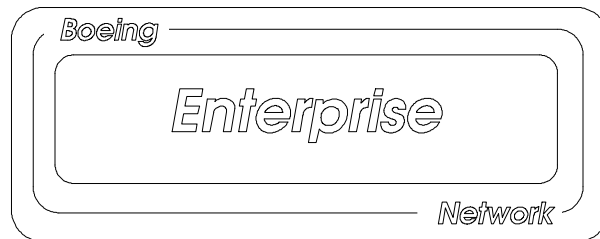


July1998

doc: IEEE 802.11-98/268

Support Services Group
Applied Research & Technology

WATM and IEEE 5.??Ghz Common PMD



Submission

Slide 1

Richard Paine, Boeing

July1998

doc: IEEE 802.11-98/268

Support Services Group
Applied Research & Technology

Agenda

- Situation-Target-Proposal
- London Meeting
-
- Frequencies and Layers
- Collaborations
- Conclusions

Submission

Slide 2

Richard Paine, Boeing

July1998

doc: IEEE 802.11-98/268

Support Services Group
Applied Research & Technology

STP

Situation

- Potential Worldwide frequency at 5.??GHz
- BRAN committed to BRAN PMD (leaning toward OFDM)
- IEEE 802.11 committed to 802.11 PMD (selected OFDM)
- Current PMDs at 5.?? GHz not defined

Target

- Worldwide common radio environment at 5.??GHz
- End user devices with a single radio PMD IF (software radio?)
- Standard PMD

Proposal

- Common PMD (neither HiperLAN nor 802.11?)
- Rapid scan radio concept using available unlicensed frequencies

Submission

Slide 3

Richard Paine, Boeing

July1998

doc: IEEE 802.11-98/268

Support Services Group
Applied Research & Technology

London Meeting

- Combined meeting of IEEE 802.11 and BRAN
- Observations
 - Boeing Not present
 - BRAN impression - 802.11 ramming interference PMD down their throats
 - 802.11 impression - BRAN inflexible
 - Leaders (Hayes and Kruys) still optimistic of some potential collaboration

Submission

Slide 4

Richard Paine, Boeing

July1998

doc: IEEE 802.11-98/268

Support Services Group
Applied Research & Technology

Frequencies for a Common PMD

- U-NII
 - 5.15 to 5.25 GHz
 - 5.25 to 5.35 GHz
 - 5.75 to 5.85 GHz

} 300MHz Total

- HIPERLAN 1
 - 5.15 to 5.25 GHz 100MHz Total
 - Proposed 150MHz extension (add 150MHz)

Submission

Slide 5

Richard Paine, Boeing

July1998

doc: IEEE 802.11-98/268

Support Services Group
Applied Research & Technology

U-NII Rules/HIPERLAN Rules

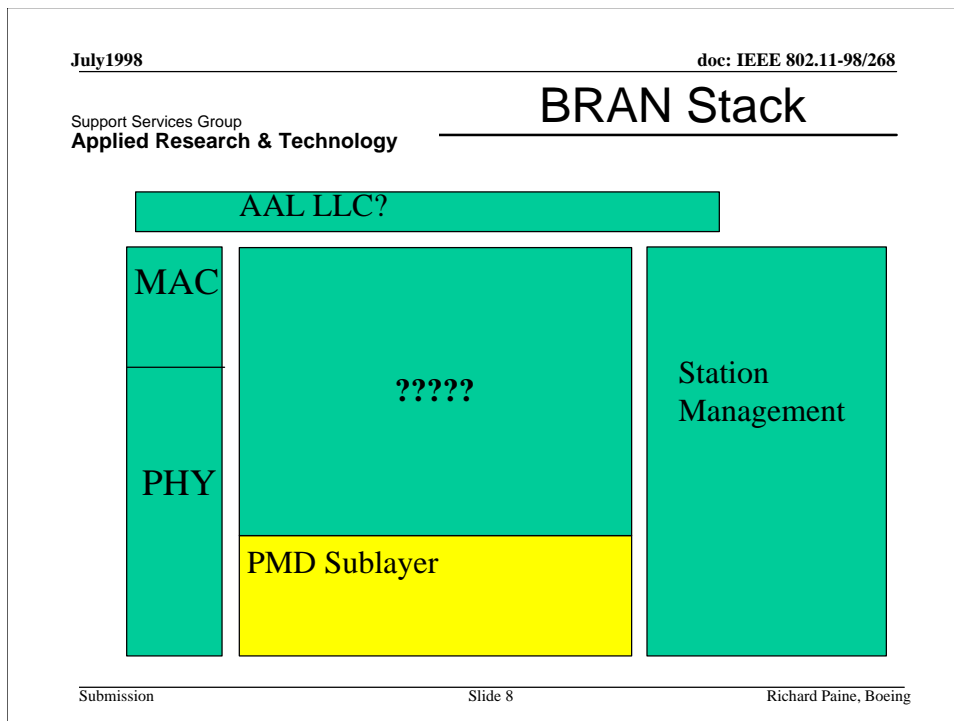
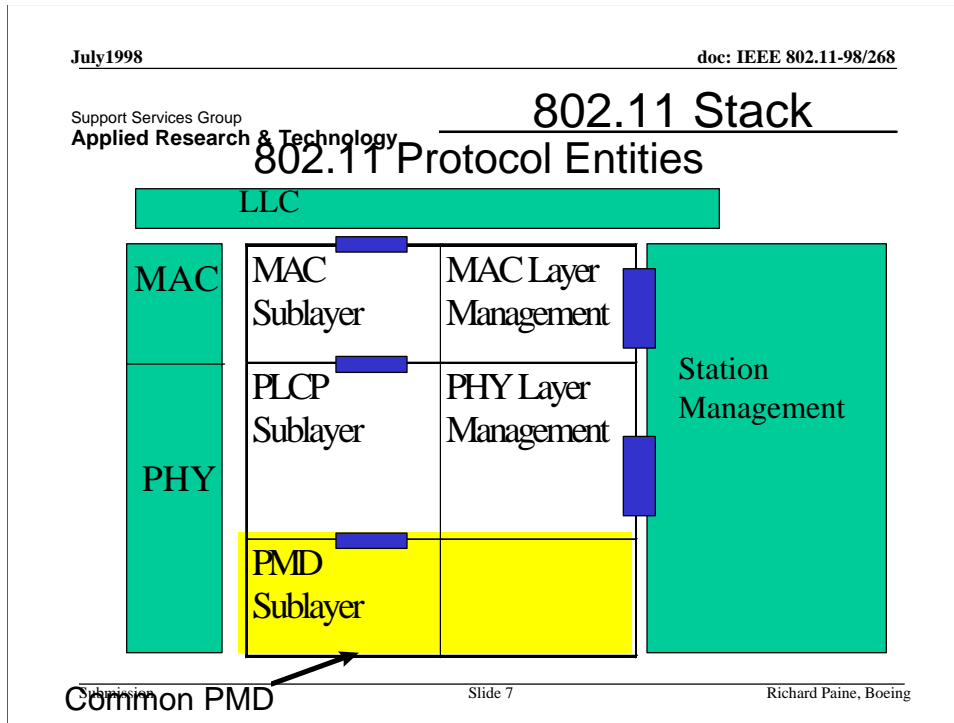
- FCC unlicensed National Information Infrastructure (U-NII) Rules
 - 5.15GHz <100mW
 - 5.25GHz 1-3W
 - 5.75GHz <5W

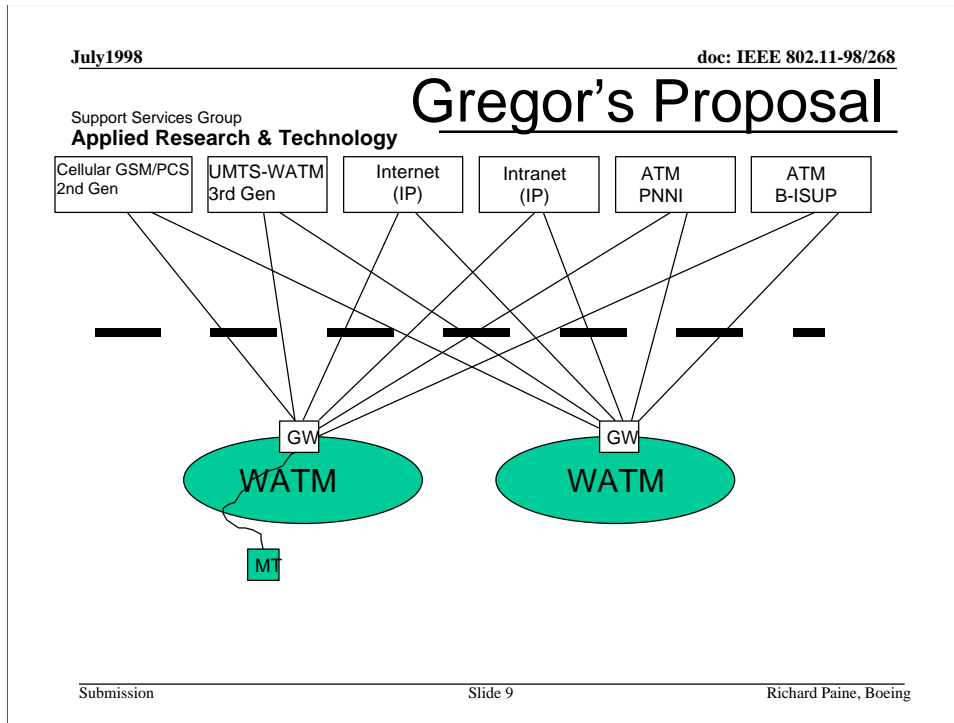
- CEPT Rules
 - 5.15GHz Dedicated to HiperLAN
 - Proposed 150MHz extension ?

Submission

Slide 6

Richard Paine, Boeing





July 1998 doc: IEEE 802.11-98/268

IEEE 802.11 5.15GHz Radio Proposals

Support Services Group
Applied Research & Technology

Company	Lucent + NTT	Breezecom + NEC	RadioLAN
Modulation Method	OFDM, DBPSK, 16 QAM in each subcarrier	Offset Quadrature OQPSK/OQAM	Differential PPM (16-DPPM, 4-DPPM)
Pulse Shaping	48 Subcarriers out of 64	50% Sq Root Raised Cosine	50% Sq Root Raised Cosine
Error Codes	Convolutional K=7, R=1/2 or R=3/4 inter-carrier interleave	Hamming (31,26) uncoded option	Uncoded option for Reed Solomon (15,13) coded with interleaving
Rates	5Mbps (DBPSK, R=1/2) 10Mbps (DQPSK, R=1/2) 15Mbps (DQPSK, R=3/4) 20Mbps (16QAM, R=1/2) 30Mbps (16QAM, R=3/4)	21Mbps (2 lv OQPSK coded) 25Mbps (2 lv OQPSK uncoded) 42Mbps (4 lv, OQAM coded) 50Mbps (4 lv, OQAM uncoded)	10Mbps (4-DPPM) 20Mbps (16-DPPM) 20Mbps (16-DPPM) coded

<http://grouper.ieee.org/groups/802/11/Reports/index.html>

July1998

doc: IEEE 802.11-98/268

Support Services Group
Applied Research & Technology

Why Collaborate?

- **Markets for wireless**
 - Vertical - multinationals, nationals, regionals, locals
 - Horizontal - multinationals, nationals, regionals, locals
- **IEEE 802.11**
 - US, EC, and Asian companies
 - IEEE philosophy of common MAC to support multiple PMDs
 - IEEE philosophy of supporting US FCC frequency distributions
 - ITU 8802.11 Standard
- **BRAN**
 - EC
 - BRAN philosophy of supporting CEPT frequency distributions
- **Number of Products**
 - Would vendors sell more products with their own PMD?
 - Would vendors sell more products with a common PMD?

Submission

Slide 11

Richard Paine, Boeing

July1998

doc: IEEE 802.11-98/268

Support Services Group
Applied Research & Technology

Conclusions

- Combined PMD has too much merit to be dropped
- Collaboration with the WRC to make 5.??GHz international
- Collaboration Supported by Multi-national Corporation View
-
- Propose - study group of BRAN-WATM and IEEE 802.11-BRAN-WATM liaisons (Boer, Phipps, Bautz, Paine, Mossarella, others?)
-
-

Submission

Slide 12

Richard Paine, Boeing