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AMENDMENT 1
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Information technology — Dynamic adaptive streaming over HTTP (DASH) —

Part 5: Server and network assisted DASH (SAND)

AMENDMENT 1: Improvements on SAND messages

Technologies de l'information — Diffusion en flux adaptatif dynamique sur HTTP (DASH) —

Partie 5: DASH assisté par serveur et réseau (SAND)

AMENDEMENT 1: Améliorations relatives aux messages de SAND

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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Part 5:
Server and network assisted DASH (SAND)

AMENDMENT 1: Improvements on SAND messages

6.4.1.3

Replace Table 3 with the following:

Table 3 — AnticipatedRequests parameters

Parameter	Type	Cardinality	Description
AnticipatedRequests	object	1	
request	array	1..N	The ordered list of anticipated requests. High priority requests are listed first.
sourceUrl	url	1	URL for a segment of a given representation.
range	string	0..1	This is the byte range specification when the segment is only a part of the content referred to by sourceUrl.
targetTime	date-time	0..1	Time at which the DASH client expects to request the resource identified by sourceUrl.

6.4.7.3

Add the following paragraph at the end of the subclause:

When supportedMessage and messageSetUri are both present in the same message, it means that the client supports all messages in the supportedMessage list and all messages in the messageSetUri.

6.5.9.3

Add the following paragraph at the end of the subclause:

When supportedMessage and messageSetUri are both present in the same message, it means that the client supports all messages in the supportedMessage list and all messages in the messageSetUri.

Annex A

Replace

```
<!-- DaneCapabilities Type -->
<xs:complexType name="DaneCapabilitiesType">
  <xs:complexContent>
    <xs:extension base="SANDMessageType">
  <xs:choice>
        <xs:sequence>
```

```
            <xs:element name="SupportedMessage" type="xs:unsignedInt" minOccurs="1"
maxOccurs="unbounded"/>
          </xs:sequence>
          <xs:element name="MessageSetUri" type="xs:anyURI"/>
        </xs:choice>
      </xs:extension>
    </xs:complexContent>
  </xs:complexType>
```

with

```
  <!-- DaneCapabilities Type -->
  <xs:complexType name="DaneCapabilitiesType">
    <xs:complexContent>
    <xs:extension base="SANDMessageType">
      <xs:sequence>
        <xs:element name="SupportedMessage" minOccurs="0" maxOccurs="unbounded">
          <xs:complexType>
            <xs:attribute name="messageType" type="xs:unsignedInt" use="required"/>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
      <xs:attribute name="messageSetUri" type="xs:anyURI"/>
    </xs:extension>
    </xs:complexContent>
  </xs:complexType>
```

replace

```
  <!-- SAND message base Type -->
  <xs:complexType name="SANDMessageType">
    <xs:attribute name="messageId" type="xs:unsignedInt" use="required"/>
    <xs:attribute name="validityTime" type="xs:dateTime"/>
  </xs:complexType>
```

with

```
  <!-- SAND message base Type -->
  <xs:complexType name="SANDMessageType">
    <xs:attribute name="messageId" type="xs:unsignedInt"/>
    <xs:attribute name="validityTime" type="xs:dateTime"/>
  </xs:complexType>
```

Annex B

Add the following text before the last paragraph of Clause B.1:

The first four algorithms build on the use of the `allocate_at_most()` function called with the input parameter `available_bandwidth`. This function allocates to a DASH client a bandwidth comprised between:

— at least, the bandwidth required for the highest operation point workable under `available_bandwidth` constraint, and

— at most, the full bandwidth budget given by `available_bandwidth`.

This allows DANE implementations to allocate a DASH client the exact bandwidth needed for its highest workable operation point while also allowing to add some additional bandwidth up to `available_bandwidth`. Note that the logic to determine the amount of such additional bandwidth is out of scope of the current document.

