Session #40 802.16mmr Opening Report – 11/14/05

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Venue:

IEEE 802.16 Session #40, Vancouver, Canada

Base Document:

None

Purpose:

SG Meeting organization

Session #40 802.16mmr Opening Report – 11/14/05

2nd Study Group Meeting on Mobile Multi-hop Relay in IEEE 802.16

Chair: Mitsuo Nohara

Time: 08:00 – 12:00, Tue. 15 – Thu. 17 Nov., 2005

Place: British Room, The Fairmont Hotel Vancouver

Objectives of this 2nd SG Meeting

- To exchange views on Mobile Multi-hop Relay
  - with contributions provided, referring to the 2nd call for contributions,
  - especially on the PAR and 5 Criteria
- To have open comments and discussions, and
- To plan future activity and schedule towards the PAR and 5 Criteria preparation (to be completed at the #41 Meeting in New Delhi, Jan. ’06.)

Agenda

2. Session #39 Taipei

   1st SG Meeting Summary

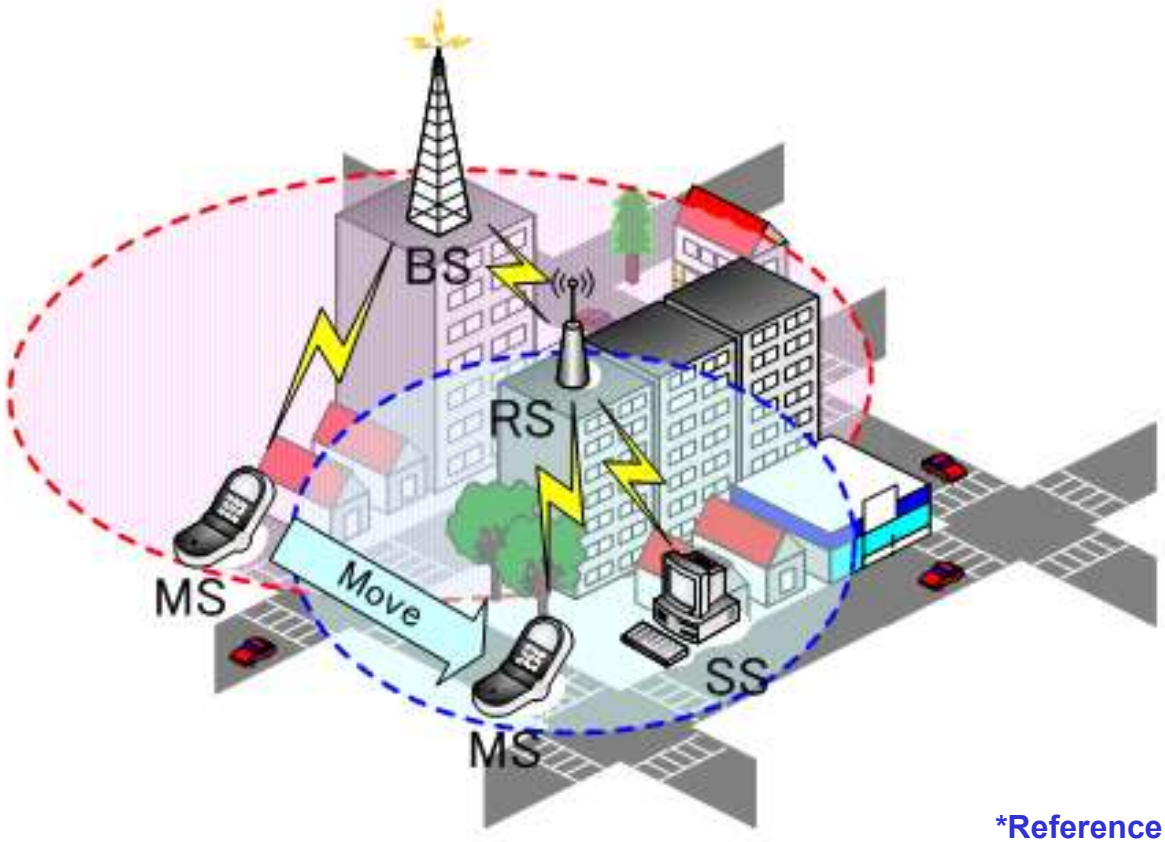
- Contribution Presentations
  - 23 in total, on;
    - PAR & 5 Criteria,
    - Scope & Scenario, and
    - Technical Study.
  - Open Discussions

    also with 802.1 and 802.16h
- Meeting Summary
- Future Activity and Schedule

1. Session #39 Taipei
1st SG Meeting Summary

Scope of Proposed Relay Project

- **Develop Proposed Relay mode for fixed / mobile terminal**
  - **PHY: Enhance normal frame structure**
  - **MAC: Add new protocols for the Relay networking**



*Reference : C802.16-005/013

Main Features

- **Main features**
  - **Tree structure: one of the end of relayed data path should be at BS**
  - **Efficiently provide Relay connection to SS/MS (with small number of hops)**
  - **Support OFDMA as well as OFDM PHY mode**
  - **Backward compatible to PMP mode**
  - **PMP & Relay modes : share a same band, or use different but adjacent bands**
- **Considered RS types**
  - **Fixed Infra RS, Nomadic Infra/Client RS, Mobile Infra. RS**

*Reference : C802.16-005/013

Contributions at the 1st SG Meeting

16 Contributions Submitted and Presented,
each categorized into:

- Requirements/Technical
  - Updated from previous meeting
  - Others
- Reference

then divided into two meeting groups.

*Presentation Program as shown next:

1st SG Meeting Presentation Program

Session #1 08:00 - 12:00 Wed., 14 Sept. 2005

No.	Ref.	Presentation	Affiliation	Title
1	Cmmr-05_001	Kenji Saito	KDDI R&D Labs.	Study of IEEE802.16 Mobile Multi-hop Relay
2	Cmmr-05_002	JaeWeon Cho	Samsung Electronics	Classification of RS Type in Mobile Multi-hop Relay System
3	Smmr-05_015	Yigal Eliaspur	Intel	Method for integration of cooperative relaying into the 802.16 standard
4	Cmmr-05_013	Masahito Asa	Motorola	Scope Considerations for Mobile Multihop Relay
5	Cmmr-05_004	John Lee	Huawei	Recommendation on Design 802.16 TGe PMP mode backward compatible Frame Structure
6	Cmmr-05_003	Yu-Ching Hsu	CCL/ITRI	Mobility Management for Mobile Multi-hop Relay Networks
7	Cmmr-05_007	*Mitsuo Nohara	INTRACOM	Flexible Relay Wireless OFDM-based networks
8	Cmmr-05_012	Ray-Guang Cheng	National Taiwan Univ. of Science and Tech.	Introduction to Opportunity Driven Multiple Access (ODMA)
9	Cmmr-05_014	Shyamal Ramachandran	Motorola	IEEE802.11 TGs: An Introduction

Session #2, 13:00 - 17:00 Thu., 15 Sept. 2005

10	Cmmr-05_010	Peiying Zhu	Nortel	reliminary Performance Benefit of Single-Hop OFDMA Relay in IEEE802.16
11	Cmmr-05_011	Peiying Zhu	Nortel	Duplex and Multiplex Configurations for OFDMA In-Band Relay
12	Cmmr-05_006	Shou-Sheu Lin	CCL/ITRI	FSO-based relaying/backhauling architecture
13	Cmmr-05_005	Fang-Ching Ren	CCL/ITRI	A Recommendation on PMP Mode Compatible Frame Structure
14	Cmmr-05_017	Mike Hart	Fujitsu LAB Europe	Factors that affect performance of a mobile multihop relay system
15	Cmmr-05_008	I-Kang Fu	ITRI, NCTU	Throughput improvement with Relay-augmented cellular architecture
16	Smmr-05_019	Nattali Chayat	Alvarion	PHY aspects in MMR-enabled networks

Output of the 1st SG meeting

- Exchanged the concepts for Mobile Multihop Relay through the Contribution Presentations
- Discussed and agreed as follows :
  - Need for clarification/revision of the concept table.
  - Need for Common Terminology
  - Call for Contributions to be issued :
    - PAR and 5 Criteria
    - Scope of MMR task including evaluation criteria, backward compatibility.

Motion to SG

- **Motion : To empower study group chair to prepare new call for contributions and also prepare report for the session.**
  - **Motion : Naftali Chayat, Second : Jaewon Cho**
  - **Unanimous voice consent**

-> 2nd Call for Contributions Issued.

2. Contributions

2nd Call for Contributions

Areas of activities:

- Assess feasibility of Multi-hop Relay for fixed / mobile terminal including PHY/MAC modifications;
- Study the impact on PHY with enhancement of normal frame structure and backward compatibility with 802.16 TGe PMP mode;
- Study the impact on MAC protocols to be newly added for the relay networking including handover cases;
- Study spectral scenario including frequency reuse and interference among the links between Base station (BS) and Relay station (RS), and ones between RS and Mobile/Subscriber station (MS/SS);
- Study the security between BS and Mobile Subscriber station (MS) via RS;

2nd Call for Contributions

Contribution Provisions:

In preparation for the second SG Meeting, further contributions addressing the above topics are requested. The contributions should provide:

- Technical issues relevant to a "PAR and Five Criteria" preparation and other works

- Direction of MMR activities for high level issues such as service scenarios, network topologies, etc.

Note that the Study Group plan is to initiate discussions on and create a first draft text of a "PAR and Five Criteria" during Session #40.

Contribution Presentations

* List of 1st Authors:

- T Ozgur Oyman
- S Jimin Liu
- S Deng Shiqiang
- T Kyungjoo Suh
- S D. J. Shyy
- S Masahito Asa
- P Byoung-Jo Kim
- S Weng Tong
- T Aeran Youn
- S Kenji Saito
- S Amir Rubin
- S Mariana Goldhamer
- T Gang Shen
- T Xiaobing Leng
- T Fang-Ching Ren
- T Tzu-Ming Lin
- S D. J. Shyy
- S Shyamal Ramachandran
- P David Steer
- P Yousuf Saifullah
- P Mitsuo Nohara
- S I-Kang Fu
- P Mike Hart

(23 Presentations in total)

- Each of those 23 Presentations will be categorized into:

P "PAR & 5 Criteria" / S Scope, Scenario and System Definition / T Technical Analysis and Design

2nd SG Meeting Presentation Program

Day#1-1 08:00 - 09:40 Tue. 15 Nov., 2005

No.	Ref.	1st Authour	Affiliation	Title
1	Cmmr-05_040	Kenji Saito	KDDI R&D Labs.	Considerations on Mobile Multi-hop Relay for IEEE802.16
2	Cmmr-05_032	Masahito Asa	Motorola	Recommendations for the Scope and Purpose of the Mobile Multihop Relay Task Group
3	Cmmr-05_020	Mariana Goldhamer	Alvarion	Advantages of a Coexistence Protocol for Relay Operation
4	Cmmr-05_024	Jimin Liu	Aclatel Shanghai Bell	Self-backhaul Relay

Day#1-2 10:00 - 12:00 Tue. 15 Nov., 2005

5	Cmmr-05_026	Deng Shiqiang	Huawei Technologies	Recommendation on Mobility Management of Multi-hop Relay
6	Cmmr-05_030	D. J. Shyy	MITRE	Military Usage Scenario for 802.16 MMR
7	Cmmr-05_031	D. J. Shyy	MITRE	CDMA2000 Network Repeater Deployment Experience.
8	Cmmr-05_033	Shyamal Ramachandran	Motorola	A Case for Multihop Backhaul
9	Cmmr-05_036	Weng Tong	Nortel Networks	MMR Topology Study with 6 Configurations
10	Cmmr-05_041	I-Kang Fu	National Chiao Tung Univ.	System Performance of Relay-based Cellular Systems in Manhattan-like Scenario

* Each presentation consists of 15-minutes presentation and 5-minutes Discussions.

2nd SG Meeting Presentation Program

Day#2-1 08:00 - 09:40 Tue. 15 Nov., 2005

No.	Ref.	1st Authour	Affiliation	Title
11	Cmmr-05_042	Amin Rubin	ntel	Cooperative Relaying System
12	Cmmr-05_022	Ozgur Oyman	Intel	Throughput Improvements in Micro-Cellular Multi-Hop Networks
13	Cmmr-05_023	Gang Shen	Alcatel Shanghai Bell	Recommendation on 802.16 MMR with Backward Compatibility
14	Cmmr-05_025	Xiaobing Leng	Aclatel Shanghai Bell	A frame structure for mobile multi-hop relay with different carrier frequencies

Day#2-2 10:00 - 12:00 Tue. 15 Nov., 2005

15	mmr-05_027	ang-Ching Ren	TRI	ecommendation on PMP Mode Compatible TDD Frame Structure
16	Cmmr-05_028	Kyungjoo Suh	Samsung Electronics	Open Problems in Mobile Multi-hop Relay System
17	Cmmr-05_029	Tzu-Ming Lin	ITRI	Modification for enabling the RS Operations
18	Cmmr-05_038	Aeran Youn	G Electronics	Decision method of relayed MS in MMR-enabled networking
19	Smmr-05_034	Byoung-Jo Kim	AT&T	Analysis of Simple Infrastructure Multihop Relay Wireless System
20	mmr-05_035	avid Steer	ortel etworks	MR PAR and Five Criteria Draft

* Each presentation consists of 15-minutes presentation and 5-minutes Discussions.

2nd SG Meeting Presentation Program

Day#3-1 08:00 - 09:20 Thu. 16 Nov., 2005

No.	Ref.	1st Authour	Affiliation	Title
21	Cmmr-05_037	Yousuf Saifullar	Nokia	Issues and Scope of MMR
22	Cmmr-05_043	Mike Hart	Fujitsu Lab. Europe	Input text to the PAR ande Five Criteria
23	Cmmr-05_039	Mitsuo Nohara	KDDI	PAR and Five Criteria for 802.16 Mobile Relay

- Each presentation consists of 15-minutes presentation and 5-minutes Discussions.
- Discussions on PAR and 5 Criteria Preparation to follow.

3. Future Activity and Schedule

Tentative Schedule

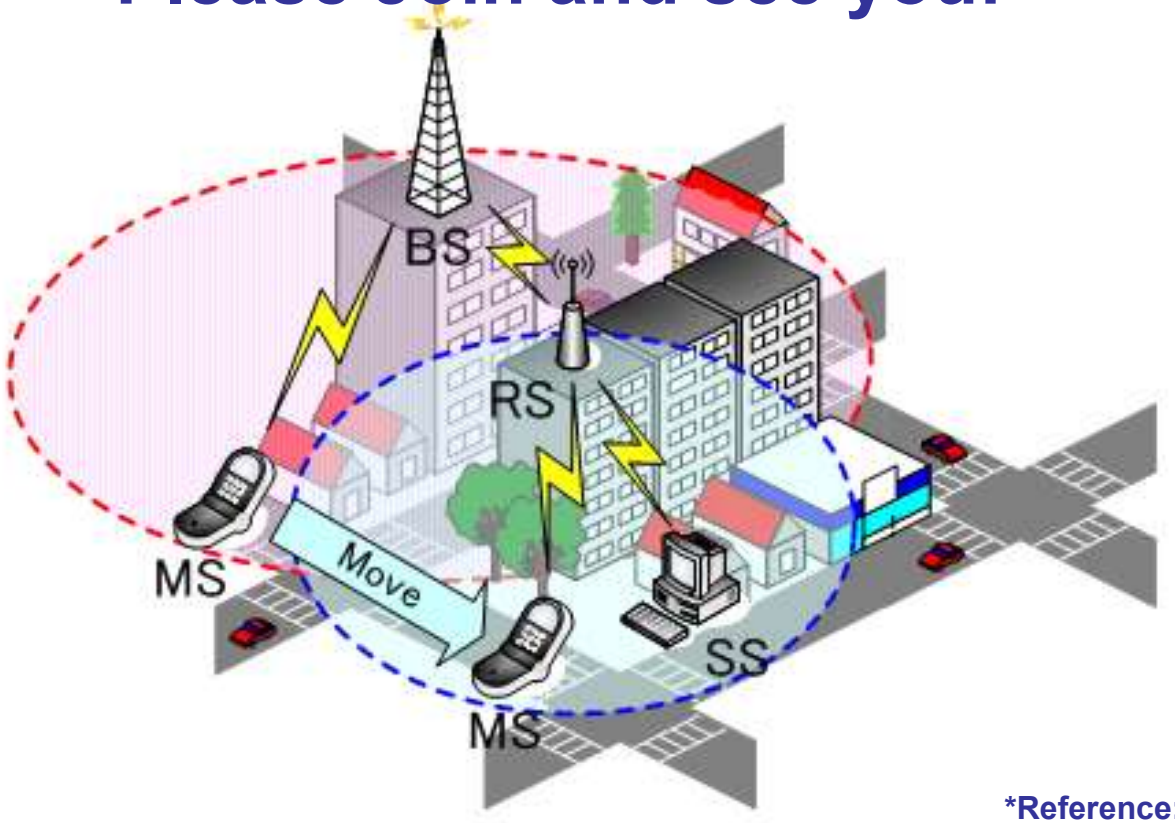
- PAR & 5 Criteria Preparation towards #42 Plenary

Year	Month	802.16 session	Actions
2005	July	#38 Plenary	Propose to form SG – Approved
	Sept.	#39 Interim	SG: the 1st meeting
	Nov.	#40 Plenary	SG: the 2nd meeting
2006	Jan.	#41 Interim	SG: the 3rd meeting – Complete a PAR
	Mar.	#42 Plenary	802 EC endorses PAR approval
	May	#43 Interim	TG: the 1st meeting
	July	#44 Plenary	TG: the 2nd meeting
	Sept.	#45 Interim	TG: the 3rd meeting
	Nov.	#46 Plenary	TG: the 4th meeting

To Do List

- **At This Meeting**
  - Contributions/Discussions
  - PAR & 5 Criteria Discussions to start
- **After This Meeting towards Next #41 Meeting**
  - Comments and Discussions
- **At the Next #41 Meeting**
  - Make “PAR & 5 Criteria” ready
  - Tutorial Preparation (to be held in #42 Session, Mar. 2006)
- dot16 “forum” website: http://dot16.org/forum/

MMR-SG
08:00 – 12:00, Tue. 15 – Thu. 17, Nov. , 2005 (3 Meeting Slots)
Place: British Room, The Fairmont Hotel Vancouver
Please Join and see you!



*Reference: C802.16-005/013