# WAVECOM® W-PCI-LAN

The W-PCI-LAN decoder offers all the functions of the W-PCI decoder hardware and software plus all the advantages of a compact and powerful computer system. The system is implemented in a ruggedized aluminium box with fanless cooling. W-PCI-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-PCI-LAN delivers a modern complete solution with various interfaces in hardware and software.
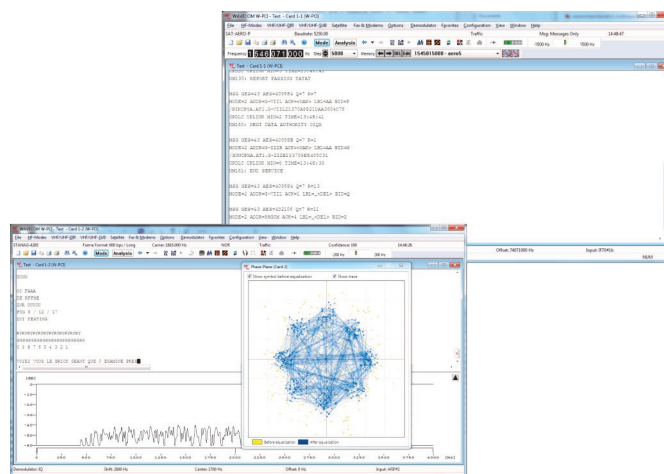
W-PCI-LAN
Complete Decoder System

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W-PCI-LAN Features and Facts

- W-PCI-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-PCI-LAN offers automated or manual monitoring of radio data and voice communications from HF to SHF bands.

- W-PCI-LAN can be connected to a PC or notebook via LAN or may operate as a stand-alone system. As the W-PCI-LAN operates from 9-30 V DC power sources, it is very well suited for mobile use.

- W-PCI-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-PCI-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-PCI-LAN supports remote control from other applications using third party software with TCP/IP and XML.

- A W-PCI-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-PCI-LAN is suitable to work in an adverse environment.
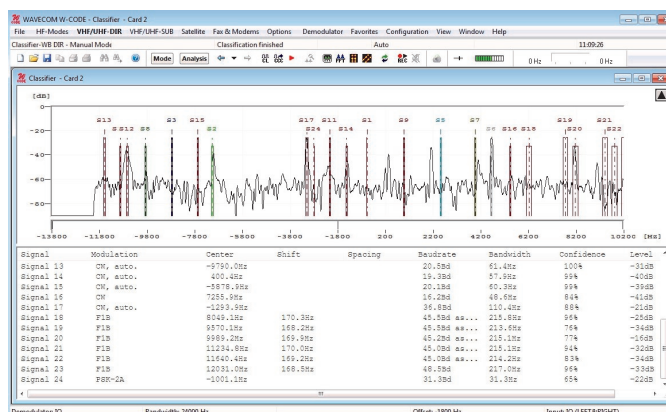
Classifier-WB display containing 24 identified signals

Simultaneous dual channel decoding on the W-PCI-LAN: STANAG-4285 on AFIF#2 (channel 2) and SAT-AERO-P on IF70#1b (channel 1)
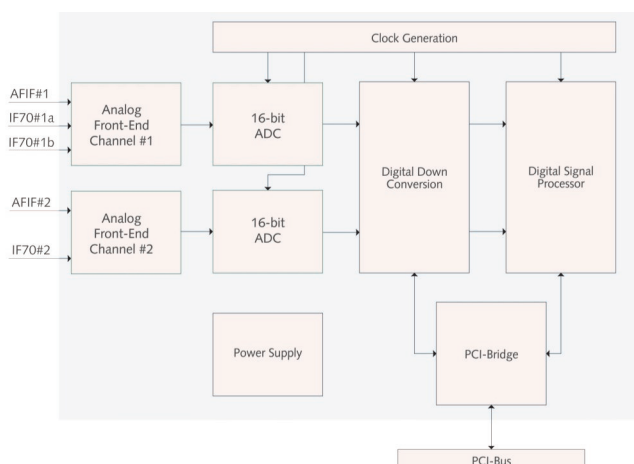
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Signal Sources and Devices

- Two lines of decoding on one card: genuine simultaneous dual channel decoding of two different signals.
- W-PCI-LAN supports a great number of input interfaces and devices. The application processing the signal sources and devices for W-PCI-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 WiNRA-DiO Digital Bridge Virtual Sound Card (VSC) and built-in soundcard input with sampling rates of up to 192 kHz, are also available with W-PCI-LAN.
- W-PCI-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-PCI-LAN supports direct digital I/Q input and output of WAV files with integrated Wavecom Media Player/Recorder.
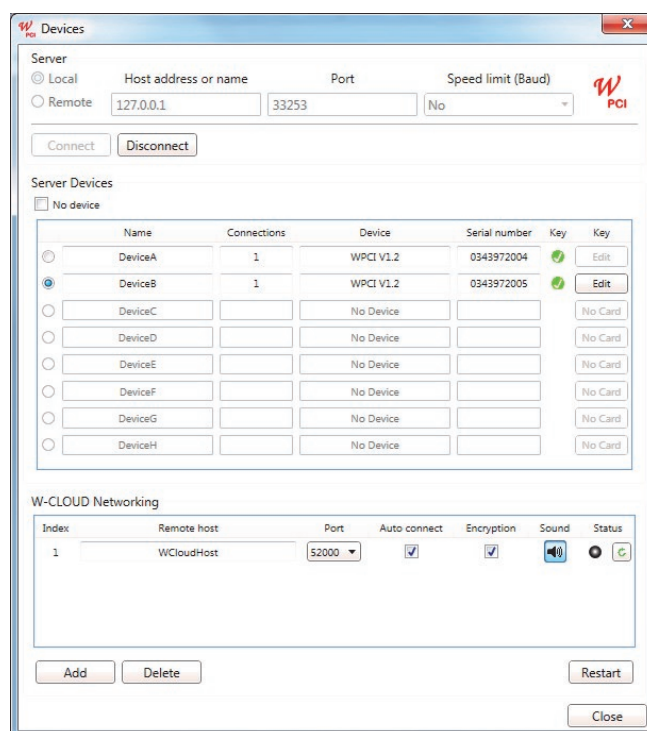

Device Selector in W-PCI: one card is listed as two decoder instances for simultaneous decoding

- W-PCI-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.
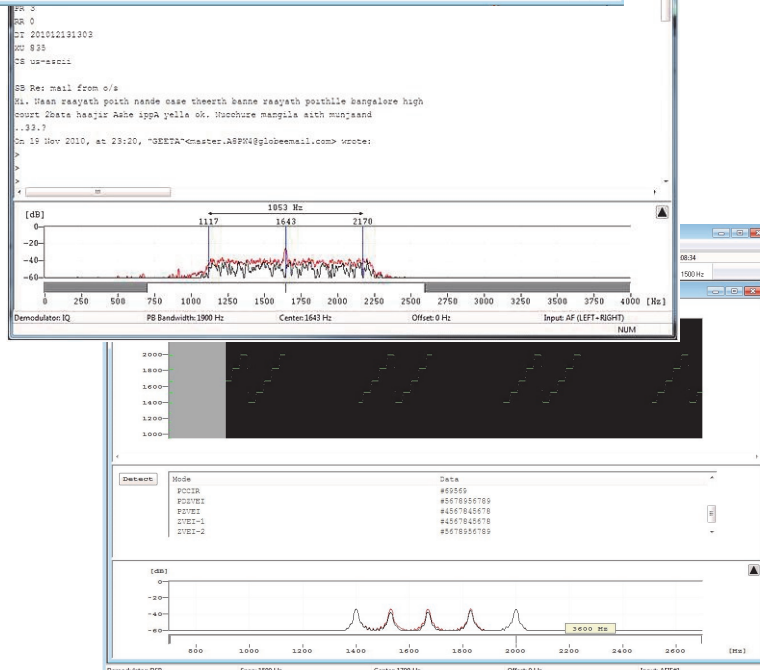- DDCs correspond to the well-known Software Defined Radio (SDR) technology.

W-PCI block diagram

W-PCI-LAN
Complete Decoder System
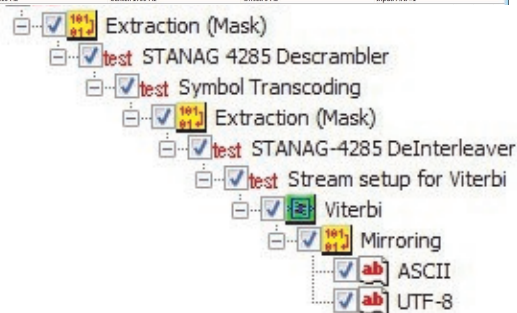
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Wide Range of Applications
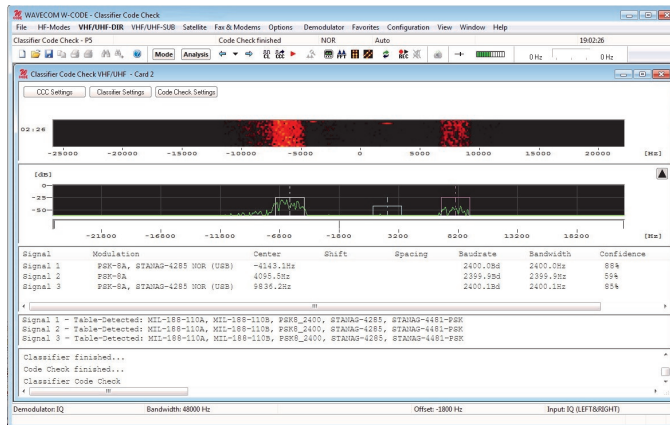
Automatic Signal Classification

Data Decoding

Signal Analysis

Bit Analysis

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Practical Application

W-PCI

Signal Classifier
Code Classifier
Data Analysis
Data Decoding
Data Storage

Antenna
HF to SHF

Digital I/Q data

SDR User Interface

USB

Spectrum Display
RX Frequency
Bandwidth
Functions

Software Defined
Radio SDR

W-PCI-LAN
W-PCI on
Windows® 7

W-CLOUD
Remote Control
(optional)

Intranet
Extranet
Internet
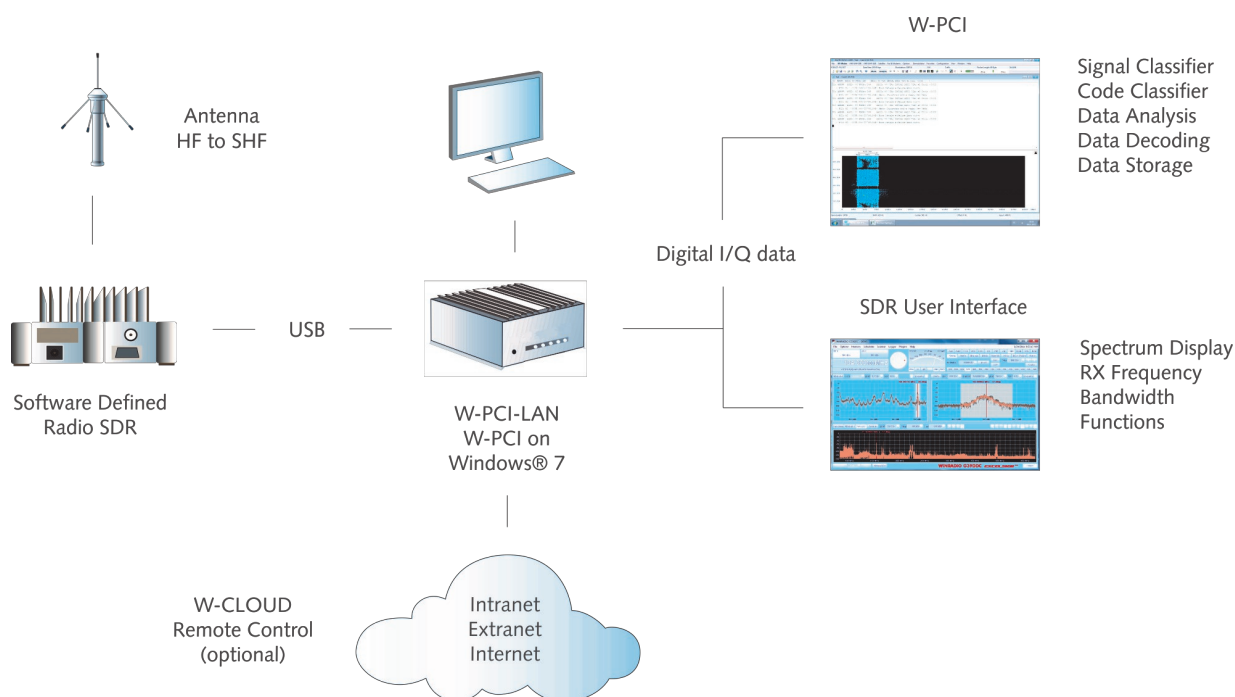
A W-PCI-LAN and WiNRADiO SDR configuration

Antenna
HF to SHF

Satellite Dish

Antenna
HF to SHF

IF 8 kHz to
21.4 MHz
or
AF

W-PCI-LAN
W-PCI on
Windows® 7

Downconverter
IF 70 MHz
BW 35 MHz

Wideband Receiver
HF/VHF/UHF/SHF

Receiver
HF, VHF, UHF, SHF

IF 70 MHz
BW 30 MHz

IF 36 kHz
or
AF

IC-9100 modified
HF, VHF, UHF, SHF

USB or RS-232
Remote Control
(optional)

USB Remote Control
(optional)
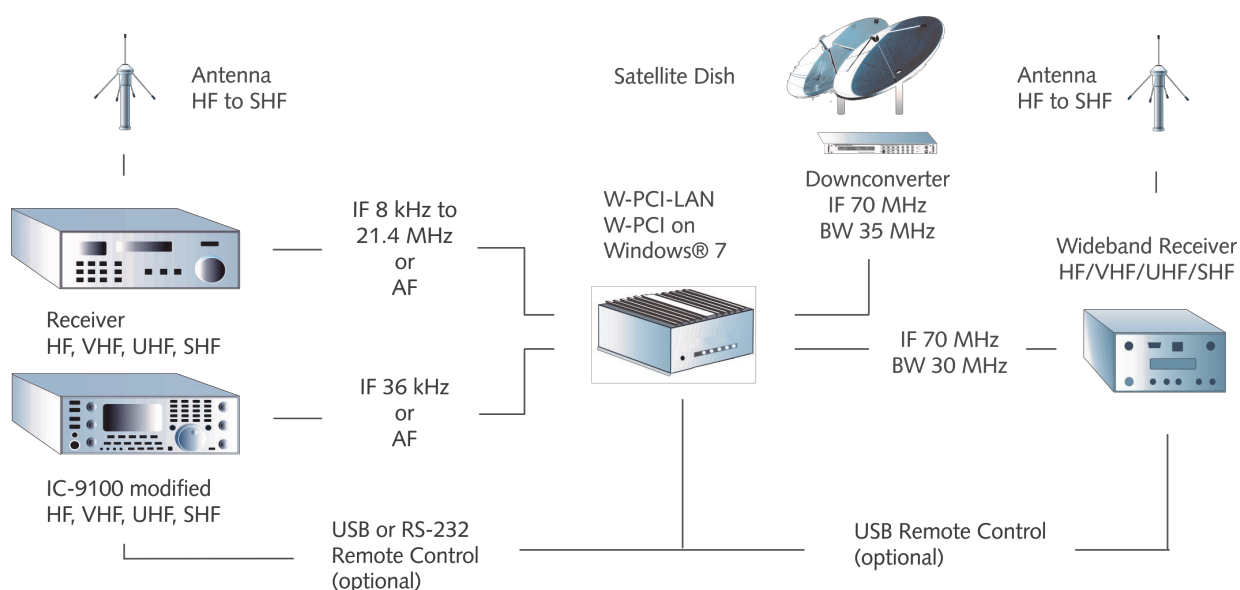
A W-PCI-LAN and IF receiver / downconverter configuration

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W-PCI-LAN Computer Specifications and Technical Data *	
Dimensions (L x H x W)	227 x 126 x 216 mm
Weight	7.0 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 7 Professional, 64-bit, English
CPU	Intel® Core™ i7-6700TE, 8MB cache, Quad-core
CPU Clock	2.4 GHz
Controller	Desktop Intel® Q170 Platform Controller Hub
Memory	8 GB DDR4-RAM, PC2133, 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, 540 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	CE FC Trade Name NEXCOM Model Number Nise 3500P2 Tested To Comply with FCC Standards cen CENELEC EN 60601 Compliant RoHS

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

W-PCI-LAN
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W-PCI 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 PCI card
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 @ 1.0 A +12V @ 0.4 A
Bus interface	32-bit 3.3V PCI slot 100 Mbytes/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 II 50K
DSP	TI DSP320C6454
Watchdog for on-board generated voltages	Yes
Conformity	CE ISO 9001 ISO 14001 RoHS

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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 and Ordering Information

	Minimum	Recommended
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

Product Code	Description
WLANP	Robust aluminium box standalone PC, with a W-PCI 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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WAVECOM ELEKTRONIK AG
8090 Zurich, Switzerland
E-Mail: sales@wavecom.ch
Internet: www.wavecom.ch