

Application Note

WAVECOM®
NACHRICHTENTECHNIK

WiNRADiO G313i and G315e with a W-CODE Decoder

The W-CODE decoder is able to process real-time input from various sources:

- ◆ external connectors,
- ◆ customer defined sound card inputs, and
- ◆ customer defined WAV-file inputs.

WiNRADiO is able to deliver IF and AF signals either as recorded WAV-files or as real-time signals via the PC or laptop sound card. Additionally by installing a WiNRADiO Digital Bridge Virtual Sound Card (VSC), the VSC is able to directly pass a digitized audio stream to third-party signal processing applications such as the W-CODE decoder, thus bypassing the native sound card and eliminating buff-

er overruns, degradation due to double conversion, and external cabling.

WiNRADiO provides both IF (i.e. the received signal is sampled before demodulation) and AF output. The IF signal is output as 16 bit stereo at sampling rate of 48 kHz, and the AF signal is output as 16 bit, mono at a sampling rate of 11.025 kHz.

Examples of modes that are decoded from IF are: AIS, Mobitex 8000, VDL-M2, dPMR, DMR TETRA and common FSK or PSK - in Wavecom terminology this type of modes are sometimes called “VHF/UHF DIR” modes.

WiNRADiO installation

Install the WiNRADiO software as directed; connect an antenna to the receiver antenna input and connect the external receiver to a PC or laptop via USB. Start the application by clicking its desktop icon. The main window will appear.



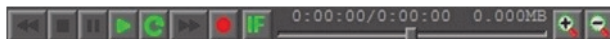
WiNRADiO G313i and G315e

Application Note





Recording, playback and real-time sound card output

WiNRADiO receivers are capable of recording both IF and AF (demodulated audio). Recording and

playback is controlled by standard buttons below the spectrum display of the main window.



Start and stop time are shown above the slider, and two volume buttons are placed to the right of the slider.

-  Start recording
-  Start playback
-  Start continuous playback (loop)
-  Select the IF-signal as recording input

The Setup button in the main screen gives access to the demodulator setup



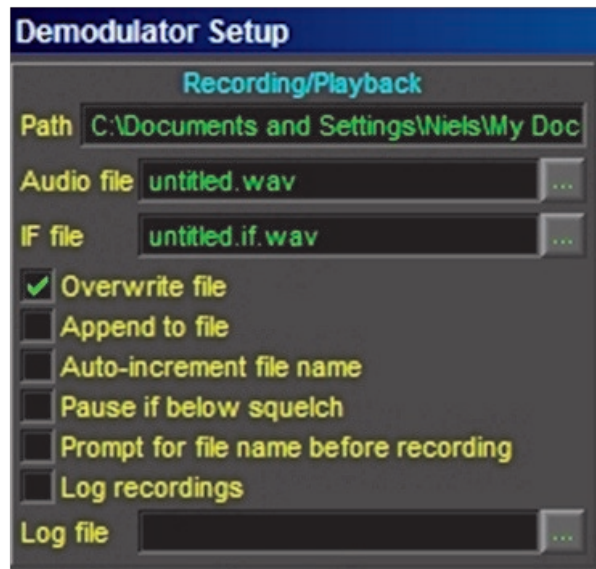
WiNRADiO G313i and G315e

Application Note

Recording/Playback setup

File paths and names as well as file operations may be configured. It is also possible to set up a log file for recordings.

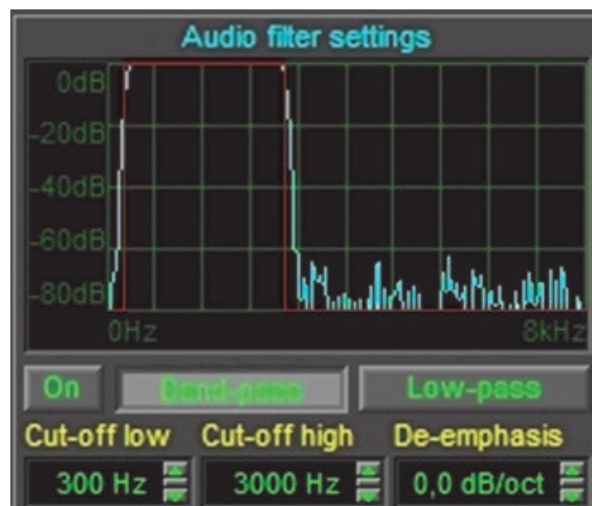
Audio Filter buttons on the Demodulator Setup screen should be used to disable the low-pass or band-pass filters. Alternatively the filters may be configured to provide the desired transfer function: this can be configured in the Audio filter settings section of the Demodulator Setup screen.



Be aware that when using the normal (headset or speaker) audio output of the sound card, high frequency output may be cut out depending on the specific sound card installed. To avoid this potential problem, use the line output where possible.

The recorded files may be played back for decoding via a W-CODE custom input: it is not recommended to use the output of the sound card and feed it to the W-CODE input.

For IF signals, the W-CODE decoder offset frequency may be set to 11.5 - 12.5 kHz.



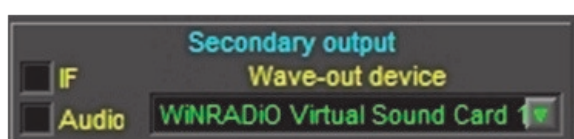
WiNRADiO G313i and G315e

Application Note

Secondary output

The Secondary output can be activated either for IF or AF signals. It is intended for third-party applications that need access either to the IF samples to demodulate transmissions not handled by the default demodulator, or for applications that use the

demodulated audio for further signal decoding. IF samples are output at 48 kHz sampling rate using two channels. Audio samples are passed at 11.025 kHz, one channel.



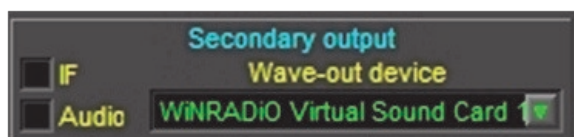
The secondary output is particularly useful in conjunction with the optional WiNRADiO Virtual Sound Card software, which makes it possible to pass the digitized signals from the receiver directly to a third-party application without any intervening re-digitization process, and therefore without intro-

ducing any additional distortion to the received signal. To the third-party application, the receiver will appear just like another sound card. Alternatively, it is also possible to use this feature to provide an output to an additional (real) sound card.

Virtual Sound Card (VSC)

To select the VSC from WiNRADiO, open the Demodulator Setup menu of the receiver by clicking the Setup button, and select WiNRADiO Virtual Sound Card from the Secondary output | Wave-out

device list. Then, check either IF or Audio to select the source signal mode. To use the VSC with a W-CODE decoder, a customer defined input must be configured as stated below.



W-CODE Custom Inputs

To set up a user defined input for VSC open Custom Inputs dialog by selecting Setup | Custom Inputs. In the dialog a user defined name can be given to the input, a device can be selected (file or sound card) and other parameters configured. When the new input has been created, it can be

saved and will then be selectable from the menu bar's Demodulator\Signal Input list. To delete a custom input, open the Custom Inputs dialog, select the input to be deleted from the list and click the Delete button. Be aware that the input gain for the custom inputs must be set manually.

WiNRADiO G313i and G315e

Application Note



Since more than thirty years Wavecom Elektronik AG has developed, manufactured and distributed high quality devices and software for the decoding and retrieval of information from wireless data communication in all frequency bands. The nature

of the data communication may be arbitrary, but commonly contains text, images and voice. The company is internationally established within this industry and maintains a longstanding, world-wide network of distributors and business partners.

Product Information

Products	http://www.wavecom.ch/product-summary.php
Datasheets	http://www.wavecom.ch/brochures.php
Specifications	http://www.wavecom.ch/product-specifications.php
Documentation	http://www.wavecom.ch/manuals.php
Online help	http://www.wavecom.ch/content/ext/DecoderOnlineHelp/default.htm
Software warranty	One year free releases and bug fixes, update by DVD
Hardware warranty	Two years hardware warranty
Prices	http://www.wavecom.ch/contact-us.php

System Requirements

	<i>Minimum</i>	<i>Recommended</i>
CPU	P4 Dual-Core 2.4 GHz	Core i5 or Core i7 2.8 GHz
Memory	2 GB RAM	4 - 8 GB RAM
OS	Windows XP	Windows 7 32-bit or Windows 7 64-bit

Distributors and Regional Contacts

You will find a list of distributors and regional contacts at <http://www.wavecom.ch/distributors.php>



WAVECOM ELEKTRONIK AG
8090 Zurich, Switzerland
E-Mail: sales@wavecom.ch
Internet: www.wavecom.ch