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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>** |
| Title | **Service Class Definitions Problem** |
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| Re: | Response to IEEE 802.16e-03/58 (Call for Contributions on IEEE 802.16e/07r5) |
| Abstract | Service Class Definitions Problem |
| Purpose | Stimulate discussion on a more flexible definition and mechanism for facilitating multimedia Service Flow migration/hand-over between foreign networks. |
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# Service Class Definitions Problem

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*Problem 1:*
**6.4.13.4 Service classes** is an *optional* feature in the core document (P80216-REVd_D2); but required for several *optional* and *required* features in 16e/r5 (80216e-03_07r5):

| Dependent Value | Feature |
|---|---|
| Service Level Prediction, Service Class Name | Association (RNG-RSP) |
| Service Level Prediction | BS HO Request message (MOB_BSHO-REQ) |
| Service Level Prediction | MSS HO Request message (MOB_MSSHO-REQ) |
| Service Level Prediction | BS HO Response message (MOB_BSHO-RSP) |
| Service Level Prediction | MSS HO Response message (MOB_MSSHO-RSP) |
| Service Level Prediction | 11.1.4 REG-RSP TLVs for re-establishment of Service Flows |
| QoS Estimated | C.2.6 HO-pre-notification-response message |
| QoS Estimated | C.2.7 HO-confirm message |

*Problem 2:*
While Service Class Name associated with AuthorizedQoSParamSet may be set globally for all BS common to a single network, individual BS are free to dynamically create AdmittedQoSParamSet Service Class Names based on unique DSx QoS Param Set requests (**11.4.9 Service flow encodings**), or to temporarily and locally modify the definition/QoSParamSet of existing, Globally defined Service Class names. This creates the problem that when Service Class Name is called to be transmitted for HO, Target BS may have no idea what a unique Service Class Name assigned by Serving BS references.

*Remedy:*
Adjust document to 1) make **6.4.13.4 Service Classes** a required feature for 802.16e, and 2) adjust language in document to support implementation language in core document (P80216-REVd_D2, 6.4.13.4 Service classes, page 210, line 62, through page 211, line 3):

‘ Any service flow may have its QoS Parameter Set specified in any of three ways:

— By explicitly including all traffic parameters.
— By indirectly referring to a set of traffic parameters by specifying a Service Class Name.
— By specifying a Service Class Name along with modifying parameters.

‘

Specifically, we should liberalize distribution of 11.4.9 items in messages to include other QoS Parameter Set elements along with unmodified Global Service Class Name that, taken together, provide complete information on Service Flow QoS requirements.

*Remedy 1:*
*[Add to end of P80216-REVd_D2, **6.4.13.4 Service classes**, page 211:]*
Support of Service Classes is required for Mobile service.

*Remedy 2:*
*[In **6.4.2.3.6 Ranging Response (RNG-RSP) message**, page 17, line 13, modify as:]*
**6.4.2.3.6 Ranging Response (RNG-RSP) message**
When a BS sends a RNG-RSP message in response to a RNG-REQ message containing Serving BS ID, the BS may include the following TLV parameter in the RNG-RSP message:

**Service Level Prediction** _ This value indicates the level of service the MSS can expect from this BS. The following encodings apply:

0 = No service possible for this MSS.
1 = Some service is available for one or several Service Flow authorized for the MSS.
2 = For each authorized Service Flow, a MAC connection can be established with QoS specified by the AuthorizedQoSParamSet.
3 = No service level prediction available.

Service Level prediction may be accompanied by a number of Service Flow Encodings as specified in 11.4.9 with the following parameters only:

- Service Class Name
  When provided, Service Class Name shall be included only as an unmodified, Globally defined Service Class Name
  - QoS Parameter Set items as provided in 11.4.9
    In the event that Service Class Name, when to be included in RNG-RSP, is unique to the BS, or has been temporarily modified from its Globally defined AuthorizedQoSParamSet, the RNG-RSP message shall include a combination of an unmodified, Global Service Class Name and QoS Param Set items as provided in 11.4.9 such that they, in combination, define the AdmittedQoSParamSet represented
- Service Flow Identifier

Service class name may refer either to AuthorizedQoSParamSet (then Service Level Prediction should be encoded as ë2í) or to a subset of it (then Service Level Prediction should be encoded as ë1í).

*Remedy 3:*
*[In **C.2.5 HO-pre-notification message**, **Table C6—HO-pre-notification Message**, page 51, line 32:]*
Break-out **Required QoS** line item into TLV item encapsulating unmodified Global Service Class Name and necessary 11.4.9 items modifying Global Service Class Name sufficient to define the AdmittedQoSParamSet represented