

# Ad Hoc Committee on Licensed-Exempt Coexistence

## -Activity Report-

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Source:

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Venue:

Base Document:

Purpose:

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**Ad Hoc Committee on Licensed-Exempt Coexistence  
-Activity Report-**

Marianna Goldhammer  
Ah-Hoc Chair

# E-mail process

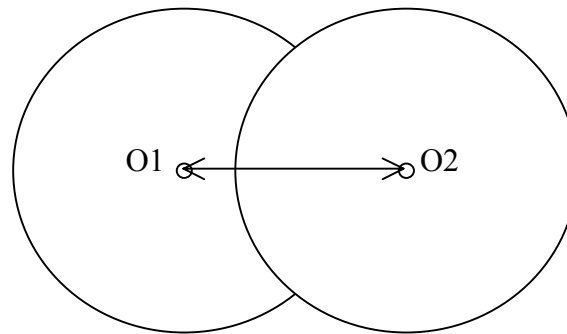
- Following 802.16 members request, the correspondence was open to all 802.16 e-mail group
- E-mail active people:
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  - Barry Lewis [blewis@redlinecommunications.com]
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# Output document

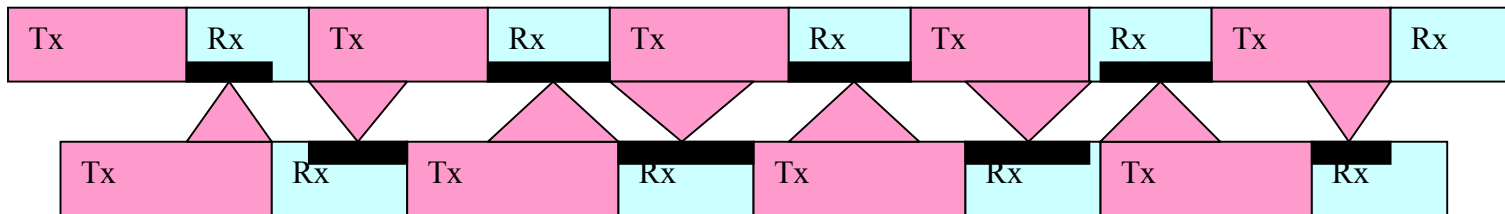
- C802.16-04/07r1
- Includes
  - System parameters for 2.4GHz and 5.8GHz
  - Base Station to Base Station interference study
    - Shows the existence of the problem
  - Possible solutions
- Was not possible to accomplish more
  - Parallel efforts in 802.16REVd and 802.16e Ballots

# Studied problem

- Deployment scenario: Co-located or separated Base Stations



- Problem: Tx to Rx interference, co-channel and adjacent channel



# System / Deployment Parameters

- BST:
  - Tx power:
    - 2.4GHz: 25dBm
    - 5.8GHz: 20dBm
  - Antenna gain: omni: 10dBi; directional: AGsa = 17dBi; AGsb = 23dBi Cable loss: 1dB
- SS:
  - Tx power: Pts = 20dBm
  - Antenna gain: omni: 10dBi; directional: AGsa = 17dBi; AGsb = 23dBi
  - Cable loss: 1dB
- Antenna isolation for co-located outdoor antennae:
  - AI = 75dB for directional-to-directional
  - AI = 30dB for omni-to-directional or omni-to-omni
- Signal BW for evaluation: 10MHz
- RSL: -83dBm
- Fade Margin: FM=10dB
- ACI=-12dB

# Interference Calculation

- LOS deployment model
- Co-channel criteria:
  - 1dB degradation of RSL
- Adjacent channel criteria
  - 1dB degradation of RSL
  - ACI translation to working channel

# Results: interference level for co-located BSs

	<b>2.4GHz</b>	<b>5.8GHz</b>
<b>Antennae</b>	<b>Adj. channel</b>	<b>Adj. channel</b>
<b>Directional-to-Directional</b>	<b>-62dBm</b>	<b>-67dBm</b>
<b>Directional-to-Omni</b>	<b>-17dBm</b>	<b>-22dBm</b>
<b>Omni-to-Omni</b>	<b>-17dBm</b>	<b>-22dBm</b>



# Results: minimum BS separation distance

	<b>2.4GHz</b>		<b>5.8GHz</b>	
<b>Antennae</b>	<b>Co-channel</b>	<b>Adj. channel</b>	<b>Co-channel</b>	<b>Adj. channel</b>
<b>Directional-to-Directional</b>		<b>15.8km</b> (Note 1)	<b>130km</b>	<b>3.7km</b>
<b>Directional-to-Omni</b>	<b>&gt;120km</b>	<b>3.2km</b> (Note 1)	<b>63km</b>	<b>1.64km</b>
<b>Omni-to-Omni</b>				

Note 1: 5dB higher power, 7dB lower propagation loss, compared with 5.8GHz

# Conclusion

**Obviously there is a problem!**

# Proposals for solutions

- Proposals for solutions
  - Zion Hadad
  - Phil Barber
  - Marianna Goldhammer
- Replay comments
  - DuncanMcClure

# Tuesday evening session - Agenda

- Discuss the Ad-hoc output document
  - Discuss the proposed solutions
- Look at more interference scenarios
  - BS-to-SS and SS-to-BS, etc.
- Discuss criteria for performance evaluation, like:
  - ARQ+low C/I PHY mode
  - Dynamic Channel Selection (threshold?)
  - Time separation
- Make a recommendation regarding the advisability of initiating standardization in this area
  - Continue the study for more scenarios and performance evaluation?
  - If a standard will be needed, what is the right timing ?