IEEE DySPAN Demonstrations 2008

Demonstrations Summary by Co-Chairs

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www.ieee-dyspan.org/2008

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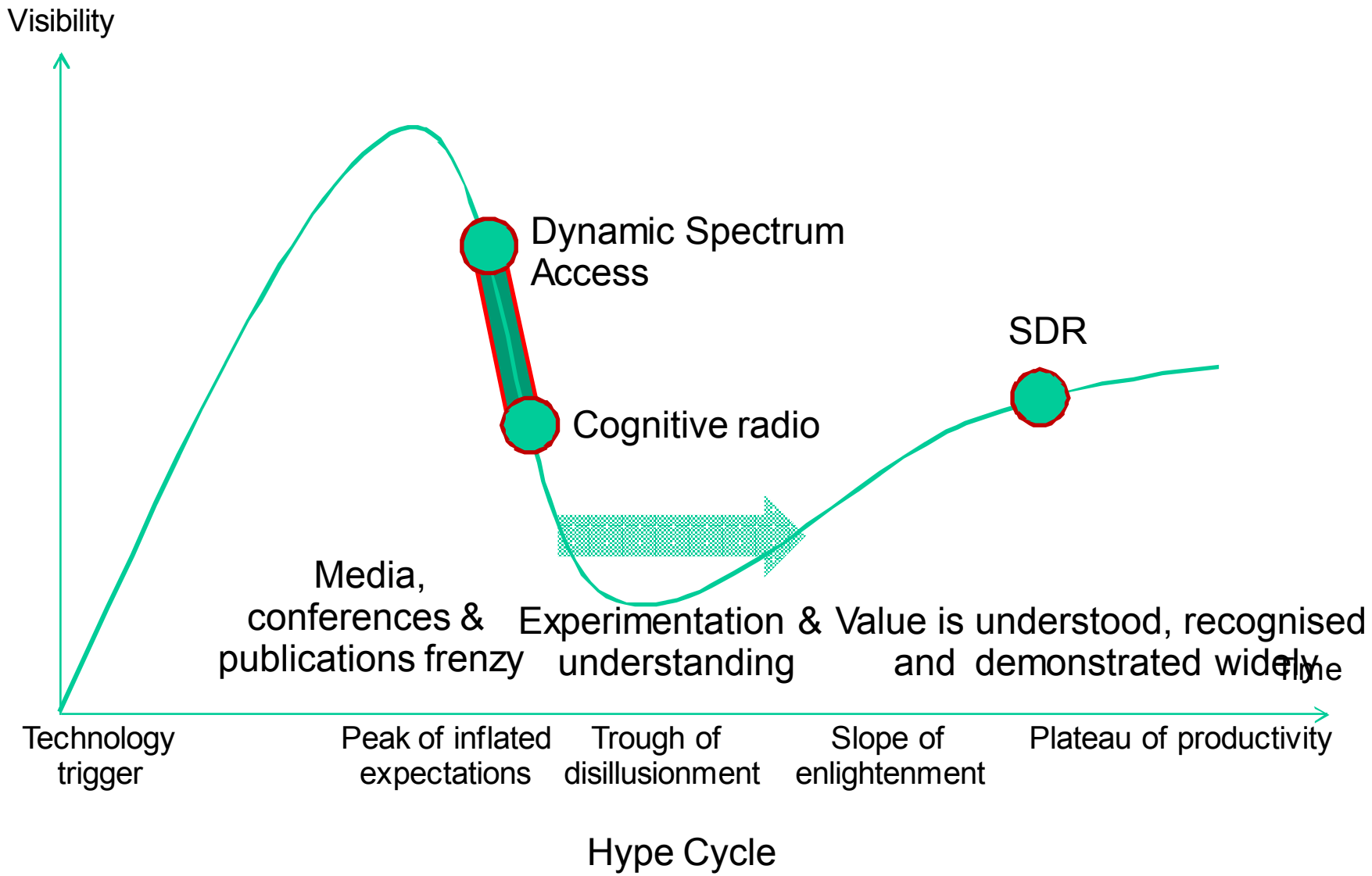
IEEE DySPAN 2008

- Demonstrations have been a key part of the conference
  - These included groups involved in the FCC white-space spectrum tests.
- We had a special temporary authority licence from the FCC
  - Using part of the TV band
  - ctvr was the licensee
  - All the demonstrators could avail of it

Demonstrations and experimentation are crucial to understanding the real value proposition in cognitive radio and dynamic spectrum access networks

Motivation: push through the hype



Hype Cycle

A big thanks to all of the demonstrators

Motorola

I^2R

Shared Spectrum Company

CTVR at Trinity College Dublin

University of Utah

Adaptrum

OMESH

Stevens Institute

Philips

University of South Florida

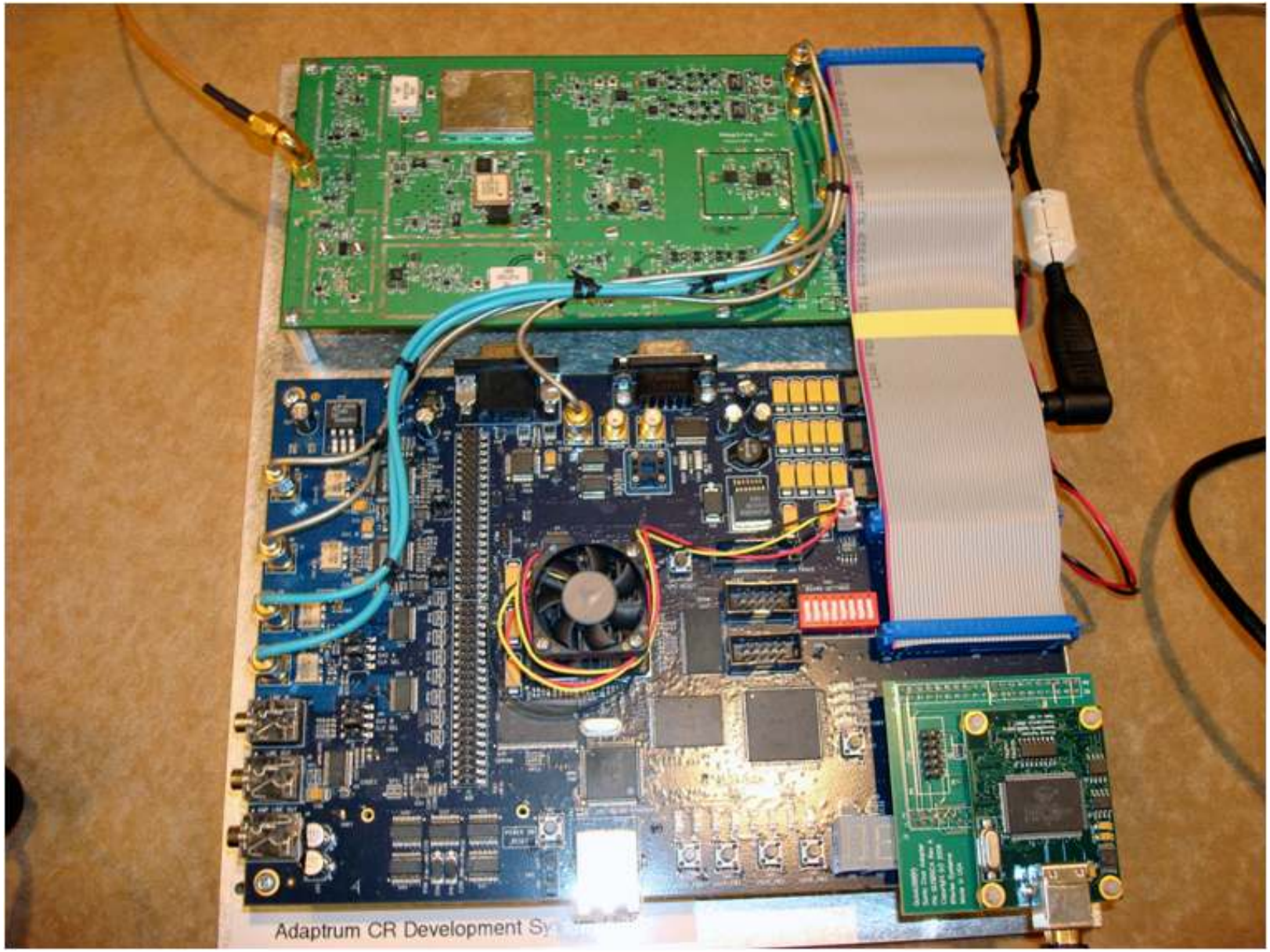
CWT at Virginia Tech

Rockwell-Collins

TU Delft and University of Twente

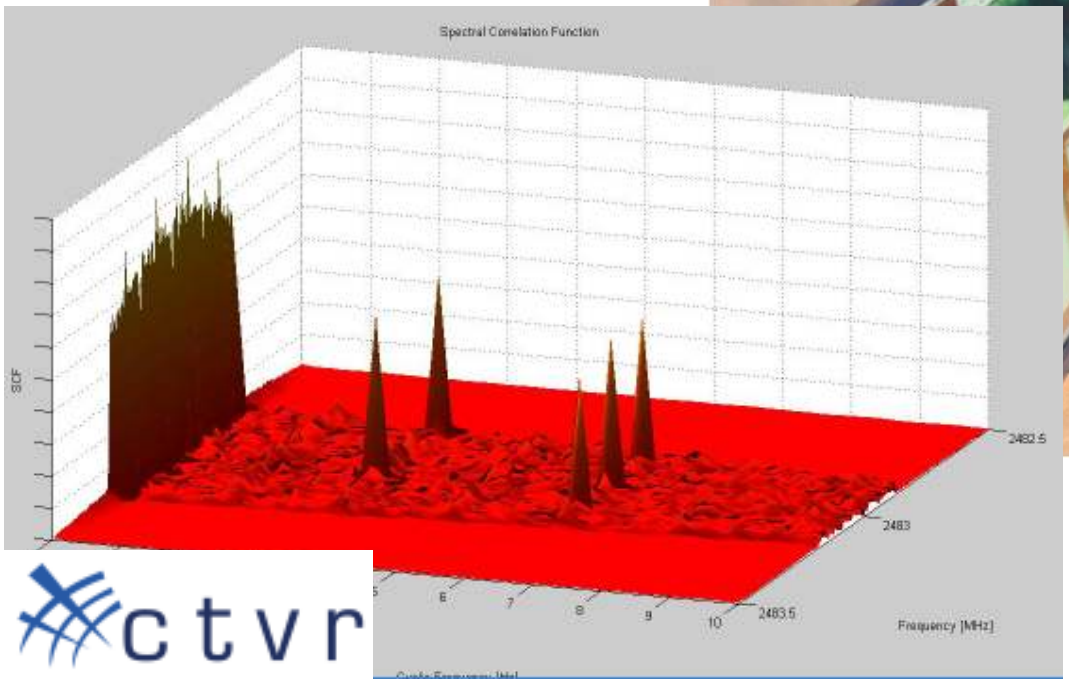
Adaptrum (USA)

Real-time TV white space detection



Centre for Telecommunications Value-Chain Research (Ireland)

Reconfigurable radio on GPP,. FPGA, Cell BE, cyclostationary feature detection and dynamic frequency bandwidth estimation



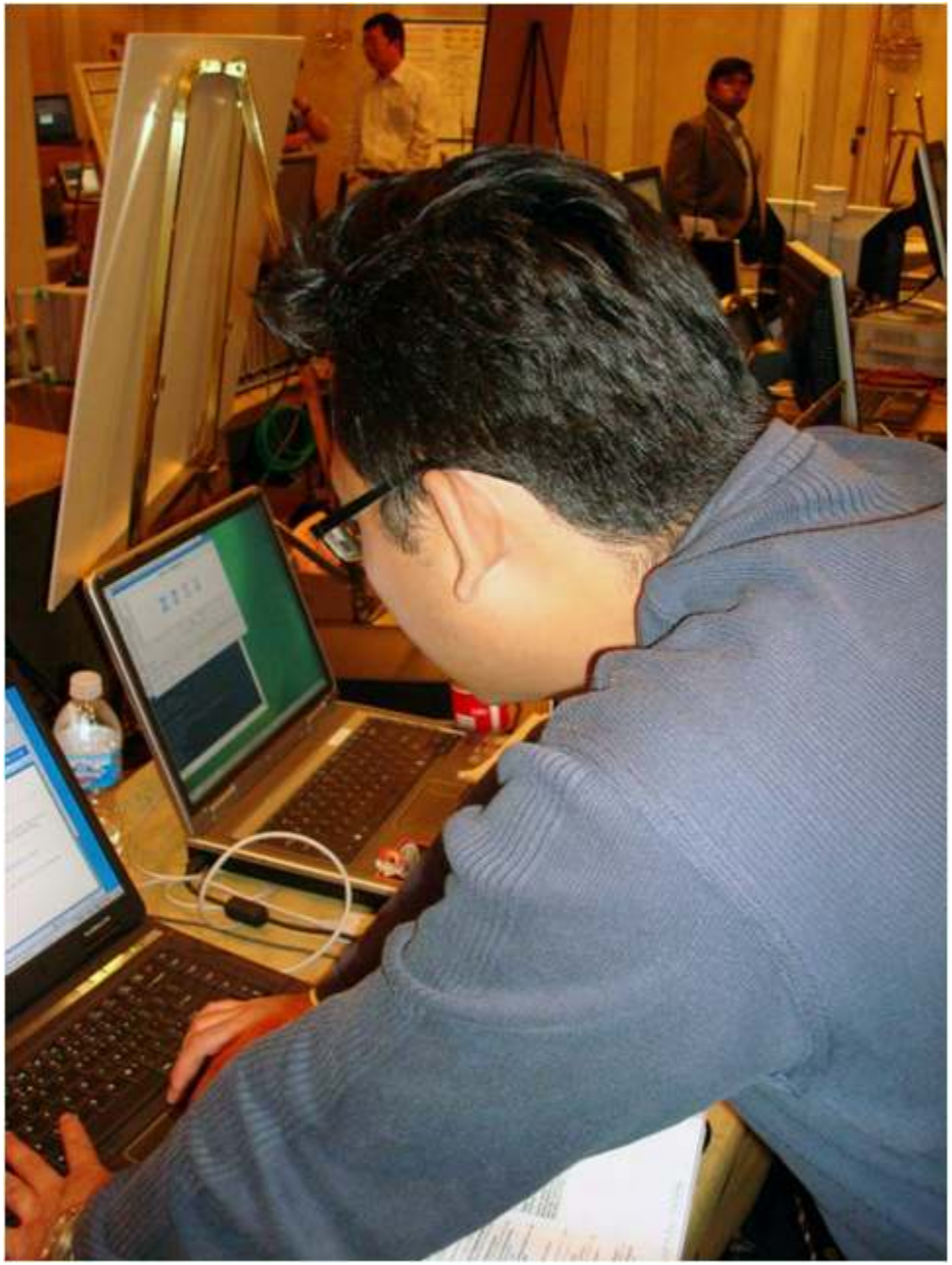
ctvr

Centre for Wireless Telecommunications, Virginia Tech (USA)

- A heterogeneous cognitive radio network, cooperative spectrum sensing, dynamic spectrum access and interoperability,
- A dynamic cellular cognitive system

Delft University of Technology (The Netherlands)

A dynamic spectrum access system employing adaptive carrier selection and intelligent spectrum sensing techniques on multiple platforms.



Institute for Infocomm Research (I2R) (Singapore)

A white-space device prototype using a covariance-based signal detection method, which is signal independent and applicable to any signal waveform or system.

Motorola (USA)

A cognitive radio system operating in TV white space UHF spectrum, utilizing geolocation functionality and supporting dynamic channel selection for the avoidance of incumbent (e.g. DTV) users.

OMESH Networks (Canada)

A large-scale cognitive wireless network that opportunistically utilizes network resources including spectrum bandwidth and radio availability to realize reliable wireless communications.

Philips Research (USA)

A prototype dynamic spectrum access system that can quickly and robustly sense spectrum availability, use medium access control (MAC) protocols that allow seamless and autonomous multichannel operation, and provide quality of service (QoS) guarantees in the face of channels becoming unavailable due to the appearance of incumbents.

Rockwell Collins (USA)

A low-power, small-form-factor spectral sensor and robust maximum likelihood classifier algorithm to detect and classify real world signals.

Shared Spectrum Company (USA)

A high-level policy language, policy-based radio control, operation using a small, low cost general purpose processor, and improved building penetration using multi-band operation.

University of South Florida/Anritsu (USA)

Using a tree-based algorithm to detect, evaluate, and identify signals, including information such as bandwidth, centre frequency, and power level

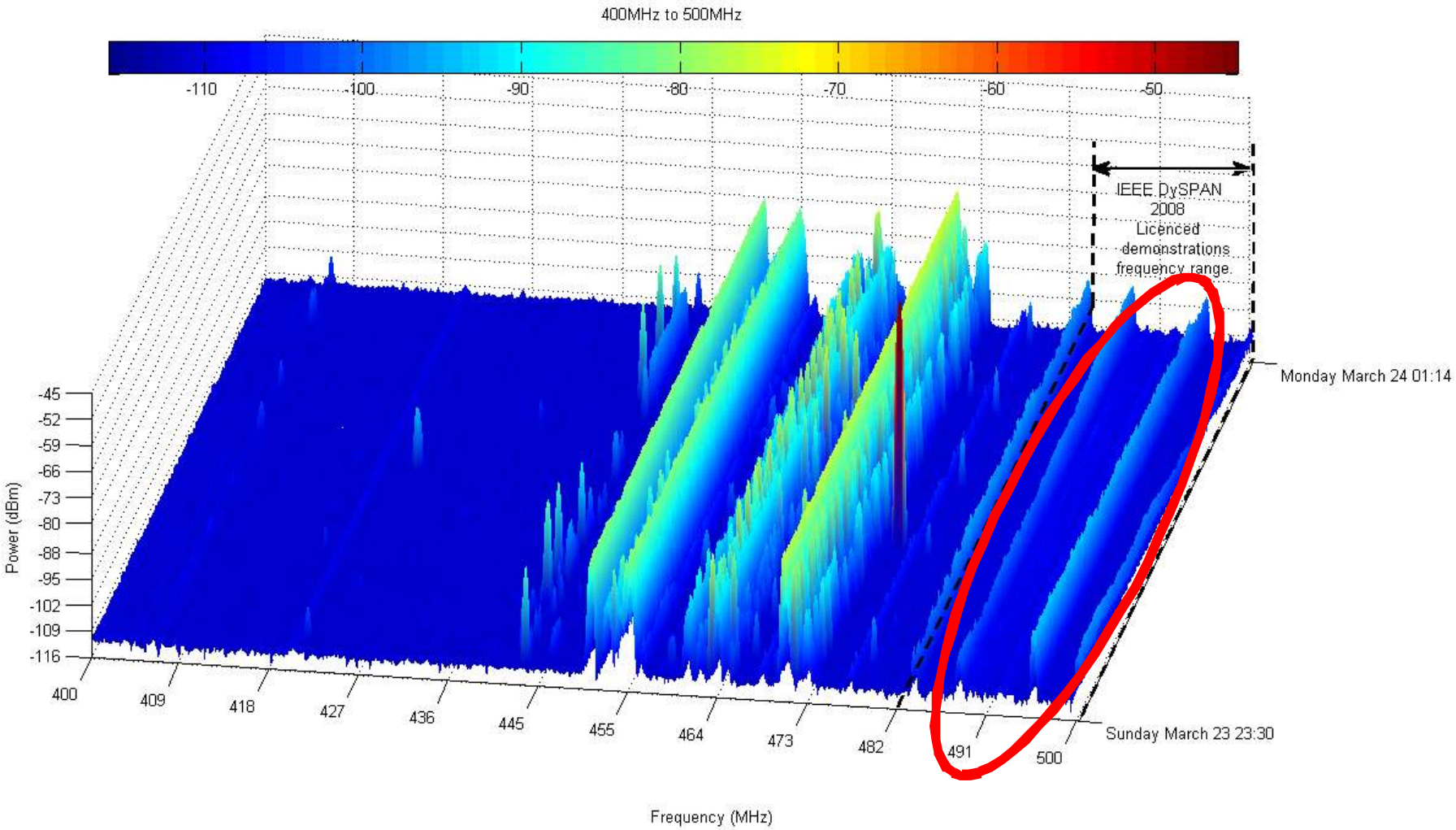
Stevens Institute of Technology (USA)

A cognitive radio IEEE 802.11 MAC air-interface called *SpiderRadio* that can perform spectrum sensing to detect any unused frequency channel in the allowable spectrum bands.

University of Utah (USA)

Reliable detection of white space spectrum using a sensing mechanism with a high spectral dynamic range using embedded, real-time cognition algorithms.

Spectral Occupancy (400-500MHz)



Measured during March 2007 in the DySPAN 2008 venue. A measurements pack including a Matlab plot generation script is available for free download from the demonstrations webpage at www.ieee-dyspan.org/2008

DySPAN 2008 STA Details

Frequency (MHz)	Emission Designator	Authorized Power	Location	Effective Dates
482-500	6M00D7W 6M00D7W 6M00D7W 25K0F3E 12K5F3E 1K00NON	500mW	Chicago, IL NL 41-53-59; WL 87-37-24	Oct. 11 to Oct. 18, 2008 (0300 EST)

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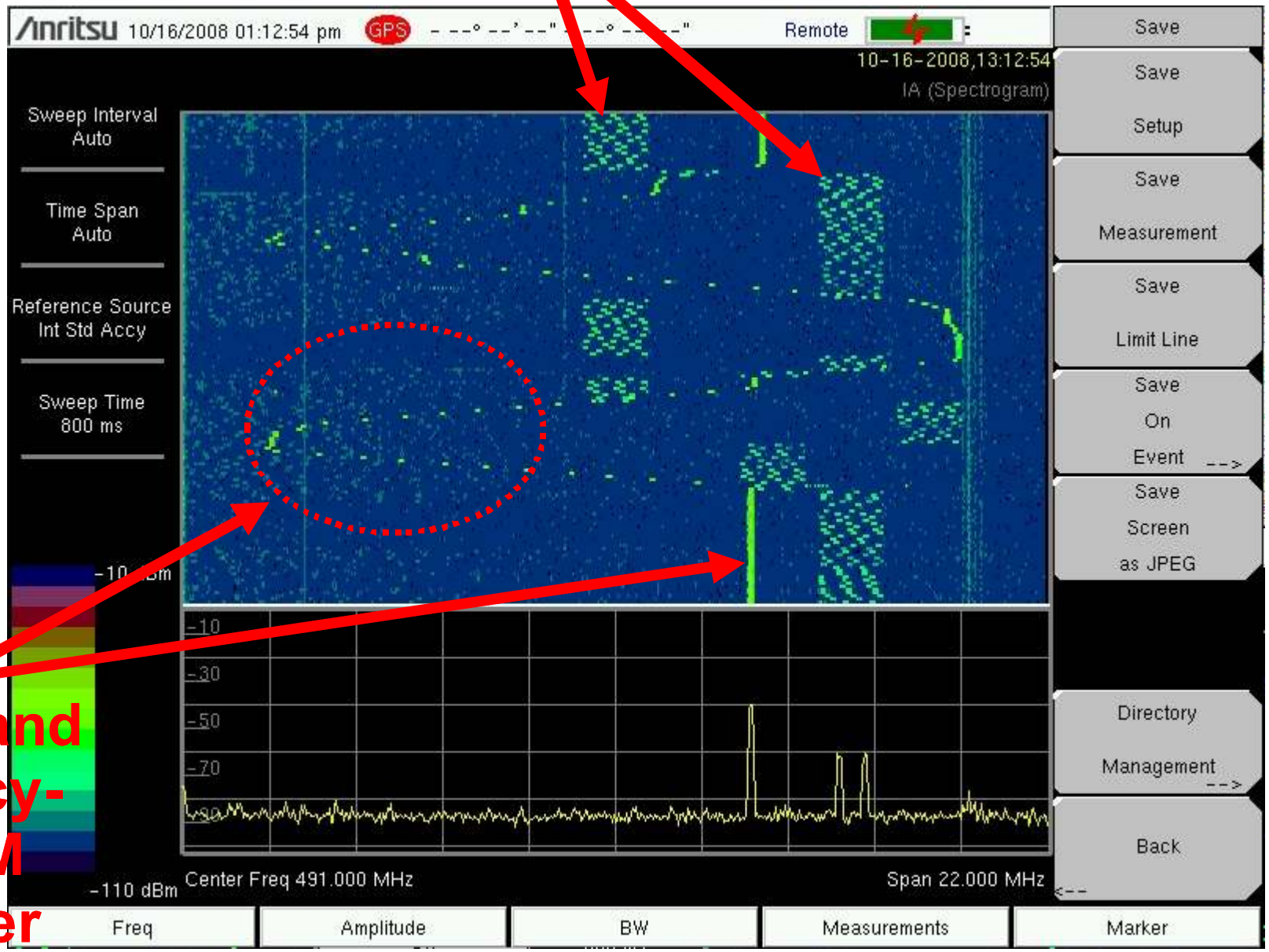
Shared Spectrum



Narrowband frequency-agile FM interferer

This video is available at
www.youtube.com/emergingnetworks

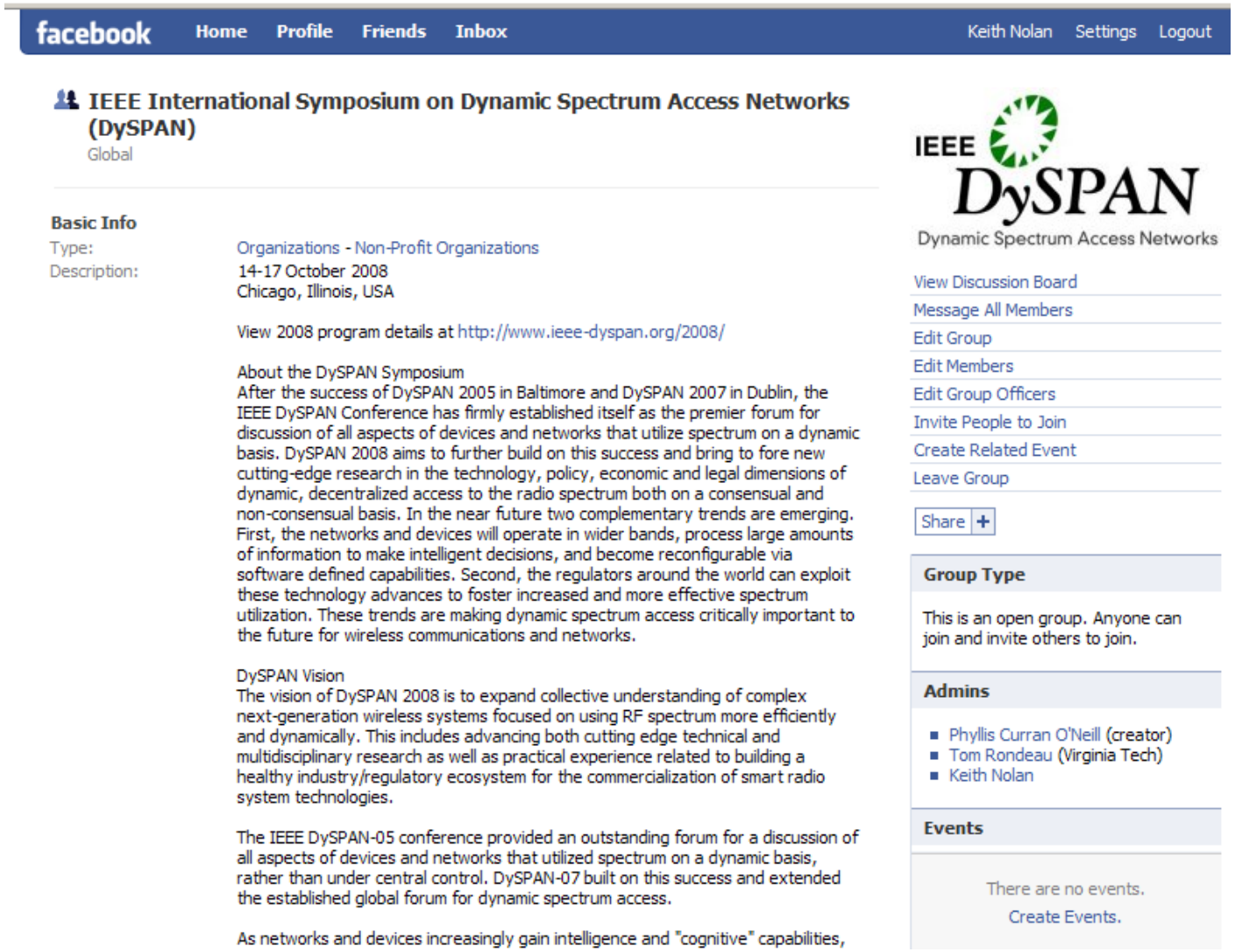
Bringing Web2.0 to DySPAN

- Keep up with everything going on by signing up and following twitter.com/dyspan and .Pownce.com/dyspan
- Join the DySPAN facebook group to see and post notes and images.
- News, announcements, and other happenings were posted here all week long
- See everything at the demonstrations screen and on YouTube

IEEE DySPAN 2008 on twitter (twitter.com/dyspan)

IEEE DySPAN 2008 on Pownce (pownce.com/dyspan)

IEEE DySPAN 2008 on facebook (http://tinyurl.com/3j3w2q)
An open Facebook group called DySPAN



IEEE DySPAN 2008 on YouTube (www.youtube.com/emergingnetworks)

Sincere thanks to:

- All of the demonstrators and participants
- IEEE DySPAN committee
- IEEE Comsoc
- FCC and NTIA
- Anritsu
- WINCOM at IIT
- Knickerbocker Hotel
- Mike Piercefield

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