.

## Features

- Support for MS2090A.
- Added dialog to verify user intent when clearing data.

## Bug Fixes

- Fixed issue with reading GPS from MS2710xA Remote Spectrum Analyzer
- Fixed issue with Google maps not loading as expected
- MIH export file did not load properly in Vision software
- TDOA plots not cleared when clearing TDOA measurement
- Fixed several spelling problems in the setup Wizard
- Corrected a problem reading the date from external GPS when using Chinese regional settings

## Bug Fixes

- Fixed connection issue with spectrum analyzer.
- Fixed issue where both data collection buttons could be pressed at the same time.

## Features

- New drive mode. Scan mode is used to start a hunt. It eliminates areas where the source is not.
- New instrument compatibility: MS260A
- New instrument compatibility: MS2700xA
- Auto-update of MIH software. MIH looks for recent updates and offers to download and install if available.
- Instructions and help creating driving instructions for turn-by-turn route driving.
- Vision TDOA functionality included in MIH.
- Import location files from Vision to transfer drive and hunt areas of interest.
- New Help file format - industry standard HTML help files.
- Set of slides helping user identify common interferences sources.

- Improvements in map colors to emphasis MIH measurement results and provide better contrast.
- Improved support for base station importing.
- Added center frequency to log files; both in the filename and internal to the file.
- Added support for on-line maps from Baidu.com.
- Added support for external USB GPS receiver.

## **Bug Fixes**

- Setup wizard preamp button did not show proper state.
- Setup wizard recalled wrong setup file.
- Changed to standard Windows file Open/Save dialog boxes to eliminate long pause when doing file IO.
- Corrected issue where some display resolution settings caused the map overlays to draw incorrectly.
- Fixed Stack Overflow problem when dragging files over the map.
- Fixed Stack Overflow problem when using arrow keys to scroll through power bar display.
- Replaced low resolution program icon

## **Version V2.02 - December 1, 2016**

### **Bug Fixes**

- Updated MIH Help file to include discussion on setting up the router.

## **Version V2.01 - October 12, 2016**

### **Features**

- Removed USB as a connection option.

## **Version V2.00 - June 29, 2016**

### **Features**

- Ethernet connection option w/ connection setup dialog under the settings menu.
- The Open Log file dialog now shows the location of the drive, along with the number of measurements and traces stored.
- The File menu now has options to Save and Recall stored setup files on the spectrum analyzer.
- Licensing options have been moved to the File menu, and a new option added to export licenses so they can be moved to another PC.
- Along with the standard Estimation Circle, there is now a Heat Map mode as an alternative view to show probability of the interferer location.
- The estimation circle standard colors are red and green. Two alternative color sets have been added for those with difficulty distinguishing some colors.
- The search boundary is now drawn on screen so the user can see the locations that are being considered. Interferers outside this boundary will not be properly located.
- A set of cross hairs can now be displayed to make it easier to see where the interferer estimate is, especially if the user has panned the map so the location is outside of the current window.
- A larger search grid is now an option. A very large search grid is very inefficient, but there are times when a larger search area can be used.
- A new Level Adjustment feature has been added so the user can set a power limit below which measurements are not included in the location calculation. The Level Adjustment can be easily made by dragging an indicator bar on the power bar graph.
- It is now easier to input values for squelch limit, spectrum clearing threshold and multiple emitter threshold on touch screens by use of a slider control instead of numeric entry.

- The Estimation Circle previously could suddenly jump between two possible locations in certain circumstances. This can be rather disconcerting, so it now moves more slowly towards a new location, and will not appear to jump as much.
- The MIH setup file has been expanded to include not just MIH settings, but also settings for the spectrum analyzer. These settings are retrieved from the unit when the MIH settings are stored, and restored to the unit when the MIH settings are recalled.
- Added options to copy the trace window to the windows clipboard. This is accessed via right-click context menu on the small trace display window.
- Added a new spectrogram window that can be turned on to give an overview of all traces in the current measurement set. This is accessed via right-click context menu on the small trace display window.
- GPS coordinate can now be displayed in either decimal notation or in degree, minute, second format.
- A Setup Wizard has been added to walk the user through all MIH settings and to help set the spectrum analyzer up correctly.
- Links to interference hunting training videos on Anritsu TV have been added to the help menu.
- Added the ability to add a map layer showing bas station locations. This is accomplished by importing a list provided by the user. The base stations are added as a layer to OSM maps and are not displayed when using Google maps.
- Customized all standard dialog boxes (messages and input dialogs) so the font size adjusts when the user adjusts the menu font size. Status bar icons also now scale when changing the button size.

### **Bug Fixes**

- Changed "Left or Right" to "No change".
- Fixed bug where sometimes data collection would not start, but there was no indication of a problem.

#### **Version V1.12 - November 13, 2014**

### **Bug Fixes**

- Fixed a run-time error when pressing 'Play' in Spectrum Clearing mode.
- Fixed an issue causing the car icon to not appear when starting program up in Google map mode.

#### **Version V1.11 - November 12, 2014**

### **Features**

- New menu item under Settings|Map Source. 'Installed Map Files' opens a sub menu listing all of the installed map files in the standard folder. This gives much easier access to loading shape files.

### **Bug Fixes**

- Fixed an issue where the circle did not appear with recalled data.
- Fixed map issue: Off-line maps downloaded from our web site or created using our instructions have the wrong code page designator which causes labels on non-English OSM maps to be garbled.

#### **Version V1.10 - October 31, 2014**

### **Features**

- The Gray circle is now two-toned. It shows a green tinge in the direction(s) where you have data, and a red tinge in the direction(s) where there are no data points. Often we find that someone drives only on one side of the interferer to get the location estimate. While this may be good enough, the color of the circle indicates both how complete the data set is and in which direction is best for new data to increase confidence.

- Auto-centering is now an option. This is toggled on/off with a new button on the left side of the screen (Circle with car in center). This has not had a lot of drive testing and may need to be refined somewhat.
- When the trace display is shown in the small window in the upper left, the thumbnail is saved with the data point. Reviewing the data by moving the data cursor in the power bar chart will also replay the trace images. This thumbnail is saved in the log file, so it is available when later reviewing the drive at the office. If the Trace window is not open, the trace is not retrieved from the unit and not available for review.
- Three new items under the File menu. Save Settings, Recall Settings and Settings Most-Recently-Used list. This saves all the settings from the settings menu in an easy to recall file. It does not restore Map information.
- The name of the map being used is now stored and recalled when saving and recalling log files.
- When recalling a log file you can now press the space bar to speed up the data loading process, and hold the space bar down to rapidly 'drive' through a section of the data faster. If you have a 30 minute drive in a log file, you don't want to sit and wait 30 minutes to replay the drive, so this allows you to fast forward through boring parts and slow down where it is interesting. Ctrl-Space is used for rewind. Esc ones pauses (Space un-pauses), Esc a second time cancels Playback.
- Added support for non-US regions. (Mostly affects how ',' & '.' are treated.)
- Added keyboard controls for moving the data cursor in the power bar chart.
- Added 3rd party licenses files and copyright text to splash screen and about box.

## Bug Fixes

- OnTime 21126: Have to close shape files in easyGIS control before you can recreate a map folder with the same name as the one loaded.
- OnTime 21148: Shadow circle doesn't show proper size when zooming with Google maps.
- OnTime 21155: Peak Detect Threshold menu doesn't update checked state when changing.
- Fixed a bug that in some circumstances caused an index out of range in the function that finds which data points to use in location calculation.
- Min/Max hold bug. Added sweep time call after setting Trace A to normal so we wait until the full trace is captured.
- Changed the way distance is used in the location estimation routine - now uses meters instead of pixels for more consistent circle placement at zoom levels.

**Version V1.00 - September 3, 2014**

Initial Release.