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Enhanced Auth request/reply message

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1. Introduction

In the current IEEE P802.16e/D5a, it defines HO process. To shorten handover process, the network re-entry and initiation process during HO can complete in advance by using pre_authentication process.
In the current draft, pre_authentication during handover have not included the authentication process , just the Serving BS notify authentication result to Target BS.
We think this process is not reasonable for RSA based certificate authentication method, because the process is based on the following Assumption:

1. Assume the Serving BS is security.
2. Assume the Serving BS can not leakout the key.

We think that we need a intact pre_authentication process. In order to accomplish the intact pre_authentication process, we must enhance the auth-request and auth-reply message. We can add a pre-authentication indication in auth-request/reply. When pre-authentication can be accomplished by serving BS and Target BS on backbone network, and after accomplishing the Ranging process between the MSS and Target BS, the Target BS can unsolicited send auth-reply to the MSS for notifying the authentication result.
Before the MSS hand over to a Target BS, the MSS can send auth-request with the pre-authentication indication to Serving BS, and Serving BS will accomplish the pre-authentication process to Target BS by backbone network.

In this contribution, we propose to include a pre-authentication indication in the messages auth-request and auth-reply.

2. Proposed Text Changes

Modify the text of Page 38£ Line21 in IEEE P802.16e/D5a in section 6.3.2.3.9.16 shown as following .

6.3.2.3.9.16 Pre-Auth-Request message

The Pre-Auth-Request message is sent by the MSS to the BS to establish Pairwise Master Key with the target BS for handoff.
Code: 18
Attributes are shown in Table 37f.

Table 37f—PKM Pre-Auth-Request attributes

Attributes	Contents
Target BSID	The BSID to which an MSS will connect after HO.
Authentication Message	The Content of the auth request message or EAP request message.
OMAC Tuple	Message Digest calculated using OMAC_KEY

The target BSID attribute contains one or more target BSIDs. The MSS notified the serving BS of these BSID(s) for handoff.

The Authentication Message attribute shall include all information included by Auth-request/EAP-request in normal auth request process°£

The OMAC Tuple attribute shall be the final attribute in the message's attribute list.

Inclusion of the keyed digest allows the receiving MSS to authenticate the Pre-Auth-Request.

Modify the text of Page 38£ Line55 in IEEE P802.16e/D5a in section 6.3.2.3.9.17 shown as following .

6.3.2.3.9.17 Pre-Auth-Reply message

Sent by the BS to a client SS in response to Pre-Auth-Request or in an unsolicited manner, the Pre- Auth-Reply message contains one or more target BSIDs and an OMAC tuple.
Code: 19
Attributes are shown in Table 37g.

Table 37g—PKM Pre-Auth-Reply attributes

Attributes	Contents
Target BSID	The BSID that MSS will connect after HO.
Authentication Message	The Content of the auth reply message or EAP reply message.
OMAC Tuple	Message Digest calculated using OMAC_KEY

The Authentication Message attribute shall include all information included by Auth-Reply/EAP-Reply in normal auth reply process°£

The OMAC Tuple attribute shall be the final attribute in the message's attribute list.
Inclusion of the keyed digest allows the receiving MSS to authenticate the Pre-Auth-Request.