

# WAVECOM® W-PCIe-LAN

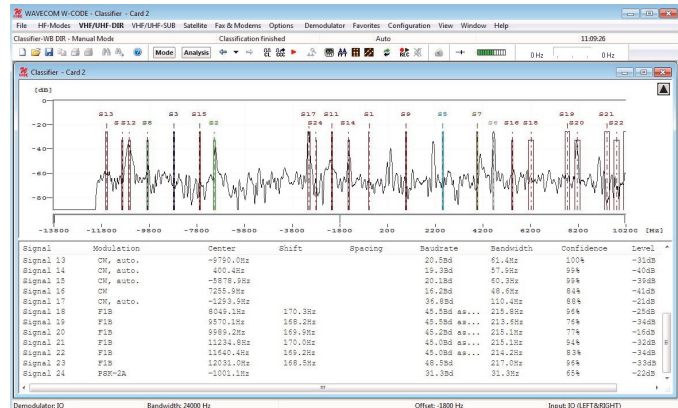


The W-PCIe-LAN decoder offers all the functions of the W-PCIe hardware and software decoder plus all the advantages of a compact and powerful computer system. The device is implemented in a ruggedized aluminium box with fanless cooling. W-PCIe-LAN offers two completely independent Digital Down Converter inputs (DDC) at IF and AF level and supports dual channel simultaneous decoding on one card. W-PCIe-LAN delivers a modern complete solution with various interfaces in hardware and software.

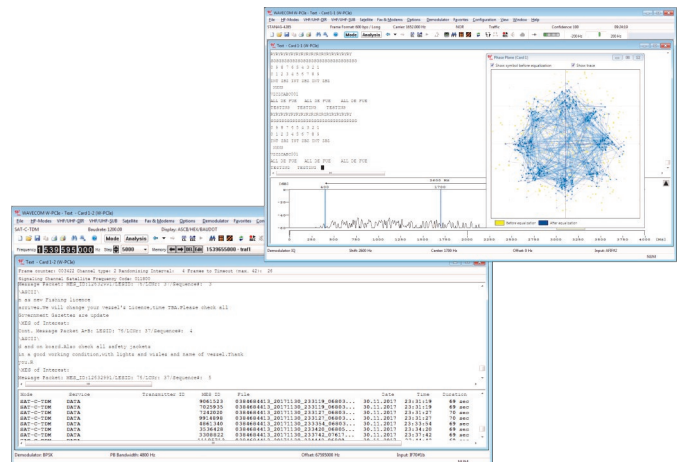


## W-PCIe-LAN Features and Facts

- ◆ W-PCIe-LAN provides all functions required to analyze, decode, record and process radio data communications throughout the radio spectrum from HF to SHF. Decoder software covers all functionalities of W-CODE.
- ◆ W-PCIe-LAN offers automated or manual monitoring of radio data and voice communications from HF to SHF bands.
- ◆ W-PCIe-LAN can be connected to a PC or notebook via LAN or may operate as a stand-alone system. As the W-PCIe-LAN operates from 9-30 V DC power sources, it is very well suited for mobile use.
- ◆ W-PCIe-LAN offers two high-quality DDC inputs with wideband frequency range. The DDCs extract the narrowband signal of interest from a broadband input signal. The extracted signal is then used for further analysis, decoding and recording.
- ◆ W-PCIe-LAN supports Software Defined Radios (SDR), W-CLOUD, VSC, standard VACs and all I/Q data or digital inputs.
- ◆ Built-in SSD (1 TB) suitable for wideband signal recording.
- ◆ W-PCIe-LAN supports remote control from other applications using third party software with TCP/IP and XML.
- ◆ A W-PCIe-LAN decoder can be controlled from anywhere across the network, and its output can be sent to one or more applications on the network.
- ◆ System components for radio monitoring and decoding can be individually configured according to the requirements of the customer.
- ◆ The host computer is in a ruggedized aluminium box. The cableless construction enables an easy plug-in of extension components and cards. This reduces failure risk later by loose cables.
- ◆ With the fanless cooling system W-PCIe-LAN is suitable to work in an adverse environment.



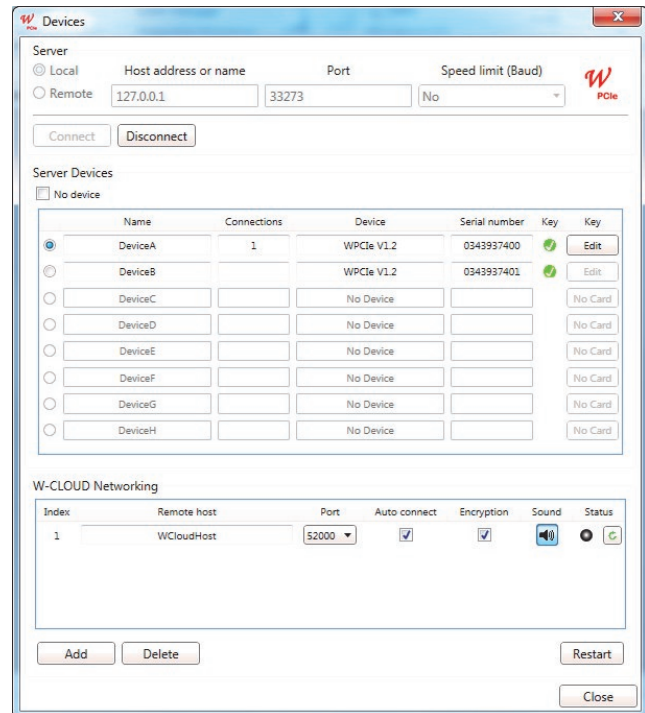
Classifier-WB display containing 24 identified signals



Simultaneous dual channel decoding on the W-PCIe-LAN: STANAG-4285 on AFIF#2 (channel 2) and SAT-C-TDM on IF70#1b (channel 1)

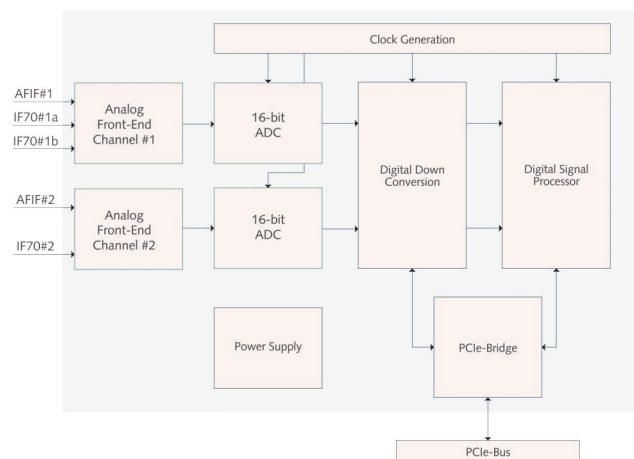
## Signal Sources and Devices

- ◆ Two lines of decoding on one card: genuine simultaneous dual channel decoding of two different signals.
- ◆ W-PCIe-LAN supports a great number of input interfaces and devices. The application processing the signal sources and devices for W-PCIe-LAN is compatible with W-CODE.
- ◆ A number of other interfaces, e.g. SDR I/Q data or digital TCP/IP input streams using W-CLOUD, IP-PXGF, Virtual Audio Cable (VAC) or WinRADiO Digital Bridge Virtual Sound Card (VSC) and built-in soundcard input with sampling rates of up to 192 kHz, are also available with W-PCIe-LAN.
- ◆ W-PCIe-LAN is tested with a number of SDRs, e.g. WinRADiO G33DDC and G39DDC, Grintek GRXLAN, Perseus, netSDR, SDR-IP, SDR-IQ, Rohde & Schwarz receivers and MEDAV LR2.
- ◆ W-PCIe-LAN supports direct digital I/Q input and output of WAV files with integrated Wavecom Media Player/Recorder.
- ◆ W-PCIe-LAN is suitable to run wide-band signal recording (W-REC) directly from antenna or 70 MHz IF output of a receiver.



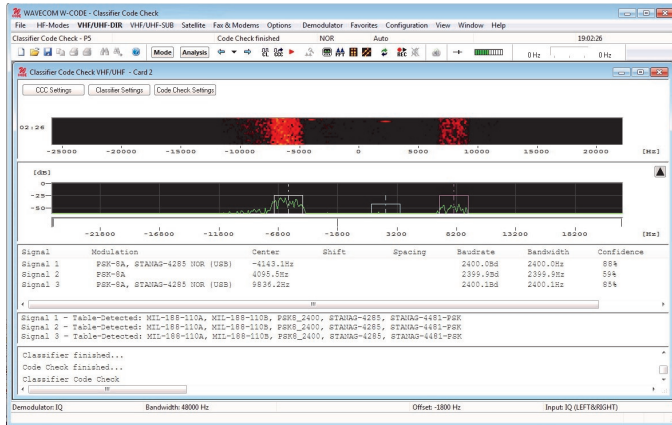
Device Selector in W-PCIe: one card is listed as two decoder instances for simultaneous decoding

- ◆ W-PCIe-LAN offers two completely independent DDC (Digital Down Converter) inputs at IF and AF level from 0 – 25 MHz or 70 MHz +/-17.5 MHz. The two DDCs extract the narrowband signal of interest from a broadband input signal.
- ◆ DDCs correspond to the well-known Software Defined Radio (SDR) technology.

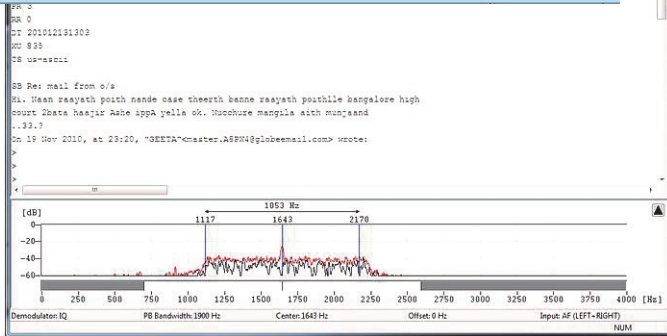


W-PCIe block diagram

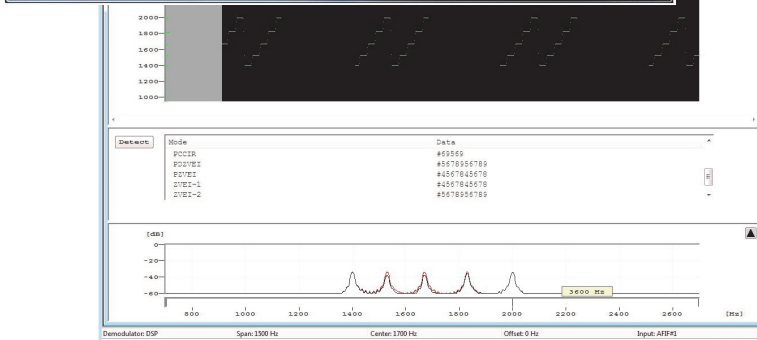
## Wide Range of Applications



Automatic Signal Classification



Data Decoding

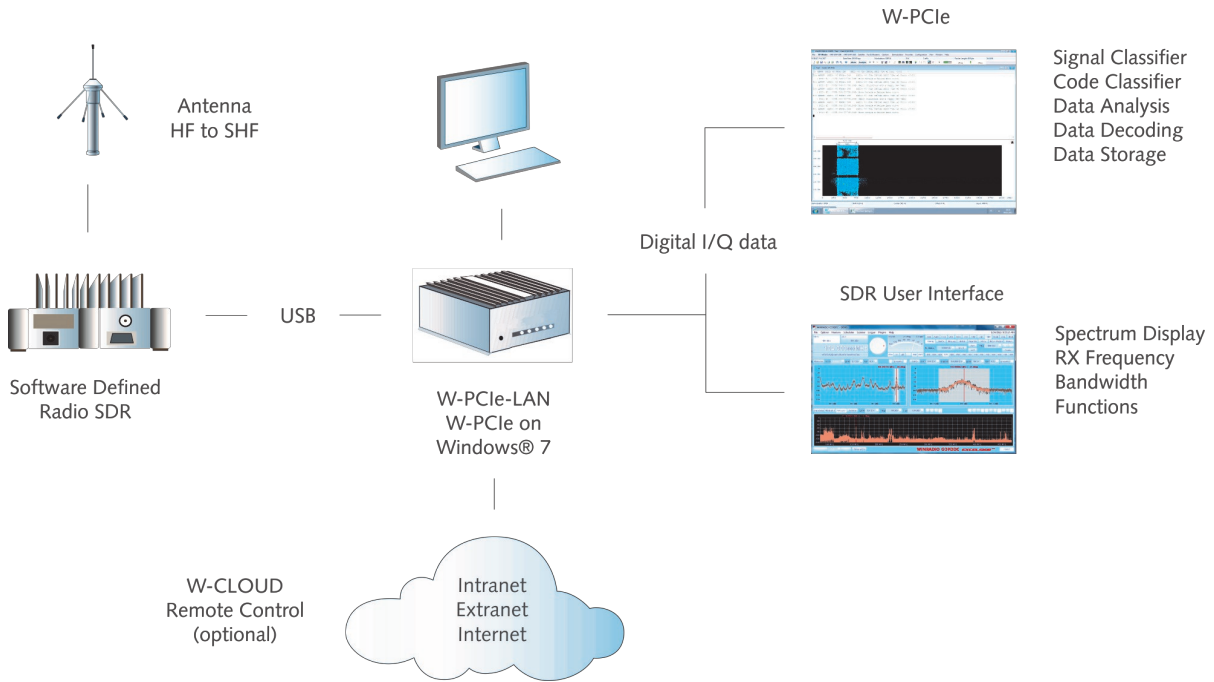


Signal Analysis

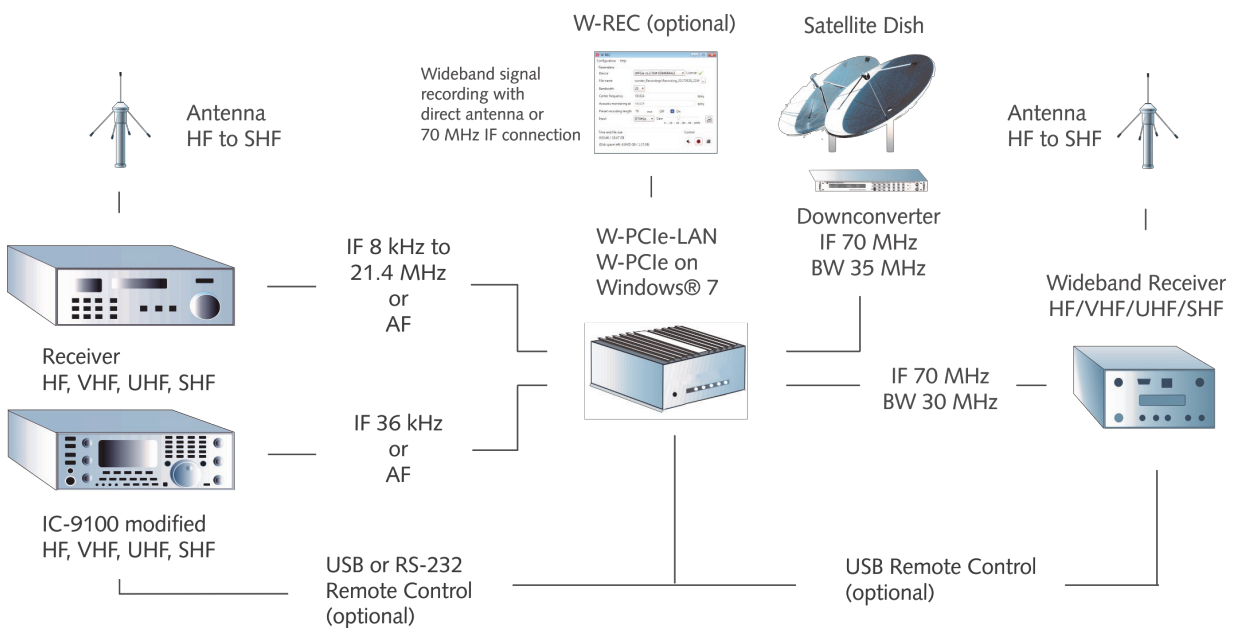
Bit Analysis

- Extraction (Mask)
- test STANAG 4285 Descrambler
- test Symbol Transcoding
- Extraction (Mask)
- test STANAG-4285 DeInterleaver
- test Stream setup for Viterbi
- Viterbi
- Mirroring
  - ASCII
  - UTF-8

## Practical Application



A W-PCle-LAN and WinRADIO SDR configuration







A W-PCle-LAN and IF receiver / downconverter configuration

# W-PCIe-LAN

Complete Decoder System





## W-PCIe-LAN Computer Specifications and Technical Data \*

Dimensions (L x H x W)	227 x 128 x 261 mm
Weight	8.4 kg
DC power requirement (typical values)	9—48 V DC, 120 W, 24 V / 5 A
AC power requirement (typical values)	100—240 V, 50-60 Hz, 1.4 A
Operating temperature	-40 °C to 70 °C (According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14) Typically 55 °C at full decoding and monitoring operation
Case temperature range	-40 °C to 70 °C
Storage temperature range	-40 °C to 85 °C
Relative humidity	10 to 90 % (non-condensing)
Operating system (OS)	Windows 10 Professional, 64-bit, English
CPU	Intel® Core™ i7-9700TE, 8 cores / 8 Threads
CPU Clock	Base Freq 1.8 GHz / Burst Freq 3.8 GHz
Controller	Desktop Intel® Q170 Platform Controller Hub
Memory	16 GB DDR4-RAM, PC2666, 260-pin memory DIMM
Hard disk (HDD) for operating system	250 GB, 7200, 64MB cache, 24h/7d
Solid state disk (SSD) for data storage	1000 GB, 560/530 MB/s, 1 GB cache
W-PCI-LAN	1 slot for W-PCI card 1 PCIe x 16 slot free
W-PCIe-LAN / W74LAN	1 slot PCIe x 16 for W-PCIe resp. W74PC card 1 PCI slot free
Ethernet / LAN	2 x 10MB/100MB/1GB
USB	2 x USB 3.0 (front), 4 x USB 3.0 (rear)
Serial ports	2 x RS232/422/485 (rear)
Audio	1 x Mic-in 1 x Line-out
Video	1 x DVI-I port, 2 x Display Ports (1 x front, 1 x rear) Intel® HD Graphics 530
Keyboard/Mouse	1 x PS/2 or USB
Conformity	  <small>Trade Name <b>WAVECOM</b> Model Number Nise 3500P2 Tested To Comply with FCC Standards</small>  

(\* ) Technical data in the table is reference value. Product photo on the cover may change.

## W-PCIe Card Specifications and Technical Data

Inputs	AFIF#1 and AFIF#2	IF70#1a, IF70#1b and IF70#2
Connector	SMA female	SMA female
Frequency range	50 Hz to 25 MHz	52.5 MHz to 87.5 MHz (SAW filter)
Bandwidth	5 kHz to 500 kHz	5 kHz to 500 kHz
Frequency raster DDC	1.0 Hz	1.0 Hz
Signal level	2 mVrms to 0.5 Vrms 20 mVrms to 2.5 Vrms with 20 dB attenuator (jumpered)	20 mVrms to 2.5 Vrms
Input impedance	> 1 kOhm	50 Ohm
Input max sampling rate	92.16 MHz	92.16 MHz
Input sampling rate jitter	1 ps (RMS 12 kHz to 20 MHz)	1 ps (RMS 12 kHz to 20 MHz)
Available for mode group	HF / VHF / UHF / Fax and Modem	HF / VHF / UHF / SAT

Card type	Half-size PCIe card (PCI Express)
Number of concurrent, independent inputs	2 AFIF#1 or IF70#1a or IF70#1b -with- AFIF#2 or IF70#2
Dimensions (L x W x H)	168 x 106 x 22 mm
Weight	0.15 kg
Power requirement (typical values)	+3.3V max. 1.0 A +12V max. 0.5 A
Bus interface	PCIe x1 Link 2 Gbit/s
Operating temperature range	0 °C to 50 °C
Case temperature range	0 °C to 55 °C
Storage temperature range	0 °C to 70 °C
Relative humidity	10 to 90 % (non-condensing)
A/D converter	AD9268 dual 16 bit ADC
Dynamic range	> 60 dB
Digital down converter DDC	FPGA Cyclone IV 55K
DSP	TI DSP320C6454
Watchdog for on-board generated voltages	Yes
Conformity	   

# W-PCIe-LAN

Complete Decoder System



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

## Ordering Information

Product Code	Description
WLANEP	Robust aluminium box standalone PC, with a W-PCIe card and decoder software on an in-card license
WHWL2	Second license for simultaneous decoding. Available for W-PCI, W-PCIe and W74PC cards
WLV	Vocoder live voice output to the speaker. Option for W-CODE, W74PC, W-PCIe, W-PCI and W-SPECTRA
WCPT	Decryption option to get clear voice and text. For W-CODE, W74PC, W-PCIe, W-PCI and W-SPECTRA

## Distributors and Regional Contacts

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



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