802.19 Coexistence PAR

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Abstract

This is a work in process draft of the presentation supporting the 802.19 Coexistence PAR at the 802 EC Meeting in November 2009.

TV White Space Opportunity

- **Regulators Are Opening Up New Spectrum By Allowing Special Access To Unused TV Channels**
  - The US FCC Makes This Available Unlicensed
  - Other Regulators Have Proposed Combinations of Licensed and Unlicensed
  - Additional Spectrum Is Welcomed By 802
- **The Spectrum Is Available to Support All 802 Wireless Standards**
  - 802.22 and 802.11 Are Working To Develop Standards To Address:
    - Regulatory Requirements
    - Perceived Use & Business Cases
  - Other 802 Groups May Follow
- **Regulators Specify Means of Protecting "Incumbents" such as:**
  - Broadcasters
  - Wireless Microphones
  - CATV Headends

Coexistence Problem

- **Regulators Allow All Users/Standards to Enter White Space**
- **If Different Users, Employing Different 802 Standards Enter the Same Channel in the Same Location They Will Interfere With Each Other**
  - For Example CSMA/CA & TDMA
- **Regulators Are Leaving Coexistence Problem to Industry**
  - Speed Deployment
  - Maximize Innovation Over Time
- **802 Solution**
  - Initiate Standard Development Effort For Coexistence Mechanisms That Will Provide a Good User Experience For all 802 Standards Users in TV White Space
  - Make the 802 Coexistence Mechanisms Available to non 802 Wireless Standards Groups

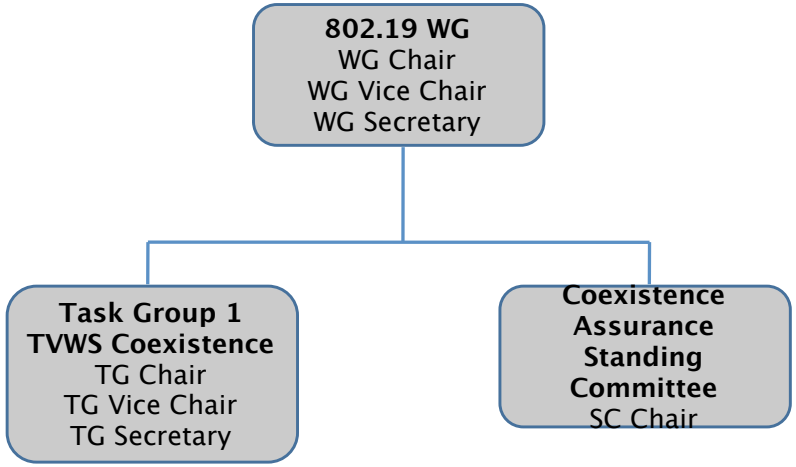
Coexistence Standard Intent

- **802 Standards Groups Such As 802.11, 802.22, etc.**
  - Control Own Destiny
  - Develop Standards For TV White Space that Address:
    - Regulatory Requirements
    - Anticipated Use Cases
    - Anticipated Business Cases
- **TV White Space Coexistence Task Group Develops Coexistence Mechanisms That Have the Absolute Minimum Possible Impact:**
  - On the Implementation of the Underlying Standards
  - Spectrum Utilization When There **Are Not** Different Users, Employing Different 802 Standards In the Same Channel In the Same Location
  - Spectrum Utilization When There **Are** Different Users, Employing Different 802 Standards In the Same Channel In the Same Location
  - System Overhead

Support

- **This PAR Is the Result Of a Long Process That Has Been Supported By a Broad Cross Section of the 802 Community**
  - TV White Space EC Study Group
    - 100 + Foil Presentation
  - 802.19 TV White Space Coexistence Study Group
    - Coexistence Use Cases & Scenarios
  - 802.19 TV White Space Coexistence Study Group Extension & Authorization to Write PAR
- **There Has Been Strong Support For the Coexistence Study Group**
  - Number of Substantive Contributions: _____
  - Attendance On the Telecons: _____
  - Attendance at Interim: _____
  - Attendance at SF Plenary: _____
- **There Has Been Strong Support For the Development of the PAR**
  - Over 30 Active Participants In PAR Finalization in Hawaii
    - All Major Roles in Value Chain
    - North America, Asia & Europe
  - Larger Numbers of Active Participants Are Expected Once PAR Is Approved

IEEE 802.19 WG Organization



WG Organization

- The 802.19 WG will hold its first meeting at the January Wireless Interim (or March Plenary)
- The initial WG membership will be the union of the following two groups
  - The current 802.19 members
  - All those people who attend at least 75% of the first WG sessions as per the 802 Operations Manual Section 3.2.2.1

WG Organization

- WG Officers
  - Acting WG chair will be appointed by Paul Nikolich
  - Acting WG vice chair and acting secretary will be appointed by acting WG chair
  - WG Chair, vice chair and secretary elections will be held at the March Plenary session
- Task Group 1 Officers
  - Task Group chair, vice chair and secretary elections will be at the March Plenary
- Standing Committee Chair
  - Standing committee chair election will be at the March Plenary

Leadership

- **There Are Qualified & Capable Individuals Prepared To Run For the Task Group Leadership Positions**

Relationship To Other Standards Efforts

- The Following Standards Projects May Prove Somewhat Helpful
  - P1900.4a
  - TC48-TG1
  - None of These Standards Provide The Full Solution To the IEEE 802 Coexistence Problem
- **Other Groups Inside 802 Are Working On or Preparing To Work On TV White Space Standards**
  - 802.22
  - 802.11
  - For Fundamental Structural Reasons These Efforts Can Not Provide The Full Solution To the IEEE 802 Coexistence Problem

Back Up Material

Hawaii Attendance

Last Name	First	Email	Affiliation	Employer
Ahtiainen	Ari	ari.p.ahtiainen@nokia.com	Nokia	Nokia
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Coexistence Among TV White Space Devices Within the Context of the US FCC

		WLAN	WPAN 15.1	WPAN Other	Fixed WWAN 802.22	Fixed WWAN Other	Cellular Macro Cells	Cellular Femto Cells
WLAN								
WPAN	15.1							
WPAN	Other							
Fixed WWAN	802.22							
Fixed WWAN	Other							
Cellular	Macro Cell							
Cellular	Femto Cell							

*Protected devices, as defined by the FCC are not listed.
**This Table is meant to be Representative, not complete
***It is Likely that a similar analysis be done for OFCOM, Industry Canada, Netherlands Antilles, etc. rules

Full Coexistence Without Cooperation	
Partial Coexistence Without Cooperation	
Coexistence Requires Cooperation	