Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: Status of the IWPC MoGIG (Mobile Multi Gigabit (MoGIG) Wireless Networks and Terminals) Working Group and industries move to Nanocells

Date Submitted: July 5 2012
Source: David Britz Company AT&T Labs Shannon Laboratories
Address 180 Park Ave Florham Park, NJ 07932, USA
Voice: 973 236 6913, FAX: 973 360 5877, E-Mail: dbritz@research.att.com

Re: general Contribution

Abstract: Discussion of the newly formed IWPC MoGIG working group who’s focus is on the network and equipment aspects of small cell and nanocell millimeter Wave and THz based street level infrastructure. More so how this Industry working group may align its objectives and collaborations with the 802.15 THz IG to insure network and device standards comply with spectrum and 802.15 requirements

Purpose: Support material for 802.15 THz Interest Groups focus and activities

Notice: This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.

Release: The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.
Our Mission is to organize very specific Workshops to meet the needs and interests of the industry, our members, and the Original Systems Specifiers (Carriers, Automakers, Gov’t Agencies, etc). These Workshop topics are suggested by our Members and others in the industry.

In addition, we organize and run Working Groups to address those topics which need additional and ongoing industry collaboration to reach specific goals and conclusions. These Working Groups are proposed by our Members and/or the Original Systems Specifiers.
IWPC Industry and Research Community
So what the heck is MoGIG?

To date MoGIG WG has 60 members from Industry and science.

Our focus and goal is to;

Conceive, design and demonstrate a multi-gigabit mobile broadband wireless nanocell as an extension beyond Small Cell and HetNet based Phy layer platforms. Nanocells will be capable of transporting, routing and delivering “big data” wirelessly at 10+Gbps.
Envisioning Multi Layered Communications and Interactive Sensor “Cloud” Wireless Networks

My thanks to Robert Miller, AT&T Shannon Labs
So where's the spectrum

- Huge spectrum resources above 300GHz – largely untapped
- 200GHz of spectrum (Fixed and Mobile) between 10GHz – 300GHz, and above 100GHz currently no allocation
- 50GHz of spectrum (Fixed and Mobile) between 20GHz and 100GHz
- 200GHz worth of THz spectrum 300-600GHz
- Of this spectrum what bands overlap in global market for new generation of data and M2M mobile wireless super channels

My thanks to Dr. Thomas Kuerner, Technische Universität Braunschweig
The First Steps... Small Cell street level cell phone connectivity with 60+GHz backhaul
The Solution...
Nanocell street level smartdevice connectivity with 60-600GHz backhaul and directional beams
MoGIG Committee Focus

1. **State of the Art Review**  
   Chair: Dr. Lothar Moeller, Alcatel Lucent

2. **Use Cases Study Group**  
   Chairs:  
   Dave Britz, AT&T  
   Dr. Thomas Kuerner, Technische Universität, Braunschweig

3. **Network Architecture Options Study Group**  
   Chairs:  
   Dr. Philip Pietraski, InterDigital Communications  
   Gregg Charlton, InterDigital Communications  
   Dave Britz, AT&T

4. **Channel Modeling Study Group**  
   Chairs:  
   Dr. Wilhelm Keusgen, Fraunhofer Inst.  
   Michael Peter, Fraunhofer Inst.

5. **Physical Layer Study Group**  
   Chairs:  
   Dr. Wilhelm Keusgen, Fraunhofer Inst.  
   Sebastian Priebe, Technische Universität Braunschweig

6. **Global Spectrum availability and harmonization Study Group**  
   Chair: Dave Britz, AT&T

7. **RF Front End Technologies – Antennas Study Group**  
   Need chair

8. **RF Front End Technologies – Transceivers Study Group**  
   Need chair

9. **RF Front End Technologies – Semiconductors Study Group**  
   Chair: Dr. Steven Sarkozy, Northrop Grumman

10. **Demonstrator realization Study Group**  
    Chairs:  
    Steve Wilkus, Alcatel Lucent  
    Dr. John Federici, NJIT  
    Dr. Steven Sarkozy, Northrop Grumman
MoGIG Organizational Status

Advisory Team:
Robert R Miller, AT&T Labs Shannon Laboratories
Dr. Thomas Kuerner, Technische Universität Braunschweig
Sebastian Priebe, Technische Universität Braunschweig
Dr. Philip Pietraski, InterDigital Communications
Dr. Hossam H'MIMP, Ericsson Inc
Dr. Michael Marcus, Marcus Spectrum Solutions LLC
Doug Lockie
Stephen Wilkus, Alcatel Lucent
Dr. Lothar Moeller, Alcatel Lucent
Dr. Steven Sarkozy, Northrop Grumman
Dr. John Federici, NJIT
Dr. Wilhelm Keusgen, Fraunhofer Inst.

<table>
<thead>
<tr>
<th>Work package</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
<th>4th year</th>
<th>5th year</th>
<th>6th year +beyond</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: White Paper</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2a: Phy, Mac</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2b: Spectrum allocation</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3: Infrastructure and architecture</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4a: Demonstrator</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>4b: Field trial</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Submission Slide 13 D. Britz, AT&T Shannon Labs
Inter-organizational collaboration?

Sharing of focus and technical expertise for a common goal

How do we do it, what are the questions we haven't asked???