# PEAP Clarification

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**Source(s)**

JUNHYUK SONG, JICHEOL LEE, YONG CHANG

Samsung Electronics

Voice: +82-31-279-3639

junhyuk.song@samsung.com

**Re:**

Re: IEEE P802.16e/D5a

**Abstract**

PEAP Clarification

**Purpose**

Discuss and Adopt as the baseline text

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**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
PKM version 2

Protected EAP Clarification

JUNHYUK SONG, JICHEOL LEE, YONG CHANG
Samsung Electronics

INTRODUCTION

Per decision in last meeting, D6 text adopted PKM Protected EAP message and EIK. It will protect subsequent EAP authentication messages encapsulated in PKM management message from possible forgery attack when RSA based Authorization executed. However current text is not clear about how Protected EAP message could be used in case of EAP only mode. In EAP only mode when EAP authentication method such as EAP-PSK or EAP-AKA is used as a device authentication method, MS and BS may run second round of EAP authentication method for user authentication by exchanging PKM Protected EAP messages. In this contribution we will specify the EIK derivation when EAP only mode is used.

Twice EAP example
Changes to 802.16e D6 text

7.2.2.2.2 EAP authentication

If a RSA mutual authorization took place before the EAP exchange, the EAP messages may be protected using EIK - EAP Integrity Key derived from pre-PAK (see 7.2.2.2.1). EIK and EEK are 128 bits long.

The product of the EAP exchange which is transferred to 802.16 layer is the AAA-key. This key is derived (or may be equivalent to the 512-bits Master Session Key (MSK)). This key is known to the AAA server, to the Authenticator* (transferred from AAA server) and to the MS. The MS and the authenticator derive a PMK (Pairwise Master Key) and optional EIK by truncating the AAA-key after to 288,160 bits.

The PMK and EIK derivation from the AAA-key is as follows:

\[
\text{EIK|PMK} = \text{truncate} (\text{AAA-key}, 288,160)
\]

If more keying material is needed for future link ciphers, the key length of the PMK may be increased.

[Change Figure 133]
A AAA-key – 512 bit Primary Authorization Key Transferred to SS by EAP method during the authentication

AAA-key

Truncate (AAA-key, 288)

EIK (128bits)       PMK (160 bits)

PMK

dot16KDF(PMK, SSID | BSID | "EAK", 160)

AK

Figure 133-AK with EAP only authentication