

# **Frequency Manager 7.0**

## **Manual**



**Database System for Radio Monitoring  
with RX control**



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## PC-Frequency Frequency Manager 7.0 for Windows

### 0. Installation

#### 0.1 Requirements

For error free function your computer should have the following requirements:

- PC with PIII CPU or higher (PC with 1000 Mhz recommended)
- VGA-Graphic with 1024x768 pixel in Windows
- 64 Mb RAM
- 50 Mb free space on your hard disc
- Windows 98/NT/WIN2000/XP
- (optional) Soundblaster for playing WAVE files
- Network adapter

#### Installation :

Frequency Manager is delivered only on CD-ROM.

For installation, which is mostly automatic, follow the following steps:

1. Start Windows
2. Put the CD-ROM into your ROM drive
3. Call **Program Manager File/Execute....**
4. Click on the button **Search...**
5. Click in the field **list/ drives** the down arrow.
6. Choose the CD ROM drive into which you have inserted the disc.
7. Double click in the **list filename** onto PCF70setup.EXE.
8. Click the button **OK** in the window execute.
9. Setup will start now.
10. You can choose another drive and path in the input field.
11. Click on the button **Continue**.

The setup software will start the installation of Frequency Manager.

In the directory **Installation** you will find another setup routine. If there are any problems with the described setup please select this one.

## 0.2 Info

### Info 1:

Frequency Manager is using the European settings for numbers and dates. So please make sure that your Windows is using the following settings:

**Decimal separator: “,”**

**Thousand separator: “.”**

**Time separator: “:”**

**Date separator: “.”**

These parameters are set in the country settings in the system area of Windows.

### Info 2:

Depending on the update status of your Windows it may be that you are asked to keep files or to replace them because your file version is newer than those distributed with our software.. It is ok to keep the newer files on your system.

### Info 3:

Setup will build the program group PCF70.

After finishing the installation you must start Frequency manager for the configuration. First, the databases will be unzipped. Please select the button UNZIP and after successful extraction close the message window and the zip-window. This has to be done three times.

The next step should be a correct configuration in Utility/Configuration.

After storing the configuration you have to quit the software and restart it, so that all changes will become valid.

### Info 4:

If you have installed a mouse on the serial port please be sure, that you have to select another port for the communication to your receiver.

Start PCF70 with a double click on the icon.

## 0.3 WAVE-Files

The WAVE files will remain on the CD ROM. You have to insert the CD into your drive to listen to the sound samples.

## 0.4 Windows Vista and Windows 7

For an installation under these two operation systems you need administrator rights on your computer.



### 0.5 Registration

Before using Frequency Manager 7.0 the software has to be registered.

After installation of the software a window will show up with a **register code**. Send this code to us by fax, email, letter or telephone along with your name.

You will receive an **unlock code** within a short time frame which must be entered in the same form.

When reading this code please take care about the writing of the codes (capital or small letters).

For each software one registration is possible.

The **unlock code** can be used on the same computer again when installing the software again.

Only in special cases a new unlock code can be supplied on request.

You can get the unlock code by the following ways:

**Homepage:**    <http://www.frequencymanager.de>

**Email :**        [register@frequencymanager.de](mailto:register@frequencymanager.de)

**Fax :**            +49 40 7296 1661

**Phone :**        +49 40 7296 1660

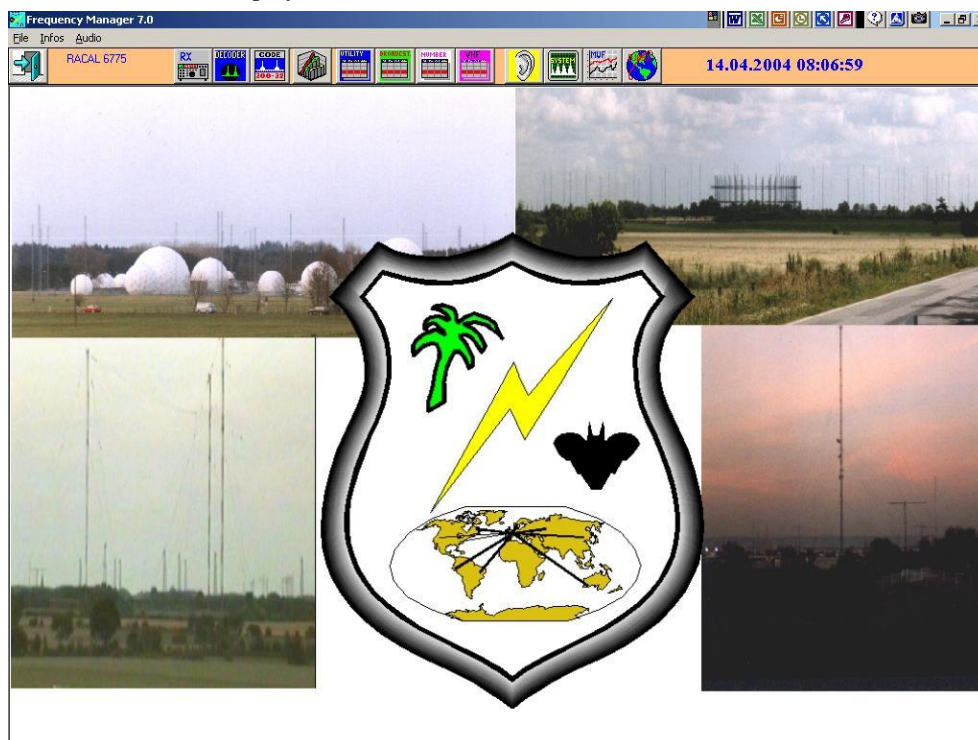
**Letter:**        **Ingenieurbüro für Satellitentechnik**  
                    **Curslacker Deich 193**  
                    **D-21039 Hamburg**  
                    **Germany**

We did setup a forum on Yahooo where you can discuss issues about Frequency Manger and also download latest files. You will find it at:

<http://groups.yahoo.com/group/frequencymanager>

### Start screen

After starting PCF70 you will see the main screen of Frequency Manager. This screen gives access to the menus and radio buttons. Between the button **Quit** and **RX** the installed receiver is displayed.



On the right part of the screen the date and time is displayed. The time is corresponding to the system time of your computer. Depending on the value of UTC in the submenu Configuration you can display the UTC time. The correct calculation is done by the software.

Frequency Manager can be started with a certain database. This is done by using a certain command parameter which has to be added to the file PCF70.EXE.

This can be:

PCF70.EXE -u for the Utility database

PCF70.EXE -b for the Broadcast database

PCF70.EXE -n for the Numberstation database

PCF70.EXE -v for the VHF/UHF/SAT database

You can call the following menus and functions directly from the start screen:

## 1. Menu Utility

The following sub menus can be chosen:

### 1.1 Configuration

With the help of the configuration you can match the Frequency Manager to your environment. Three different receivers with different parameters can be installed. In the menu you can choose receiver RX1 ... RX3 and the time.

The following parameters can be set:

#### 1.1.1 Path

Location	RX 1	RX 2	RX 3	Test	Code300-32
<b>Files</b>	<b>Language</b>	<b>Time</b>	<b>Email</b>	<b>Mode</b>	<b>HRD</b>
<b>Decoder</b>					
C:\Programme\CODE300-32\code3-32.exe			?	✂	
<b>DRM decoder</b>					
C:\Programme\DRM_Software_Radio\DRMSoftwareRadio.			?	✂	
<b>RX control</b>					
			?	✂	
<b>PC-ALE</b>					
C:\Server\Radio Monitoring\ALE0127BUD\			?	✂	
<b>Drive CD-ROM</b>					
<b>Drive PCF</b>					
C:\					

In this section you can enter all paths which Frequency Manager should use. For the replay of WAVE files you have to insert the CD ROM drive.

**Important:** For the radio buttons RX, MUF and DECDODER you have only to insert the name and the path of the software, when you have to call them in a DOS window. Software working in the Windows environment can be started in Windows and you can switch between these windows by ALT-TAB.

#### Drive CD-ROM

Here insert the drive for your CD ROM drive. The WAVE files are directly played from that drive.

#### Drive PCF70

Please insert the correct drive for the drive on which PCF is installed.

#### Decoder software

Please insert the correct path for your decoder software. With the button ? a dialogue window will be opened where you can select the correct path and name. The button scissor is deleting the entry.

#### DRM decoder software

Please insert the correct name for your DRM decoder software. With the button ? a dialogue window will be opened where you can select the correct path and name. The button scissor is deleting the entry.

#### Receiver software

Please insert the correct path for your receiver software. With the button ? a dialogue window will be opened where you can select the correct path and name. The button scissor is deleting the entry.

#### 1.1.2 Language

Location	RX 1	RX 2	RX 3	Test	Code300-32
Files	Language	Time	Email	Mode	HRD

Language

English

Please select your preferred language English or German.

### 1.1.3 Time

Location	RX 1	RX 2	RX 3	Test	Code300-32
Files	Language	Time	Email	Mode	HRD

UTC


Difference to UTC


1 h


In the menu Configuration you can open the UTC window. Here you can enter a time difference in hours between your PC and UTC. Frequency Manager will display the correct calculated time.


### 1.1.4 Email

Location	RX 1	RX 2	RX 3	Test	Code300-32
Files	Language	Time	Email	Mode	HRD

 SMTP Server:

 POP3 Server:

 Username:

 Password:

From Name:

From Address:

☐ Use SMTP Login

☐ Use POP Login before sending E-Mail

☐ Delete received mails

This menu is foreseen for later developments.

### 1.1.5 Location data

Files	Language	Time	Email	Mode	HRD
Location	RX 1	RX 2	RX 3	Test	Code300-32
<b>Name of location</b> Hamburg					
<b>Antenna gain in dbi</b> 6		<b>Latitude in Degree</b> 53		<b>Coordinate</b>	
<b>Transmit power</b> 1000		<b>Latitude in Min</b> 2			
<b>Propagation</b>		<b>North/South</b> N		<b>Region</b> <input checked="" type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3	
<b>Sunspot Number</b> 41		<b>Longitude in Degree</b> 7			
<b>10,7 cm Solar Flux</b> 99		<b>Longitude in Min</b> 11			
		<b>E/W</b> 0			

In these fields you can enter the co-ordinates for your location. They are used by the software to calculate beam heading and distance to a target station.

Additionally you can enter the sun spot number and a 10,7cm Flux. These values are used for the propagation prediction in our MUF software.

### 1.1.6 Menu RX 1 ... RX 3

Files	Language	Time	Email	Mode	HRD
Location	RX 1	RX 2	RX 3	Test	Code300-32
<b>Receiver :</b> None					
<b>Port</b> COM1		<b>Baudrate :</b> 57600			
<b>Parity</b> <input checked="" type="radio"/> none <input type="radio"/> even <input type="radio"/> odd		<b>Bits</b> <input type="radio"/> 7 <input checked="" type="radio"/> 8		<b>Stopbits</b> <input checked="" type="radio"/> 1 <input type="radio"/> 2	
<b>PC-delay</b> 10		<b>Frequency Offset RX 1</b> SSB 0 Hz CW 0 Hz FSK 0 Hz			

With this menu you can choose the different configuration windows for different receivers. All configurations are stored separate.

We are using a limited control for all radios. Mainly the frequency and mode can be set or read. In some cases the bandwidth is also configured by Frequency Manager. All other functions can be done with PCF70.

#### Frequency shift

Not all receivers can directly receive in a FSK mode. In this case you have to choose the mode USB or LSB. In this field you can configure a frequency shift, to find the correct frequency from the database.

You can find out the correct shift by tuning in a known station and measure the frequency difference to the value in the database.

#### Serial port

Here you can choose the serial port (COM1 ... COM4) to which your receiver is connected and the necessary parameters (parity, bits and stopbits).

These parameters are shown in the field parameter after saving and are only guilty for the internal CAT software of Frequency manager.

Your own CAT software must be configured in the software itself.

If you choose one of the following receivers from the receiver field, the internal software is called.

If you insert your own name of software, the CAT button in the main screen

will call the software configured in the configuration screen.

For the correct communication parameters and wiring of your cable to your receiver please refer to your receiver handbook

### PC-Delay in ms

This value is necessary for the work with your serial port. Depending on the receiver to process the commands from the computer you have to select a time in milliseconds as delay. The nominal value is 10 ms. You can choose this value very carefully, so that the scan speed can increase.

If this value is to low, no communication via the serial port may be possible.

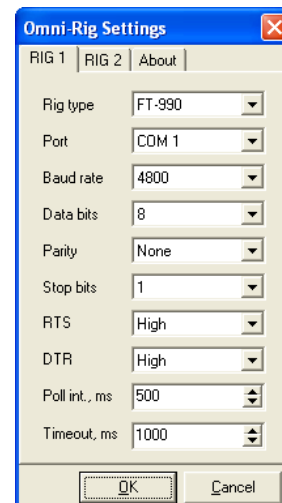
### ID (only for ICOM, HF1000, EK070, EKD500)

In this field you have to write the ID number of your receiver decimal. This field is only shown when you have selected the field ICOM in the list of receivers.

### OMNIRIG

For additional radios the COM component OMNIRIG by Alex Shovkoplyas, VE3NEA has been integrated. After selecting OMNIRIG an additional window will open for configuration of the radio. Please keep in mind that only on rig is supported. These are:

- TS-440, TS-480, TS-570, TS-690, TS-850, TS-870, TS-930, TS-2000, all other Kenwoods
- FT-100D, FT-817, FT-840, FT-847, FT-857, FT-897, FT-900, FT-920, FT-950, FT-990, FT-1000, FT-1000MP, FT-2000, FT-9000, FT-DX5000MP
- IC-275H, IC-703, IC-706MKII, IC-706MKiiG, IC-718, IC-725, IC-728, IC-735, IC-737, IC-746, IC-746Pro, IC-751, IC-756, IC-756Pro, IC-756ProII, IC-756ProIII, IC-761, IC-765, IC-775, IC-781, IC-7000, IC-7200, IC-7315, IC-7600, IC-7700, IC-7800, IC-R75, IC-R8500, IC-R9000, IC-910, IC-970D
- CODAN, Elecraft K2, Elecraft K3, Ten-Tec Paragon II, Ten-Tec Orion, Ten-Tec Omni VI+, Ten-Tec Omni VII, TenTec RX-350, JST-245, DX-77, NRD-535(DG), PowerSDR, Perseus, FRG-100



For additional information please refer to the homepage:

<http://www.dxatlas.com/OmniRig/>

### SDR-14, SDR-IQ, HDSDR

For these receiver the software Spectravue is control via Windows Messages. It is necessary to start Spectravue first before it can be used by Frequency Manager.

HDSDR, SDR-14 and SDR-IQ are using a bi-directional communication so that also changes of mode and frequency are recognised.

### Perseus-SDR

Perseus can be controlled by PCF70. It is necessary to setup two virtual ports 10 and 11 with VSPE. Frequency Manager has to be set to port 10. Perseus will automatically recognise the ports and show in the lower right corner VCOM on.

### SDR-Radio

SDR-Radio is a graphical user interface for several SDR's. This software can also be controlled by a virtual serial port setup with VPSE. Therefore you need to setup two serial ports and can configure these in PCF70 and SDR radio.

### FLEX-Radio

The control software PowerSDR can also be controlled by serial port. Our tests did show that only on virtual port configured with VSPE is necessary to control the PowerSDR.

#### 1.1.7 Code300-32

The screenshot shows the 'Code300-32' configuration window. The 'Test' sub-tab is selected. The 'Code300-32 available' checkbox is unchecked. The 'Code300 IP' field is empty. The 'Code300 Server Port' field is empty. The 'Local IP' field is empty. The 'Local Data Port' field is empty. The 'Local Monitor Port' field is empty. The 'Local IP's' box displays '192.168.14.109'.

On this tab the necessary information for controlling a connected the Code 300 like IP address and port number can be configured. The window local IP is showing all used IP addresses on this computer.

#### 1.1.8 Test

The screenshot shows the 'Test' configuration window. The 'S-meter on' checkbox is unchecked. The 'RX protocol' checkbox is checked.

On this tab you can select whether the S-meter is switched on or not. For analysing a protocol file can be generated which will help to find problems when reading the RX.

### 1.1.9 Mode

Waveform	RX Mode
.	USB
?	WAM
2CH PSK	FSK
2FSK	FSK
4-DPSK	USB
AFSK	FSK

This mode configurator is a translation table between the modes in the database and the receiver. The table contains information which mode to set on the receiver in relation to the waveform received. This table is not fully implemented yet. With **Allocate Mode** the database is searched for modes not in the mode table yet. If they are found they are added to the list. With **Edit Mode** each mode can be adapted to your personal settings. The button **Store Mode** will store the changes in the list. If waveform is not available in the database it can be added by **Add Mode**.

### 1.1.10 Ham Radio Deluxe

☐ Fernbedienung HamRadio Deluxe

HRD Server IP:

HRD Server Port:

☐ HRD Auto Connect

This menu is foreseen for a later development.

### 1.1.11 Help

This help window is displaying a list of serial port parameter for some receivers and the ID in common use with ICOM radios. This help can be closed with the button Close help.

### 1.1.12 Store

This buttons stores the parameters into a file and displays these data. In some cases (i.e. changing the language) you have to start PCF 50 again, to activate the new parameters.

### 1.1.13 Quit

This button exits the configuration screen.



## 1.2 Info

Here you will find the information screen. It gives you some more information about the sign of Frequency Manager.

## 1.3 Quit

This button is closing the Frequency Manager. Click on OK if you want to leave the program or cancel if you want to go on.

## 2. Menu Info

From this menu you can choose the following back ground information for successfully radio monitoring:

### 2.1 Callsign Allocations

This table contains the callsign allocation for all countries. It is possible to search for each expression in a combined search and sort function.

For all other functions please refer to the section of „Working with the Databases“.

### 2.2 Callsigns

This database contains more than 10000 callsigns.

The following information are available:

Callsign	:	Callsign according ITU. A callsign marked with two ** is not used according the regulations of ITU. Used routing indicators are marked in this way.
SELCALL	:	Used selective callsign
User	:	Transmitting station
Country	:	Country according ITU
N_S	:	Coordinate North or South
E_W	:	Coordinate East or West

It is possible to search for each expression in a combined search and sort function.

For all other functions please refer to the section of the „Working with the Databases“.

### 2.3 ITU-Callsigns

This database contains more than 125000 callsigns.

The following information are available:

Callsign	:	Callsign according ITU
Location	:	Location of transmitting station
Country	:	Country according ITU
Adm	:	Administration, which is responsible for this station
North/South	:	Coordinate North or South
East/West	:	Coordinate East or West

Additional to the list display this database offers a very comfortable combined find- and sort-function.

For all other functions please refer to the section of „Working with the Databases“.

## 2.4 ACP113

This database contains the callsigns, name usage and country for ships according to the ACP113.

## 2.5 Ship callsigns/MMSI

This table contains more than 30000 ships which have been received by AIS in the VHF range. For each ship the MMSI, name, callsign, country and type of ship is given.

.

## 2.6 Abbreviations of Countries

This database contains a list of up-to-date country abbreviations used by ITU. The following fields are shown:

ITU	:	Abbreviation according ITU
ISO	:	Abbreviation according ISO
Country	:	Country

It is possible to search for each expression in a combined search and sort function. For all other functions please refer to the section of „Working with the Databases“.

## 2.7 Abbreviations

This table contains all used abbreviation and gives you the meaning on the right part of the table.

It is possible to search for each expression in a combined search and sort function.

## 2.8 ICAO Indicators

This table contains more than 12000 data records of military and civil airports world wide. The following information are available:

Indicator	:	Indicator of airport
Location	:	Location of airport
Country	:	Country
North/South	:	Coordinate North or South
East/West	:	Coordinate East/West

Additional to the list display this database offers a very comfortable combined find- and sort-function.

For all other functions please refer to the section of the utility database.

## 2.9 Weather Observer Stations

This table contains a set of weather observer stations and important information. The following information are available:

Observer	:	Number of observer station
N_S	:	Coordinate North/South
E_W	:	Coordinate East/West
User	:	User
Country	:	Abbreviation of country

Additional to the list display this database offers a very comfortable combined find- and sort-function.

For all other functions please refer to the section of the utility database.

## 2.10 Class of Stations

This table contains a list of station classes and their meaning.  
It is possible to search for each expression in a combined search and sort function.  
For all other functions please refer to the section of „Working with the Databases“.

## 2.11 ATU-A

This table contains a collection of used ATU-A expressions and gives you the meaning on the right part of the table.  
It is possible to search for each expression in a combined search and sort function.  
For all other functions please refer to the section of the utility database.

## 2.10 Frequency Ranges

This table displays the used shortwave frequency allocation for different countries. the following data are available :

Frequency1	:	Start frequency
Frequency2	:	End frequency
Primary	:	Primary use
Permitted	:	Permitted use
Secondary	:	Secondary use
Region	:	Region for this allocation
R1... R3	:	Region for this allocation
Country	:	Country, if there are special allocation.

Additional to the list display this database offers a very comfortable combined find- and sort-function.  
For all other functions please refer to the section of „Working with the Databases“.

## 2.11 Systems

This screen is an information pool for all used systems on shortwave. You can listen to WAVE-files recorded by yourself or you can use the optional delivered WAVE files, which are available in a separate list. In the menu bar you can choose the main function of the start screen.  
This gives you the possibility to call directly your CAT-software or decoder.  
With the data control **Systems** you can step through the database or jump to the beginning or end of the database.  
For some systems pictures of the spectrum and oscillograph are displayed. This function can be switched of with the **Off** button.

With the button **Find** you can search for a system. The button **Audio** is opening the **AUDIO MENU**.

## 2.12 Technical Handbook

This menu is calling the integrated Technical Handbook with much more additional information.

## 3. Menu Audio

This button is opening a window where you can play those audio files delivered with Frequency Manager 7.0 or you can select your own files. For your own files the menu Files is opening a directory list field where the file can be chosen. Selecting **Wave Files** will open a menu where you can choose a file from the PCF70 CDROM.

When playing a file the spectrum of the wave file is displayed. For this spectrum the values like number of FFT points, scale and gain can be changed. The wave file can be started, stopped, paused or resumed.

### 4. Radio button Quit

This button is closing the Frequency Manager.



### 5. Radio button RX

With this button you can call the internal CAT software.

If you configure your own software in the menu Utility/Configuration, you can use your favorite software.

The following receivers are available:

EKD 500  
FT 900  
FT 1000  
AR 3000  
AR 8200  
NRD 535  
PCR1000

The command sets of these receivers are mostly also workable with receivers of the same manufacturer.

#### 5.1 EKD 500

This CAT overlay is made like the front of the receiver EKD 500. The buttons can be used on the screen with the mouse. The FREQUENCY SCAN procedure can be programmed in one step in an overlay. These data are then transmitted to the receiver and can be activated by pressing the radio button SCAN.

In some functions the frequency display is not updated. A double click onto the display will show the actual frequency again.

#### 5.2 YAESU FT 990 and FT 1000

This software can be used for the main functions of like setting the frequency, mode aso. Additional you can program frequency and channel scan. 50 memories can be set directly. With the option field behind the frequency field you can remove this memory from the scanning procedure.

There will be no display of the frequency from the chosen VFO because the transmission of data between receiver and receiver is very slow and would need to much time.

#### 5.3 AR 3000 A and AR 8000/8200

This software can be used for the main functions of like setting the frequency, mode aso.

#### 5.4 NRD 535

This software can be used for the main functions of like setting the frequency, mode aso.



### 6. Radio button Decoder

With this button you can directly call your favorite decoder software (CODE 3 or similar).

Here for you have to configure the correct drive, path and name of the software in the configuration screen.

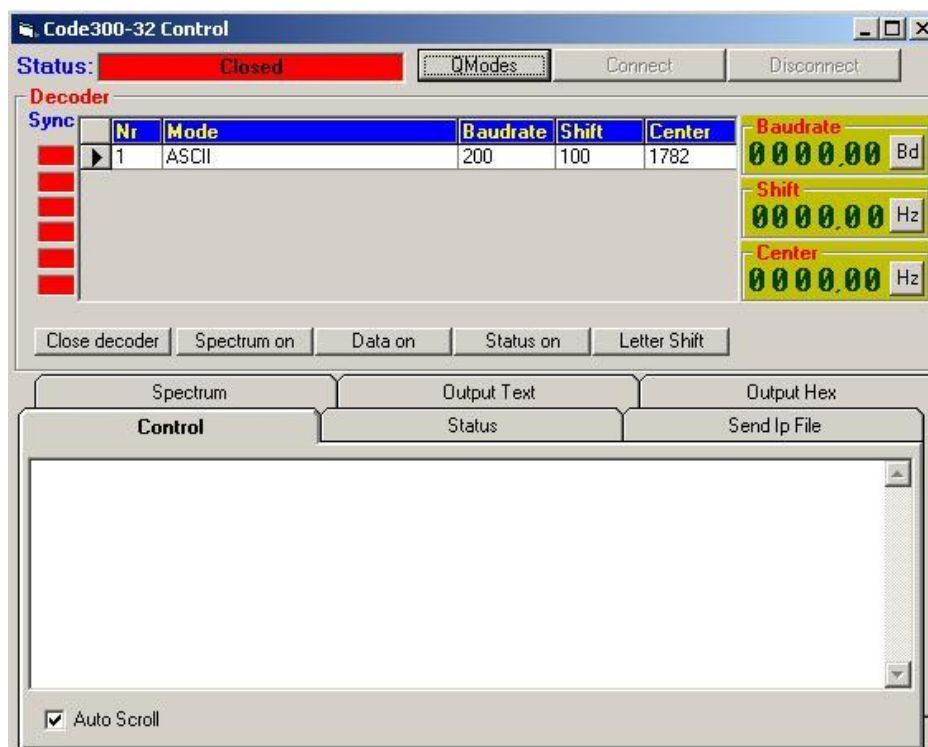
When using Code3 Gold and Windows you can start this software directly in Windows and can then switch between the two windows with ALT + TAB.



### 7. Button Code300-32

This button is starting the Code300-32 remote control.

#### 7.1 Code300-32 Remote Control



This form can directly control a local or by network connected decoder Code300-32. Therefore correct settings for IP and port number in the configuration menu are necessary.

The connection to the decoder is established by the button **Connect** and stopped by the button **Disconnect**. When the connection has been done this will be displayed in the field status by the word „Connected“. The table will display all active modes with the most important parameter. By selecting on mode you can change the settings for baudrate, shift and center frequency by a left/right mouse click onto the LCD display. These changes are transferred to the decoder and displayed when they have been accepted by the decoder. If the modes are synchronized when receiving a signal this will be shown by a LED on the left side of the table.

With the button **QModes** the table can be refreshed.

In the lower part different outputs of the decoder are displayed.

### 7.1.1 Control

This tab is showing all commands going to and coming from the decoder.

### 7.1.2 Status

This tab is displaying the status information transmitted by the decoder.

### 7.1.3 Send IP-File

On the left side of this tab all IP files in the directory IP are displayed. When selecting a file with a click on the list this name will be displayed in the text field on the right side. By activating the button **Send IP-File** this file will be transferred to the decoder.

### 7.1.4 Spectrum

When activating the button **Spectrum** the spectrum of the Code300-32 will be displayed in this tab.

### 7.1.5 Output Text

This tab is showing the text output of the decoder. The option field **Auto-Scroll** will scroll the text to the end.

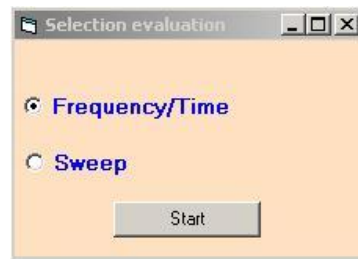
### 7.1.6 Output Hex

In this tab the output of the decoder is displayed in standard text and as hex decimal. The option field **Auto-Scroll** will scroll the text to the end.

## 8. Button graphical Evaluation



In this menu you can display frequency sweeps or propagation monitoring on a single frequency. The selection can be done by the option button. The button **Start** will display the selected evaluation.



### 8.1 Frequency/Time

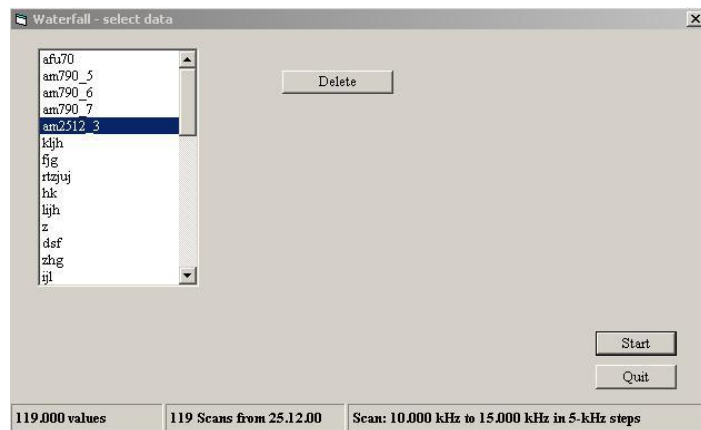
After selecting the evaluation for Frequency/Time all recordings are displayed in a list. Each entry can be selected by a double click. A single click will select one entry which then can be deleted by the button **Delete**.

Above the graphic the monitored frequency and the number of datasets are shown.



### 8.2 Sweep

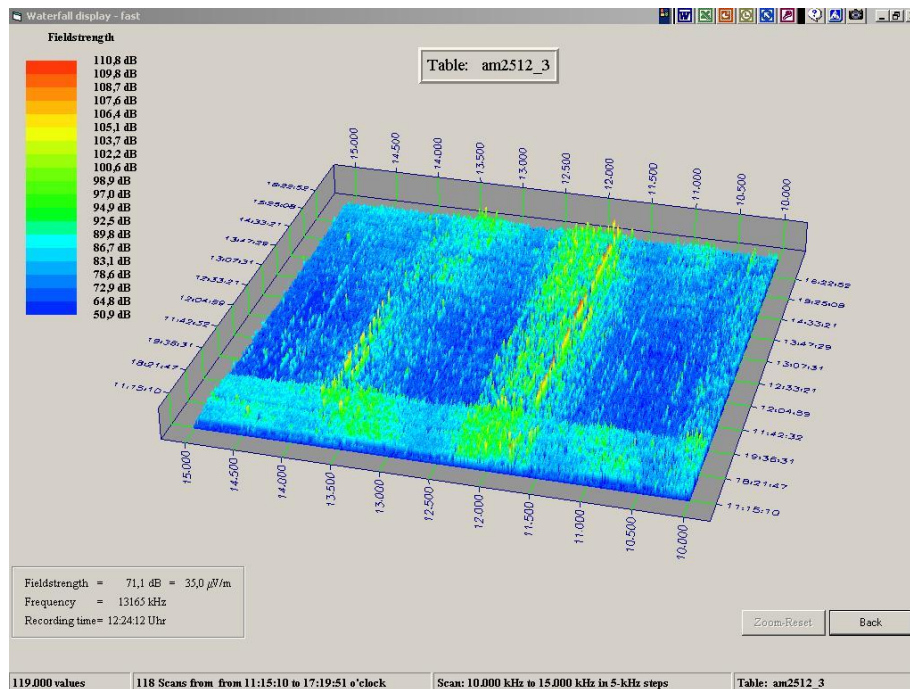
When selecting the sweep evaluation a list of all stored sweeps is shown. Each entry can be selected by double click. A single click will select one entry which then can be deleted with the button **Delete**. For this selected scan the parameter for frequency range, number of scans and date is shown in the status bar.



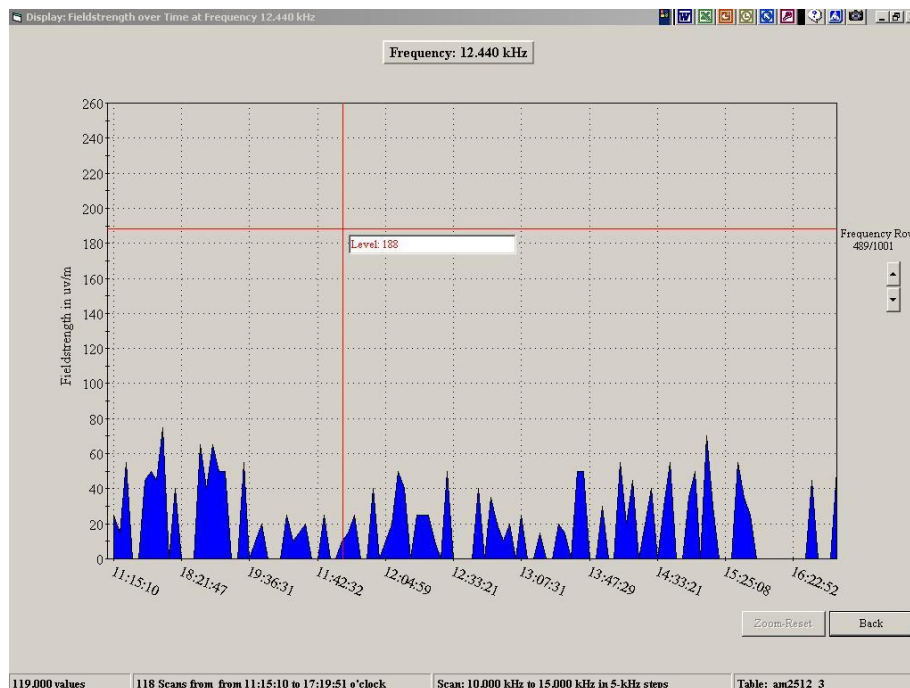
The button **Start** will also start the display of the sweep, **Quit** will close the form.

The selected scan will be sorted be displayed as a 3D-graphic. Moving the mouse across the graphic will display the values below the mouse pointer in the left lower part of the screen. On the left side the measured S-meter values are shown with their different colors. A click on the right mouse button will select a sub menu for selecting a single time, frequency or a print out.

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Each row or column can be chosen in the new display on the right side. In this case the fieldstrength on a single frequency is shown. Below the mouse pointer the level for each point is displayed.





## 8. Radio button MUF

With this button you can directly call your favorite propagation software.  
For this you have to configure the correct drive, path and name of the software in the configuration screen (utility, configuration).

## 9. Radio Button OSX-SAT32 software

This button will start the external satellite calculation software. A help function in German is available within this software.



## 10. Radio button Utility

In this database you will find more than 23000 up-to-date frequencies.

The following information are in the table or as frequency data available

Frequency	:	Frequency of transmission
Baudrate	:	Baudrate in Baud
Shift	:	Shift in Hz
Channels	:	Number of channels in VFT system or MFSK
Channel shift	:	Shift between channels
Mode	:	used mode
Callsign	:	Callsign (callsigns or routing indicators, which are not according the regulation of ITU, are marked with two **)
SELCALL	:	Selective callsign. In this field also used channel indicators are displayed. They are marked with one*.)
Keyword	:	Here you can fill in your own keyword for sorting.
Encryption	:	This field shows weather the transmission is encrypted. The following abbreviations are used:  J for always encrypted N for not encrypted, B for binary S for shift register T for partly encrypted
Contents	:	Abbreviation for the contents of the transmission i.e. WX for weather
User	:	User of transmitting station
Country	:	Country according ITU
encrypted after	:	Sequence, after which the transmission is encrypted
Time	:	Time, when the station was heard.

It is possible to search for each expression in a combined search, sort and receiver functions.

All functions are similar in all databases.

All menus and other functions are described in the chapter „Working with the databases“.

## 11. Radio button Broadcast

This database contains more than 14000 data records for broadcast stations.

The following information are available:

Frequency	:	Frequency of transmission
Mode	:	Modulation
Callsign	:	Callsign of station
User	:	Name of radio station
Country	:	Country according ITU
Language	:	Language of transmission
Start	:	Start of transmission in a particular language
End	:	End of transmission in this language

It is possible to search for each expression in a combined search and sort function. All menus and other functions are described in the chapter „Working with the databases“.

## 12. Radio button Number Station

This database contains the most up-to-date frequencies of active number stations.

The following information are available:

Frequency	:	Frequency in kHz
Mode	:	Used modulation
Ident	:	Called station or agent number
Sex	:	Female (YL) or male (OM) voice
Language	:	Used language
Contents	:	Contents of transmission i.e. numbers or figures
User	:	User of this transmission (Originator)
Country	:	Country according ITU
Time	:	Time, when this station was heard
Day	:	Day, when this station was heard
ENIGMA ID	:	ID given by the group ENIGMA
Family	:	Family given by ENIGMA

It is possible to search for each expression in a combined search and sort function. All menus and other functions are described in the chapter „Working with the databases“.

## 13. Radio button VHF

This database contains more than 11000 frequencies from VHF/UHF/SHF and satellite communication. The following information are available:

Frequency	:	Receive frequency in kHz or MHz
Downlink from	:	Downlink frequency range start
Downlink to	:	Downlink frequency range End
Uplink from	:	Uplink frequency range start

Uplink to	:	Uplink frequency range End
Bandwidth	:	Bandwidth of the channel
Beam	:	Antenna beam
Polarization	:	Polarization of the signal
EIRP	:	Radiated power
G/T	:	Gain to temperature
Channel	:	Number of channels
Mode	:	Receive mode
System	:	Used system in the channel
Baudrate	:	Baudrate in Baud
Name/Callsign	:	Used name or callsign
Catalognumber	:	Catalog number of satellites
Usage	:	Usage of channel
User	:	User of channel
Location	:	Location of user
Locator	:	Locator for amateur radio station
State	:	State of user (for Germany)
Country	:	Country of user
Kind	:	Kind of service

It is possible to search for each expression in a combined search and sort function.  
All menus and other functions are described in the chapter „Working with the databases“.

### 14. Radio button Audio and Systems

Please see menu AUDIO and Systems above.

### 15. Working with the databases

The usage of the databases and additionally functions is organized in folders. Each folder offers different functions. For working with the databases the following functions are available:

#### Highlight one or more data records

If you move the mouse cursor to the left side of a data record, you can highlight this data record.

The color will change to red. The highlighted data record can be used for scanning functions.

#### Double click on a data record

If you click double on a data record in a frequency database, this frequency and the correct mode is sent to the receiver. This function is working correct, if you have stored the necessary parameters in the configuration screen.

#### Moving through the data records

You can move through the data records by pressing the keys **PgUp** and **PgDn**. Before you can do that it is necessary to click onto the table to set the focus to the table

## 15.1 Tuning Menu



In each database is integrated a tuning menu which can control your radio. The frequency is changed by clicking the left or right mouse button. Additionally the receiver control can be done by the keyboard or a tuning knob like this one from Griffin Technologies.

The control can be switched on by selecting in the menu Window the **Tuning by Keyboard**. The control is done by the **CTRL + arrow up and down** for changing the frequency and **CTRL + arrow left and right** for selecting the correct digit.

When using the tuning knob the following setup is necessary (in the knob setup)

Program name: PCF70.EXE  
Click and Right: R  
Click and Left: L  
Rotate Right: U  
Rotate Left: D  
Computer: Type Keystroke



Additionally you can change the mode and bandwidth of the receiver (if your receiver gives you this possibility).

For some receiver will also appear a scroll bar to control the audio and squelch level. Any frequency chosen in the database is also displayed.

With the button **Enter Frequency** you can choose directly a frequency by typing it into the text field. The frequency must be entered in MHz.

The button **Split on /Split off** will shift the receiver frequency by the entered value in kHz. The shift frequency is set in the menu **Options/Configuration**.



Another possibility to enter a frequency is by using the keypad. It is started by the button **Keypad**. By clicking onto the buttons **1...0** the numbers can be selected with the mouse. The button **Set** is transferring the frequency to the receiver and will display it in the tuning menu. The button **Clear** is deleting the frequency and **Close** is closing the window.

The signal meter can be activated by a click onto it. A field on the right side of the meter shows whether the level is higher than that on which is chosen by the slider. This function is influencing the scanning and recording of wave files in the folder scan data records.

### 15.2 Folder utility

This folder shows the data which are listed in the database. With a click on the button with the field name the database is sorted by the value in the field. This sorting can be reverted by selecting the menu Query **Select all**.

The button **Calculate MUF** is linked directly to the integrated MUF software and sets the fields for callsign and coordinate to start the calculation for propagation prediction.

The button **QSO Frequency** will set the receiver to the frequency in the filed QSO of the database.

The button **Callsign data** is a shortcut to the callsign database and will display all data for a callsign when it is available.

With the button **Mark dataset** and **Delete all markings** specific datasets will be marked in the field M or the setting will be deleted.

If a Code300-32 is available this decoder can directly be set from the database by clicking onto the button **Code300-32**. The mode will be set if the option field **Mode** is set. This function will also open the Code300-32 remote control form.

### 15.3 Folder Broadcast

This folder shows the data which are listed in the database. With a click on the button with the field name the database is sorted by the value in the field.

For each station the schedule with time and language and all other frequencies in the database are shown.

### 15.4 Folder Number Station

This folder shows the data which are listed in the database. With a click on the button with the field name the database is sorted by the value in the field. For each station all other frequencies in the database are shown.

### 15.5 Folder VHF/UHF/SAT

This folder shows the data which are listed in the database. With a click on the button with the field name the database is sorted by the value in the field. The button with a question mark is directly connected to the database for systems and modes.

### 15.6 Folder Scan database

#### Rounds

With this button you can choose the number of rounds the marked frequencies should be scanned. This number is also displayed in the field rounds.

#### Delay

With this button you can choose the desired delay time for the scanning function. This time is counted in seconds and is shown close to the button. You can enter only integer values.

#### Scan data records

This button starts the scan procedure on your receiver. All chosen data record are scanned cyclic by the number of rounds which must be greater then zero.

### Scan all

With this button you can send all data records off one table to your receiver. This function should be used carefully, because scanning a complete table can take a long time, depending on the number of data records.

### De-select

A click on this button clears the selection.

### Activate recording

This function activates the automatic recording. During the scan of data records for each delay time a wave file is recorded if the level is high enough. Additionally a log file is updated with information about time and frequency for each file. This file is located in the subdirectory log. This function is only working for the utility and number station database.

**Tip:** Scanning can be stopped by pressing **s**.

## 15.7 Folder Frequency/time

In the folder up to 10 frequencies can be selected which will be watched during the selected time and where the level is written to a log database. The frequencies are displayed in the list with the selected mode.

The frequency marked in the table is transferred to the list by pressing the button **Add**. This entry can be deleted with the button **Delete Entry** or the whole list with **Clear List**.

The buttons **Start time**, **Length** and **Interval** are selecting the desired time length for the monitoring. The end time is calculated by the software and shown in the fields.

During the scan the results are displayed in the list on the right side.

The button **Start** is starting the monitoring process.

When the process is finished you can select the button **Evaluation** to display the results.

## 15.8 Folder Frequency sweep

In this folder you can enter a start-, stop frequency and the step width for a frequency sweep. These sweeps can be stored in a table.

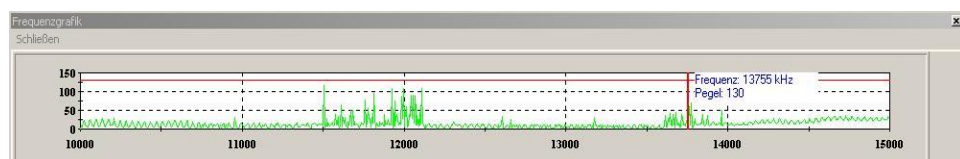
After clicking onto the button **Start** the frequency range will be swept with the parameters for sweep delay and frequency delay.

### Log file

During the scan you can record a log file in which the time, frequency and level are stored. This log file is activated by selecting the option field **Log file**.

### Spectrum

When selecting the option field the frequency sweep will be displayed in a spectrum view.



Clicking the mouse pointer to any frequency in the spectrum display will set the receiver frequency and the level of this frequency is displayed close to the mouse pointer.

### **Skip Frequencies in the database**

When scanning a frequency range you can skip frequencies which are already in the database, if the calculated frequency is identical to a database frequency.

### **Skip marked Frequencies**

With this option you scan skip frequencies in the database which are marked with an „X“ in the field **M** in the database. The frequency is marked simply by pressing the button **mark** in the **Frequency data** field.

The button **clear** is deleting all markings in the field **M**.

### **Sweep delay**

In this field you can enter a time in seconds between each sweep.

### **Frequency delay**

In this field you can enter a time in seconds between each frequency step.

### **Endless scan and Scanno.**

Selecting this option the sweep will be done until it is stopped by pressing **s**. The number of scans is shown in the field **Scanno**.

## **15.10 Folder AFC OSX-SAT**

This folder gives the possibility to control your receiver for satellite operation by the software OSX-SAT32. The software must be activated on your computer and will give you the correct frequency for the satellites. To get these values you must connect the Frequency Manager to the OSX-SAT32 software. A receiver will always be tuned to the frequency calculated by the satellite software. The information for satellite, azimuth, elevation and doppler shift are also displayed. The OSX-SAT32 software can also be launched on a different computer. You have only to choose the correct network connection to this computer.

## **15.11 Folder Memo**

In this folder you can edit, store or delete the field Memo of each database. The information can be copied to the clipboard or can be entered from the clipboard.

## **15.12 Folder Favorites**

In this folder you can store your favorite frequencies either from the database (button **from database**) or from the display of the tuning menu (button **from display**). The button **Delete** will delete the selected frequency from the table.

## **15.13 Folder ALE net**

When the field mode contains the description ALE different stations of this frequency can be stored in the ALE database. You can **Edit** or **Delete** a dataset, **Add** and **Store** a new one. When typing a new callsign in the table all callsigns

which are similar to the new one will be displayed and can be selected by a double click.

### 15.14 Folder Time List

This function sets a connected receiver to a selected frequency at a specific time. The frequency and mode can be selected from the display or the database.

	Start time	Stop time	Frequency	Mode	Steu
▶	22:03	22:06	17,20	CW	
	09:40	09:41	20,08	M/S 1,0	
	23:59	23:59	17,20	CW	
	11:47	11:49	12.567,00	MSK	
	11:52	11:53	23.000,00	RTTY	

Time to next start:                     

Start Stop Delete ☐ Record

Frequency Mode

☒ from database ☒ from database

☐ from display ☐ from display

Start Stop

23:59:00 23:59:00

Store

The start and Stop time for the listening window has to be selected by the time field in the lower part of the form.

The selected time can be stored into the time list with the button Store.

Start Stop

23:59:00 23:59:00

After that the time window has to be selected from the time list and can be activated by the button Start.

	Start time	Stop time	Frequency	Mode	Steu
▶	22:03	22:06	17,20	CW	
	09:40	09:41	20,08	M/S 1,0	
	23:59	23:59	17,20	CW	
	11:47	11:49	12.567,00	MSK	
	11:52	11:53	23.000,00	RTTY	

Time to next start:                     

Below the time list the time difference to the next start is shown.

The button Stop the activation is stopped and with the button Delete the selected dataset in the time list is removed.

The option field Record is foreseen for a later version of Frequency Manager.



### 15.15 Menu Query

With this menu you can choose special or all data records of the table. The following three possibilities are given:

#### 15.15.1 Goto...

With this function you can jump to one frequency in the database.

#### 15.15.2 Choose...

With this function you can search for any combination of information in the database. For this query you can enter the value in each field. Additional the following buttons are available:

##### **Find**

This button starts the search.

##### **Find again**

Starts a new search

##### **Delete**

This button is clearing the contents of all fields

##### **Quit**

This button closes this screen.

You can use logical functions like =, < aso. Also a like operator is possible. This gives you i.e. the possibility to search for all stations of a country greater 10 Mhz. With the like operator you can search in combination with a star\* for i.e. all MFA's. (" like MFA\* "). If you don't fill in an expression, a search will cause a SQL error.

#### 15.15.3 Select by mode...

With this function you will get a list of all modes in the database. A double click will display only the selected mode.

#### 15.15.3 Choose all...

With this function you can clear your query. All data records are displayed, sorted by frequency.

### 15.16 Menu Data record

With this menu you can add, update or delete data records.

#### 15.16.1 Add...

With this function you can add data records to the database. In a window you can enter all values and information you need.

You should not edit the field LOG. This is needed to update your databases with new data records. The following buttons can be used:

##### **Add**

This button adds the edited fields to the database.

##### **Delete**

This button deletes the contents of all fields.

##### **Zoom**

This function shows the contents on the full screen and works as an editor.

### **Quit**

Exit this menu.

### **15.16.2 Update...**

After calling this function the whole data record will be displayed and can be updated. The following buttons can be used:

#### **Update**

This button updates the edited fields in the database.

#### **Delete**

This button deletes the contents of all fields.

#### **Zoom**

This function shows the contents on the full screen and works as an editor.

### **Quit**

Exit this menu.

Additional the next and previous data record can be shown by using the navigation buttons. You can jump to the beginning and the end of the database.

### **15.16.3 Delete...**

This menu item deletes the highlighted data record.

#### **Info:**

The frequency databases are containing the field log. This field is for internal use and should not contain any other text other then "log".

## **15.17 Menu Options**

### **15.17.1 Configuration**

This menu calls the settings for Sweep time delay and frequency time delay.

### **15.17.2 Follow RX-Frequency**

For specific receivers (YAESU, ICOM) you can follow the database while tuning the receiver. You will see that data set (if available) on which you are receiving at that moment. The software cyclic is checking the receiving frequency of the receiver.

### **15.17.3 Copy data to the clipboard**

By clicking onto this button the highlighted data set can be copied to the clipboard and then be used for other applications.

### **15.17.4 Quick Search**

When you click this button, you can enter a frequency which shall be searched for. In milliseconds this frequency and the most important parameters are displayed.

### 15.17.5 Show all Frequencies of a User

This menu is opening a second table which is showing all other frequencies of a user. With a double click onto the data sets the referencing data record in the main table is shown.

### 15.19 Menu RX

In this menu 3 different receivers can be chosen. These must be configured in the Main Screen under **Configuration**. All functions are related to the actual receiver.

### 15.20 Menu Frequency Table

#### 15.20.1 Utility

This menu displays the folder **Utility** and shows the table for the database utility.

#### 15.20.2 Broadcast

This menu displays the folder **Broadcast** and shows the table for the database VHF/UHF/SAT.

#### 15.20.3 Number Stations

This menu displays the folder **Number Stations** and shows the table for the database Number Stations.

#### 15.20.4 VHF/UHF/SAT

This menu displays the folder **VHF/UHF/SAT** and shows the table for the database VHF/UHF/SAT.

#### 15.20.5 Former Utility Stations

This menu displays the folder **Former Utility Stations** and shows the table for this database.

You can also transfer back these datasets to the utility database with the button **Transfer->Utility**.

### 15.21 Menu Databases

#### 15.21.1 Callsign

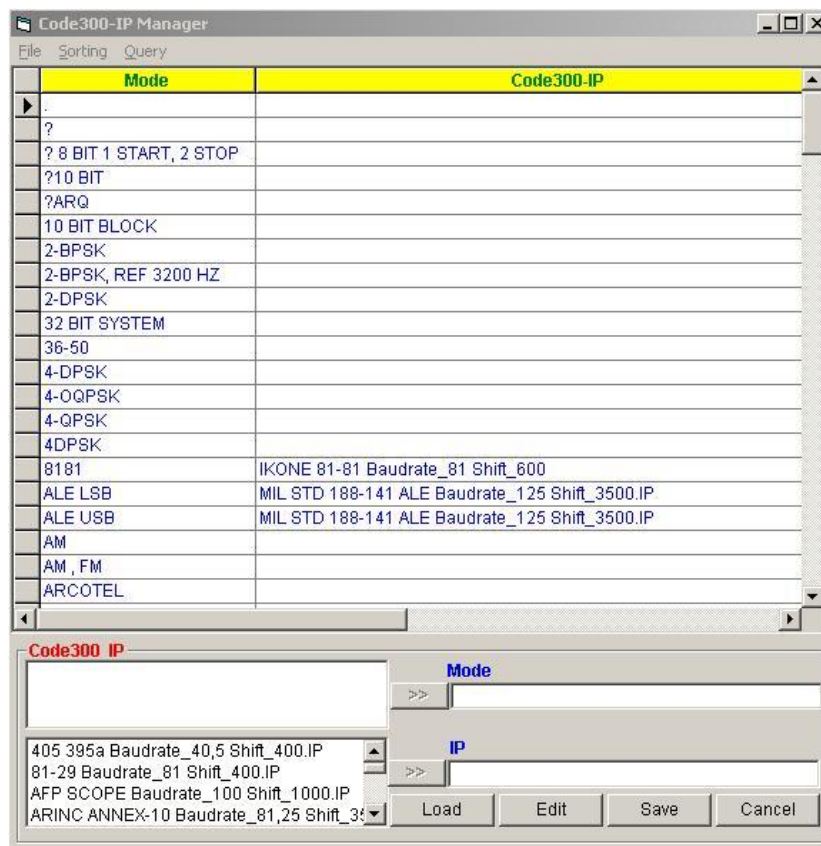
This menu opens the callsign database.

#### 15.21.2 Country

This menu opens the country database.

#### 15.21.3 Code300 IP-Manager

With this function you can assign Code300-32 IP files to the modes in the utility database.

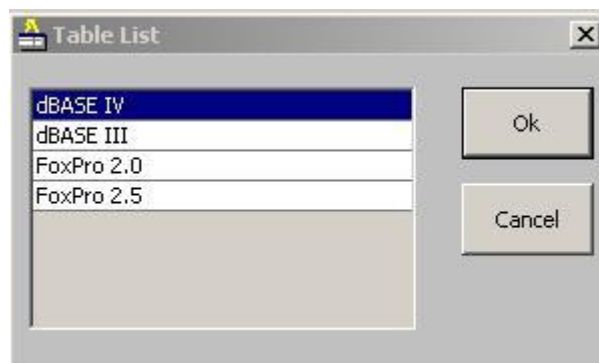


The button **Load** will generate a table with all modes in the utility database. A selected dataset can be edited by the button **Edit**. This button will place the mode in the text field **Mode**. For this specific mode you can select one IP file from the lower left hand table. When using the button **Save** the selected IP will be stored in the database for the mode.

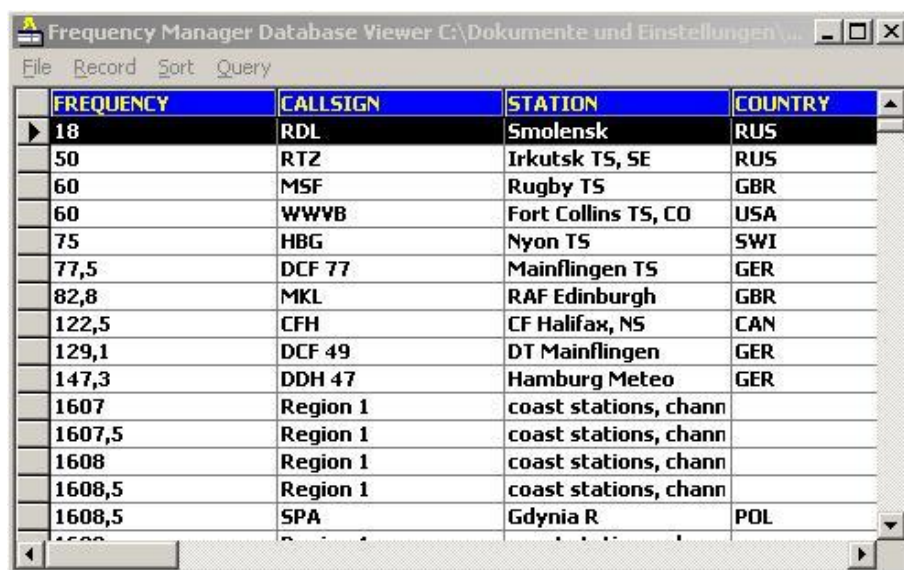
With the menu **Sorting** and **Query** the database can be sorted or searched by Mode or IP.

### 15.21.4 Database Viewer

This viewer can open other databases and display the tables. Besides ACCESS other database formats like dBase, Foxpro etc. can be displayed.



The selected table is displayed. You can drag and drop the frequency field to the tuning menu and set your receiver to the chosen frequency.



Frequency Manager Database Viewer C:\Dokumente und Einstellungen\...

FREQUENCY	CALLSIGN	STATION	COUNTRY
18	RDL	Smolensk	RUS
50	RTZ	Irkutsk TS, SE	RUS
60	MSF	Rugby TS	GBR
60	WWVB	Fort Collins TS, CO	USA
75	HBG	Nyon TS	SWI
77,5	DCF 77	Mainflingen TS	GER
82,8	MKL	RAF Edinburgh	GBR
122,5	CFH	CF Halifax, NS	CAN
129,1	DCF 49	DT Mainflingen	GER
147,3	DDH 47	Hamburg Meteo	GER
1607	Region 1	coast stations, chann	
1607,5	Region 1	coast stations, chann	
1608	Region 1	coast stations, chann	
1608,5	Region 1	coast stations, chann	
1608,5	SPA	Gdynia R	POL

## 15.21.4.1 File

With this menu the table can be closed or printed. Another table can be selected from the database or you can close the database viewer.

## 15.21.4.2 Record

This menu gives the possibility to add, edit or delete records.

## 15.21.4.3 Sort

This menu is sorting the database by the columns.

## 15.21.4.4 Query

The table can be searched for specific expressions or combinations of them.

## 15.22 Menu Window

### 15.22.1 Big Table / Small Table

When selecting this menu the utility table will be displayed on the full screen. It can be closed by selecting the menu **Small Table**.

### 15.22.2 Hide Columns

With this menu you will get a form displaying all columns of the utility database. By selecting the option fields you can hide or show every column. The setting is stored in the configuration.

### 15.22.3 Mini Tune

This menu can reduce the form to only a small window



<input type="checkbox"/>	M
<input type="checkbox"/>	QSX
<input type="checkbox"/>	Baudrate
<input type="checkbox"/>	Shift
<input type="checkbox"/>	CH
<input type="checkbox"/>	CH_Shift
<input checked="" type="checkbox"/>	Mode
<input checked="" type="checkbox"/>	Callsign
<input type="checkbox"/>	SELCALL
<input type="checkbox"/>	V
<input type="checkbox"/>	Keyword
<input checked="" type="checkbox"/>	Content
<input checked="" type="checkbox"/>	User
<input checked="" type="checkbox"/>	Country
<input type="checkbox"/>	V_after
<input type="checkbox"/>	Date
<input type="checkbox"/>	Time

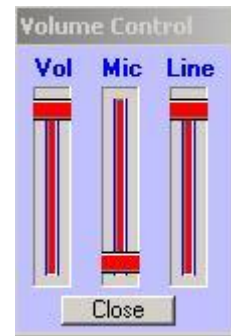
Close

and will display the frequency and level. Additionally the frequency and mode can be changed. When closing the mini tune the main window will be displayed.



### 15.22.4 Volume Control

With this function you can control the volume for your soundcard and adjust the level for line input and microphone input.



### 15.22.5 Frequency Control Keyboard

By selecting this menu you can control the receiver with Ctrl+ arrow or a tuning knob. Please refer to **15.1 Tuning Menu**.

### 15.23 Technical Handbook

This will start the included **Technical Handbook** as a PDF file in your standard browser.

### 16. MUF

This integrated tool for propagation prediction includes the following functions:

- Calculation of propagation prediction (MUF)
- Calculation of reception in relation to frequency, time and transmitter power
- Calculation of a possible location of a transmitter in relation to frequency, time of reception and receiving fieldstrength

#### 16.1 Calculation of Propagation Prediction

For the calculation of the propagation between two locations the transmitting and receiving station must be chosen. This can either be done by a table of stations or directly by pointing into a world map. General data are already chosen by the software but can be changed by the user.

**Transmitter**

Callsign	User	Country
▶	Abidjan Air	CTI
	Abu Simbel Air	EGY
	Accra Air	GHA
	Adak Air	ALS
	Adelaide Air	AUS
	Aden Air	YEM
	Adrar Air	ALG
	Aero Lloyd Oberu D	

Abidjan Air Power 1 kW  
5° 22' N 3° 58' W Antenna Gain 3 dBi  
Single Frequency kHz

Select from Map

**Receiver**

Stakendorf  
54° 0' N 54° 0' E  
necessary Rx fieldstrength (optional)   $\mu$  V/m

**Parameter**

April 2004  
Sun Spot Number 35  
Minimum angle 0°  
Probability ☐ 50% ☒ 90%  
Path ☐ long ☒ short

**Option Multi Frequency** ☐

1 3 6 9 12 15 18 21 24 27 30 in MHz  
Antenna Gain  
3 3 3 3 3 3 3 3 3 3 in dBi Delete data

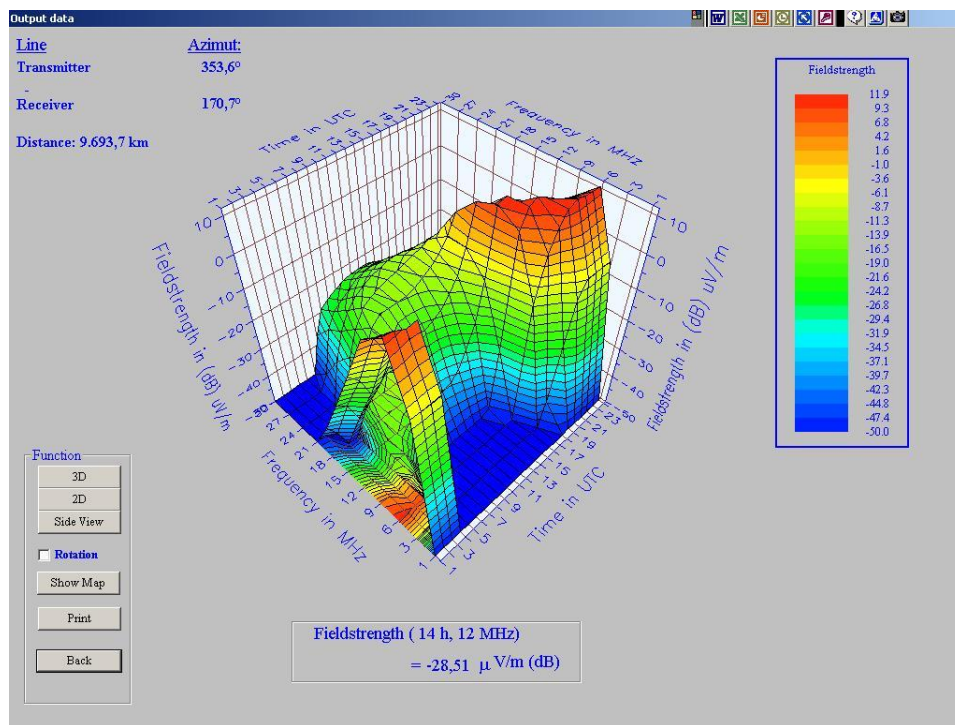
Show Table  
Show Map  
Show Graphic  
Edit Stations  
Broadcast  
Localisation  
Calculate

With the option field **Multi Frequency** the whole frequency range in steps of 3 MHz can be selected. Otherwise a single frequency has to be entered in the field **Single Frequency**.

The software will calculate the following result:

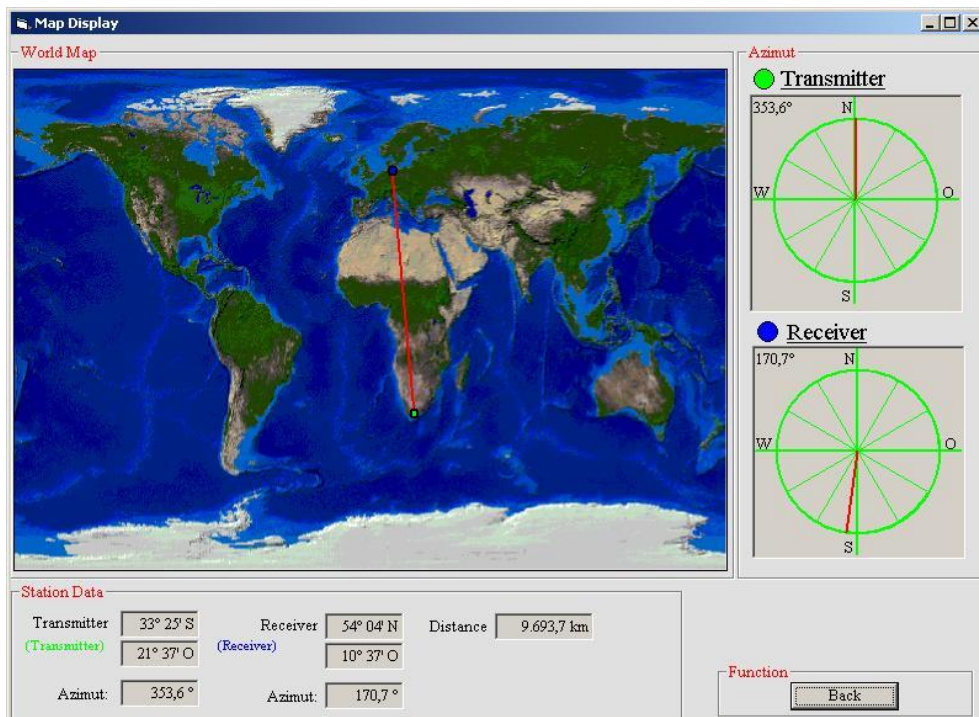


## Manual Frequency Manager 7.0 for Windows



In this graphic all fieldstrength values for a specific frequency are displayed over 24h. The graphic can be switched between 2D and 3D. Selecting the option field **Rotation** will rotate the graphic.

The button **Map** will display the stations in the world map display and also give the antenna direction and distance between the stations.



Moving the mouse across the graphic will display the values under the mouse pointer in the lower part of the screen.



The results can also be displayed and printed in the table view:

Output Data

### Numerical values of line calculation

Linie : Transmitter - Receiver  
 Koordinaten: ( 32,6S 21,6E) ( 54,1N 10,6E)  
 Azimut : 353,6° 170,7°  
 Entfernung : 9.693,7 km

Monat : Apr. 04  
 R-Zahl : 35  
 Leistung : 1,0 kW  
 min. Winkel : 0,0°

Tx-Antenne (dBi): 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0 3,0

Feldstärken in dB über 1uV/m für 90 Prozent der Zeit

UTC	MuF	FOT	LuF	1,0	3,0	6,0	9,0	12,0	15,0	18,0	21,0	24,0	27,0	30,0
1	12,1	9,8	1,8	...	-6,1	10,9	5,6	-9,6	-24,1	-38,4	...	...	...	...
2	11,6	9,4	1,8	...	-6,2	10,3	3,8	-13,0	-26,6	...	...	...	...	...
3	10,6	8,6	1,8	...	-6,3	8,7	-1,7	-19,6	-33,8	...	...	...	...	...
4	10,8	8,8	1,8	...	-6,3	9,1	-0,6	-18,5	-32,1	...	...	...	...	...
5	12,9	10,3	5,9	...	...	-30,3	-12,1	-15,1	-24,9	-33,2	...	...	...	...
6	16,7	13,7	9,3	...	...	...	-34,2	-19,1	-18,1	-24,1	-28,6	-35,4	...	...
7	20,3	16,7	10,8	...	...	...	...	-24,3	-16,1	-16,2	-21,0	-26,0	-30,1	-36,8
8	22,8	18,7	11,7	...	...	...	...	-29,9	-17,4	-13,8	-15,9	-20,9	-25,4	-29,0
9	24,1	19,8	12,3	...	...	...	...	-34,0	-19,1	-14,0	-14,3	-18,1	-23,4	-26,6
10	25,0	20,6	12,7	...	...	...	...	-36,6	-20,0	-14,0	-13,3	-16,3	-21,5	-25,2
11	25,7	21,1	12,7	...	...	...	...	-37,4	-20,2	-13,6	-12,3	-14,9	-19,7	-23,9
12	26,0	21,3	12,6	...	...	...	...	-36,4	-19,4	-12,9	-11,5	-14,2	-18,8	-23,3
13	26,0	21,4	12,2	...	...	...	...	-33,5	-17,5	-11,6	-10,6	-13,5	-18,4	-23,0
14	25,7	21,2	11,5	...	...	...	...	-28,5	-14,4	-9,7	-9,6	-13,1	-18,4	-23,1
15	24,8	20,5	10,4	...	...	...	...	-21,1	-10,1	-7,4	-8,9	-13,5	-19,9	-24,2
16	23,7	19,6	8,5	...	...	...	-28,4	-9,6	-3,7	-3,8	-7,8	-14,2	-20,8	-25,5

Print Back

## 16.2 Manage Station

The button **Edit Stations** opens the form for adding, editing and deleting stations in the local database of the MUF software.

Manage Station

Delete Station Add Station Edit Station

Enter new station name

Coordinates

North-South East-West Input format

☐ °''' °''' i.e.: 56° 30' N

or

☐  Degree  Degree i.e.: 56,30

N = positiv O = positiv  
S = negativ W = negativ

Transmitter

Antenna gain  dBi i.e.: 3 dBi

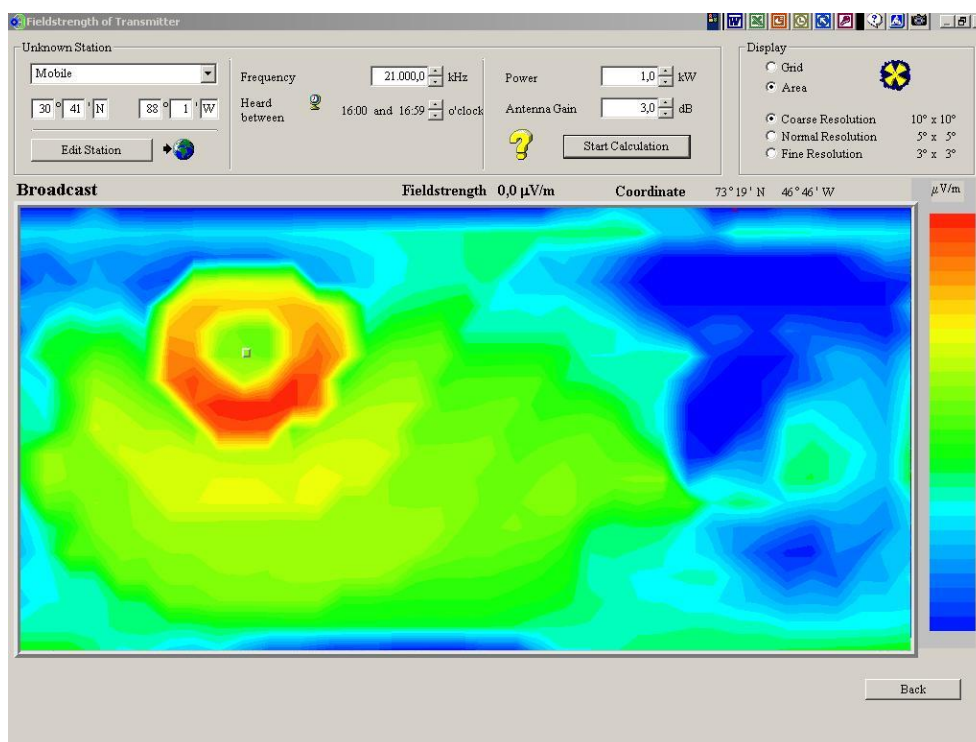
Power  kW i.e.: 1,0 kW

OK Store Back

### 16.3 Broadcast

The button **Broadcast** will select the function to calculate the receiving fieldstrength of a transmitter for the whole world. For this calculation the transmitter location, power, frequency and time must be chosen. Additionally a possible antenna gain can be foreseen.

The software will calculate the fieldstrength and display it with different colors on the world map. The display can be selected from grid or area. Moving the mouse on the map will display the fieldstrength below the mouse pointer above the map.

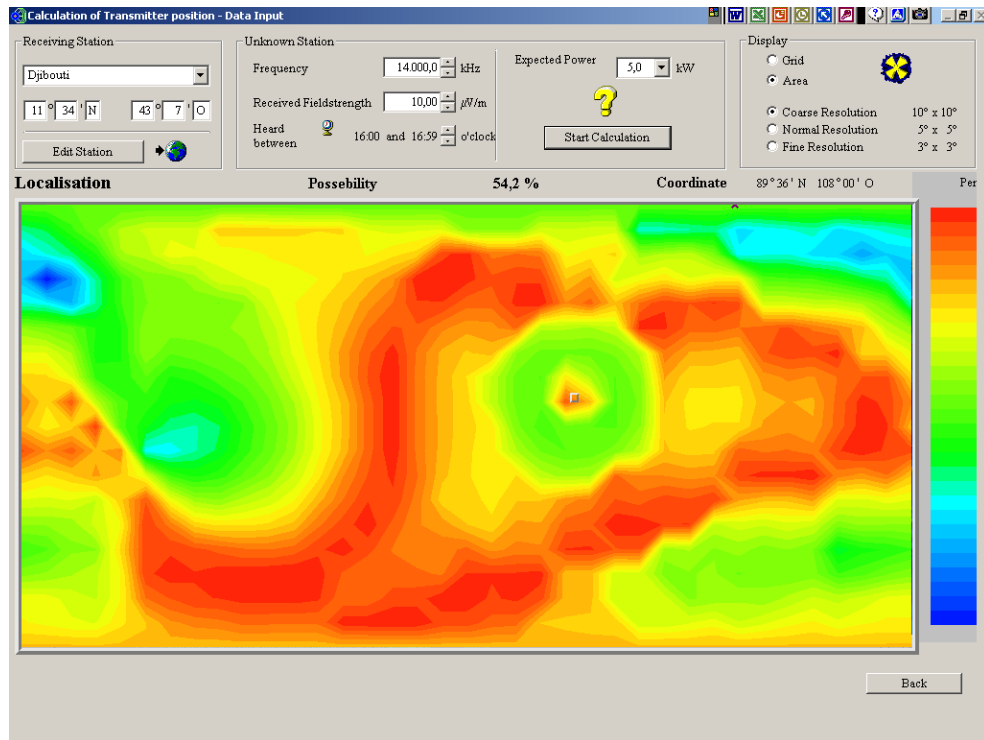


The calculation can be done for different resolutions of 10°, 5° and 3°. The time for the calculation will be longer accordingly.

### 16.4 Localisation

The button **Localisation** opens the form for calculating the probability of a transmitter in relation to the propagation.

For this calculation the receiving location, time, frequency and expected power must be selected.



The software will calculate the possible location and display it with different colors on the world map. The display can be selected from grid or area. Moving the mouse on the map will display the probability and the co-ordinate below the mouse pointer above the map.

The calculation can be done for different resolutions of 10°, 5° and 3°. The time for the calculation will be longer accordingly.

## 17. Copyright

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### Remarks

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Questions, remarks or suggestion are welcome.

Also bugs in the software and mistakes in the contents.

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