Addition of SAID_update in harmony with CID_update

To be in line with CID_update in REG-RSP in current IEEE 802.16e/D3, SAID_update is defined and appended to the RENG-RSP.
Addition of SAID_update
Dongkie Lee, DongRyul Lee, DongIl Moon, JongKuk Ahn
SK Telecom

1. Problem Statements
IEEE 802.16e/D3 defined CID_update attribute which is used as shorthand method for replacing the active connections used by the MSS in its previous Serving BS. But with same analogy, it’s possible that SA be reused therefore SAID should be updated according to the Target BS security policy configuration.

2. Overview of Proposed Solutions
Per the handoff ad-hoc’s consensus, when bit 1 of Handoff Process Optimization is set to 1, which means PKM procedure maybe skipped, it’s probable that SAID be updated according to the target BS security configuration. In this case, SAID_update attribute shall be appended to REG-RSP as CID_update is appended to REG-RSP.

3. Proposed Changes to IEEE 802.16e/

6.3.2.3.8 Registration Response (REG-RSP) message

Unless otherwise indicated in this section, MSS mobile network entry/re-entry is processed according to 6.4.9. For purposes of this process, MSS network re-entry and hand-over are synonymous.

For mobile networks, Target BS may include CID_update TLVs and SAID_update TLVs in the REG-RSP for MSS recognized by the Target BS as performing HO or network re-entry by the presence of a Serving BS ID in the RNG-REQ.

CID_update - The CID_update is a compound TLV value that provides a shorthand method for renewing active connections used by the MSS in its previous Serving BS. The TLVs specify CID in the Target BS that shall replace active CID used in the previous Serving BS. Multiple iterations of these TLVs may occur in the REG-RSP suitable to re-creating and re-assigning all active Service Flows for the MSS from its previous Serving BS including Basic, Primary and Secondary CIDs. If any of the Service Flow parameters change, then those Service Flow parameters and CS parameter encoding TLVs that have changed will be added. Only active Service Flows are transferred in this manner.

These TLVs enable the Target BS to renew connections used in the previous Serving BS, but with different QoS settings.

SAID_update - The SAID_update is a compound TLV value that provides a shorthand method for renewing active SAs used by the MSS in its previous Serving BS. The TLVs specify SAID in the Target BS that shall replace active SAID used in the previous Serving BS. Multiple iterations of these TLVs may occur in the REG-RSP suitable to re-creating and re-assigning all active Security Associations for the MSS from its previous Serving BS including Primary, Dynamic and Static SAIDs. If any of the Security Associations parameters change, then those Security Associations parameters encoding TLVs that have changed will be
11.7 REG-REQ/RSP management message encodings

[Add the following before section after 11.7.8 CID_update encodings and change section number hereafter]

11.7.9 SAID update encodings

This field provides a translation table that allows an MSS to update its security associations so that it may continue security service after a hand-over to a new serving BS.

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Length</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAID_update</td>
<td>20</td>
<td>variable</td>
<td>Compound</td>
</tr>
</tbody>
</table>

The following TLV values shall appear in each SAID_update TLV:

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Length</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>New_SAID</td>
<td>20.1</td>
<td>2</td>
<td>New SAID after hand-over to new BS</td>
</tr>
<tr>
<td>Old_SAID</td>
<td>20.2</td>
<td>2</td>
<td>Old SAID before hand-over from Old BS</td>
</tr>
</tbody>
</table>