

**Source:** TSG CN WG3  
**Title:** CRs on Rel-5 Work Item E2EQoS.  
**Agenda item:** 8.5  
**Document for:** APPROVAL

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**Introduction:**

This document contains **2 CRs on Rel-5 Work Item E2EQoS**, including the corresponding mirror CRs (as required).

These CRs have been agreed by TSG CN WG3 and are forwarded to TSG CN Plenary meeting for approval.

<b>WG_tdoc</b>	<b>Title</b>	<b>Spec</b>	<b>CR</b>	<b>Rev</b>	<b>Cat</b>	<b>Rel</b>	<b>C_Ver</b>
N3-030579	Corrections regarding RTP/RTCP bandwidth	29.207	104	1	F	Rel-5	5.4.0
N3-030635	Correcting the calculation of RTCP bandwidth	29.208	040	3	F	Rel-5	5.4.0

## CHANGE REQUEST

⌘ **29.207 CR 104** ⌘ rev **1** ⌘ Current version: **5.4.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Corrections regarding RTP/RTCP bandwidth		
<b>Source:</b>	⌘ TSG_CN WG3 [Ericsson]		
<b>Work item code:</b>	⌘ E2eQoS	<b>Date:</b>	⌘ 24/08/2003
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
	<b>F</b> (correction)	<b>2</b> (GSM Phase 2)	
	<b>A</b> (corresponds to a correction in an earlier release)	<b>R96</b> (Release 1996)	
	<b>B</b> (addition of feature),	<b>R97</b> (Release 1997)	
	<b>C</b> (functional modification of feature)	<b>R98</b> (Release 1998)	
	<b>D</b> (editorial modification)	<b>R99</b> (Release 1999)	
	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .	<b>Rel-4</b> (Release 4)	
		<b>Rel-5</b> (Release 5)	
		<b>Rel-6</b> (Release 6)	

<b>Reason for change:</b>	⌘ For clarifications the text has been corrected to express that the data rate value is derived from either the "b=AS" SDP parameter (for media IP flows) or from the "b=RR" and the "b=RS" SDP parameters (for RTCP IP flows).
<b>Summary of change:</b>	⌘ Corrections in text to clarify that the data rate value is derived from either the "b=AS" SDP parameter (for media IP flows) or from the "b=RR" and the "b=RS" SDP parameters (for RTCP IP flows). Furthermore, an erroneous text about adding the overhead from RTCP has been deleted.
<b>Consequences if not approved:</b>	⌘ The description is not updated to be conformant with the rules in TS 29.208 on how to derive the data rates from the SDP parameters which might cause erroneous implementations.

<b>Clauses affected:</b>	⌘ 4.1 and 5.2.1.1						
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; text-align: center;">Y</td> <td style="width: 20px; text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
Y	N						
<input type="checkbox"/>	<input checked="" type="checkbox"/>						
	<input checked="" type="checkbox"/>	Test specifications					
	<input checked="" type="checkbox"/>	O&M Specifications					
<b>Other comments:</b>	⌘						

**How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## Start of first modification

### 4.1 Overview

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#### 2. Media authorisation decision from PDF:

The media authorisation information sent by the PDF to the GGSN, contains at a minimum the following information:

- Decision on the binding information.

The PDF shall respond with an authorisation decision for the binding information. The authorisation decision shall identify that the binding information is validated with an ongoing SIP session. Additionally, the PDF shall verify if the multiple media components are correctly assigned to the PDP Context. If validated, the PDF shall also communicate the following media authorisation details to the GGSN:

- "Authorised QoS".

This information is used by the GGSN to authorise the media resources according to the service-based local policy and the requested bearer QoS.

The "Authorised QoS" for media components signalled over the Go interface is based on the SDP requirements signalled and agreed previously within SIP signalling for this session.

The "Authorised QoS" specifies the maximum QoS that is authorised for a PDP context for that specific binding information. In case of an aggregation of multiple media components within one PDP context, the combination of the "Authorised QoS" information of the individual media components is provided as the "Authorised QoS" for the bearer.

The "Authorised QoS" contains the following information:

- QoS class:

The QoS class information represents the highest class that can be used for the media component. It is derived from the SDP media description. The QoS class within the "Authorized QoS" information for the bearer is determined from the QoS class values of the individual media components identified in the binding information.

- Data rate:

The Data rate information is derived from the SDP bandwidth parameters. The Data rate shall include all the overhead coming from the IP-layer and the layers above, e.g. UDP, ~~and RTP or RTCP. If RTP is used, then overhead coming from RTCP shall be added by the PDF.~~ If multiple codecs are agreed to be used in a session, the authorized data rate is set according to the codec requiring the highest bandwidth, meaning that terminals may under use the authorized data rate when choosing to use another agreed codec. The Data rate within the "Authorized QoS" information for the bearer is determined from the data rate values of the individual media components identified in the binding information.

- Packet Classifier.

The packet classifier for media components is based on the IP-address and port number information in the SDP and shall allow for all IP flows associated with the SDP media component description.

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## Next modification

### 5.2.1.1 SBLP authorisation decision

The information needed for the PDF to perform media authorization is passed by the P-CSCF upon receiving a SIP message that contains SDP. The SDP contains sufficient information about the session, such as the end-points' IP address and port numbers and bandwidth requirements.

All media components in the SDP are authorised. The media components contain one or more IP flows each represented by a flow identifier. The definition of flow identifier is in subclause 3.1. The P-CSCF shall send policy set-up information to the PDF upon every SIP message that includes an SDP payload. This ensures that the PDF passes proper information to perform media authorization for all possible IMS session set-up scenarios. The policy set-up information provided by the P-CSCF to the PDF for each media component shall contain the following:

- Destination IP address;
- Destination port number;
- Transport Protocol id;
- Media direction information;
- Direction of the source (originating or terminating side);
- Indication of the group that the media component belongs to;
- Media type information;
- Bandwidth parameters;
- Indication of forking/non-forking.

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- "Authorized QoS":
  - The "Authorised QoS" information (consisting of maximum QoS Class and Data Rate) for a media component is extracted from the media type information and bandwidth parameter(s) of the SDP. The PDF shall map the media type information into a QoS Class which is the highest class that can be used for the media. The PDF shall use an equal QoS Class for both the uplink and the downlink directions when both directions are used. As an example, the audio media type shall be mapped into QoS class A.
  - The PDF shall derive the Data Rate value for the media IP flow (s) from the "b=AS" SDP parameter, as detailed in TS 29.208 [18]. For the possibly associated RTCP IP flows, the PDF shall use the SDP "b=AS", "b=RR" and "b=RS" parameters, if present, as specified in 29.208[18]. The "b=AS", "b=RR" and "b=RS" parameters in the SDP shall contain all the overhead coming from the IP-layer and the layers above, e.g. UDP, RTP and/or RTCP. ~~If RTP is used, then overhead coming from RTCP shall be added by the PDF when determining the data rate value applicable for the media component.~~
  - For non-real-time bearers the Data rate value shall be considered as the maximum value of the 'Maximum bitrate' parameter.
  - In case of an aggregation of multiple media components within one PDP context, the PDF shall provide the "Authorised QoS" for the bearer as the combination of the "Authorised QoS" information of the individual media components. The QoS Class in the "Authorised QoS" for the bearer shall contain the highest QoS class amongst the ones applied for the individual media components and indicates the highest UMTS traffic class that can be applied to the PDP context.
  - The Data Rate of the "Authorised QoS" for the bearer shall be the sum of the Data Rate values of the individual media components/IP flows and it is used as the maximum Data Rate value for the PDP context.
  - The detailed rules for calculating the "Authorized QoS" are specified in 3GPP TS 29.208 [18].

The PDF may include the gate enabling command as part of the authorisation decision, for instance to enable early media. Alternatively, the PDF may provide a separate decision for opening the gate.

The PDF shall send the IMS charging identifier provided by the P-CSCF as part of the authorisation decision to the GGSN.

Upon receiving the modified SDP information from the P-CSCF, the PDF shall update the media authorization information for the session. The PDF may push this updated authorisation information to the GGSN. Under certain condition e.g. revoke of authorization, the PDF shall push the updated policy decision to the GGSN.

**End of modifications**

## CHANGE REQUEST

⌘ **29.208 CR 040** ⌘ rev **3** ⌘ Current version: **5.4.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** UICC apps  ME  Radio Access Network  Core Network

<b>Title:</b>	⌘ Correcting the calculation of RTCP bandwidth		
<b>Source:</b>	⌘ TSG_CN WG3 [Ericsson]		
<b>Work item code:</b>	⌘ E2eQoS	<b>Date:</b>	⌘ 24/08/2003
<b>Category:</b>	⌘ <b>F</b>	<b>Release:</b>	⌘ Rel-5
	Use <u>one</u> of the following categories:		Use <u>one</u> of the following releases:
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	<b>A</b> (corresponds to a correction in an earlier release)		R96 (Release 1996)
	<b>B</b> (addition of feature),		R97 (Release 1997)
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	Detailed explanations of the above categories can be found in 3GPP <a href="#">TR 21.900</a> .		Rel-4 (Release 4)
			Rel-5 (Release 5)
			Rel-6 (Release 6)

<b>Reason for change:</b>	⌘ The introduction of RTCP bandwidth UL/DL, according to the IETF RFC 3556 "Session Description Protocol (SDP) Bandwidth Modifiers for RTP Control Protocol (RTCP) Bandwidth", means that the rules in sections 7.1.1 and 7.2.2 must be updated.
<b>Summary of change:</b>	⌘ The rules in the tables 7.1.1.1 and 7.2.2.1 have been updated to comprise the Maximum Authorized Data Rates/Bandwidths per flow identifier according to the IETF RFC 3556.
<b>Consequences if not approved:</b>	⌘ The rules, in the tables 7.1.1.1 and 7.2.2.1, do not consider the IETF RFC 3556 and hence wrong Maximum Authorized Data Rates/Bandwidths per flow identifier are calculated for RTCP IP flows.

<b>Clauses affected:</b>	⌘ 2, 7.1.1 and 7.2.2						
<b>Other specs affected:</b>	<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="text-align: center;">Y</td> <td style="text-align: center;">N</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>	Y	N	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Other core specifications	⌘
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	<input checked="" type="checkbox"/>	Test specifications					
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<b>Other comments:</b>	⌘						

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## Start of first modification

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on SIP and SDP; Stage 3".
- [3] 3GPP TS 24.229: "IP Multimedia Call Control Protocol based on SIP and SDP; Stage 3".
- [4] 3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".
- [5] 3GPP TS 26.234: "End-to-end transparent streaming service; Protocols and codecs".
- [6] 3GPP TS 26.236: "Packet switched conversational multimedia applications; Transport protocols".
- [7] 3GPP TS 29.207: "Policy control over Go interface".
- [8] 3GPP TS 23.107: "Quality of Service (QoS) concept and architecture".
- [9] [IETF RFC 2327: "SDP: Session Description Protocol"](#).
- [10] [IETF RFC 3556: "Session Description Protocol \(SDP\) Bandwidth Modifiers for RTP Control Protocol \(RTCP\) Bandwidth"](#).

## next modification

[7.1.1 SDP parameters to Authorized IP QoS parameters mapping in PDF](#)

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**Table 7.1.1.1: Rules for derivation of the Maximum Authorized Data Rates and Maximum Authorized QoS Class per ~~media-component-~~[flow identifier](#) in the PDF**

Authorized IP QoS Parameter per <del>media-component-</del> <a href="#">flow identifier</a>	Derivation from SDP Parameters ( <a href="#">see note x</a> )
---------------------------------------------------------------------------------------------	---------------------------------------------------------------

**Maximum Authorized Data Rate DL (Max\_DR\_DL) and UL (Max\_DR\_UL) per media component (see note 4) flow identifier (see note y)**

```

/* The direction of the IP flow(s) identified by the flow identifier */
IF a=recvonly THEN
  IF <SDP direction> = mobile originated THEN
    Direction:= downlink;
  ELSE /* mobile terminated */
    Direction:= uplink;
  ENDIF;
ELSE
  IF a=sendonly THEN
    IF <SDP direction> = mobile originated THEN
      Direction:= uplink;
    ELSE /* mobile terminated */
      Direction:= downlink;
    ENDIF;
  ELSE /*sendrecv, inactive or no direction attribute*/
    Direction:=both;
  ENDIF;
ENDIF;

/* Max_DR_UL and Max_DR_DL */

IF media IP flow(s) THEN
  IF bAS=AS:<bandwidth> is present THEN
    IF Direction=downlink THEN
      IF <transport>="RTP/AVP" then
        Max_DR_UL:=0.025 * <bandwidth>;
        Max_DR_DL:=1.025 * <bandwidth>;
      ELSE
        Max_DR_UL:=_0;
        Max_DR_DL:= bAS<bandwidth>;
      ENDIF;
    ELSE
      IF Direction=uplink THEN
        IF <transport>="RTP/AVP" then
          Max_DR_UL:= 1.025 * <bandwidth>;
          Max_DR_DL:=0.025 * <bandwidth>;
        ELSE
          Max_DR_UL:= bAS<bandwidth>;
          Max_DR_DL:=_0;
        ENDIF;
      ELSE /*Direction=both*/
        Max_DR_UL:= 1.025 * bAS<bandwidth>;
        Max_DR_DL:= 1.025 * bAS<bandwidth>;
      ENDIF;
    ENDIF;
  ELSE
    bw:= as set by the operator;
    IF Direction=downlink THEN
      Max_DR_UL:=_0;
      Max_DR_DL:=_bw;
    ELSE
      IF Direction=uplink THEN
        Max_DR_UL:=_bw;
        Max_DR_DL:=_0;
      ELSE /*Direction=both*/
        Max_DR_UL:=_bw;
        Max_DR_DL:=_bw;
      ENDIF;
    ENDIF;
  ENDIF;
ELSE /* RTCP IP flow(s) */
  IF bRS=RS:<bandwidth> and bRR=RR:<bandwidth> is present THEN
    Max_DR_UL:= (bRS + bRR) / 1000;
    Max_DR_DL:= (bRS + bRR) / 1000;
  ELSE
    IF bAS=AS:<bandwidth> is present THEN
      IF bRS=RS:<bandwidth> is present and bRR=RR:<bandwidth> is not present THEN
        Max_DR_UL:= MAX[0.05 * bAS, bRS / 1000];
        Max_DR_DL:= MAX[0.05 * bAS, bRS / 1000];
      ENDIF;
      IF bRS=RS:<bandwidth> is not present and bRR=RR:<bandwidth> is present THEN
        Max_DR_UL:= MAX[0.05 * bAS, bRR / 1000];
        Max_DR_DL:= MAX[0.05 * bAS, bRR / 1000];
      ENDIF;
      IF bRS=RS:<bandwidth> and bRR=RR:<bandwidth> is not present THEN
        Max_DR_UL:= 0.05 * bAS;
        Max_DR_DL:= 0.05 * bAS;
      ENDIF;
    ELSE
      Max DR III:= as set by the operator;
    ENDIF;
  ENDIF;

```

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~~NOTE 1: For a RTP media component the Maximum Authorized Data Rates DL/UL are the sum of the Maximum Authorized Data Rates DL/UL for the RTP media streams and the associated RTCP IP flows DL/UL.~~

NOTE x: The SDP parameters are described in RFC 2327 [9].

NOTE y: The 'b=RS:' and 'b=RR:' SDP bandwidth modifiers are defined in RFC 3556 [10].

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**next modification**

7.2.2 SDP parameters to Authorized UMTS QoS parameters mapping in UE

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**Table 7.2.2.1: Rules for derivation of the Maximum Authorized Bandwidth DL/UL and the Maximum Authorized Traffic Class per ~~media-component~~flow identifier in the UE**

Authorized UMTS QoS Parameter per <del>media component</del> <u>flow identifier</u>	Derivation from SDP Parameters <a href="#">(see note x)</a>
-------------------------------------------------------------------------------------	----------------------------------------------------------------

Authorized UMTS QoS Parameter per <b>media component flow identifier</b>	Derivation from SDP Parameters <a href="#">(see note x)</a>
<b>Maximum Authorized Bandwidth DL (Max_BW_DL) and UL (Max_BW_UL) per media component (see note 3) flow identifier (see note y)</b>	<pre> IF SBLP is applied THEN  /* The direction of the IP flow(s) identified by the flow identifier */  IF a=recvonly THEN   IF &lt;SDP direction&gt; = mobile originated THEN     Direction:= downlink;   ELSE /* mobile terminated */     Direction:= uplink;   ENDIF; ELSE;   IF a=sendonly THEN     IF &lt;SDP direction&gt; = mobile originated THEN       Direction:= uplink;     ELSE /* mobile terminated */       Direction:= downlink;     ENDIF;   ELSE /*sendrecv, inactive or no direction attribute*/     Direction:=both;   ENDIF; ENDIF;  /* Max_BW_UL and Max_BW_DL */  IF media IP flow(s) THEN   IF b<sub>AS</sub>=AS:&lt;bandwidth&gt; is present THEN     IF Direction=downlink THEN       <del>IF &lt;transport&gt;="RTP/AVP" then</del>       <del>Max_BW_UL:=0.025 * &lt;bandwidth&gt;;</del>       <del>Max_BW_DL:=1.025 * &lt;bandwidth&gt;;</del>       <del>ELSE</del>       <del>Max_BW_UL:= 0;</del>       <del>Max_BW_DL:= b<sub>AS</sub>&lt;bandwidth&gt;;</del>       <del>ENDIF;</del>     ELSE       IF Direction=uplink THEN       <del>IF &lt;transport&gt;="RTP/AVP" then</del>       <del>Max_BW_UL:= 1.025 * &lt;bandwidth&gt;;</del>       <del>Max_BW_DL:=0.025 * &lt;bandwidth&gt;;</del>       <del>ELSE</del>       <del>Max_BW_UL:= b<sub>AS</sub>&lt;bandwidth&gt;;</del>       <del>Max_BW_DL:= 0;</del>       <del>ENDIF;</del>     ELSE /*Direction=both*/       <del>Max_BW_UL:= 1.025 * b<sub>AS</sub>&lt;bandwidth&gt;;</del>       <del>Max_BW_DL:= 1.025 * b<sub>AS</sub>&lt;bandwidth&gt;;</del>     ENDIF;   ENDIF; ELSE   bw:= as set by the UE manufacturer;   <del>IF Direction=downlink THEN</del>   <del>Max_BW_UL:= 0;</del>   <del>Max_BW_DL:= bw;</del>   <del>ELSE</del>   <del>IF Direction=uplink THEN</del>   <del>Max_BW_UL:= bw;</del>   <del>Max_BW_DL:= 0;</del>   <del>ELSE /*Direction=both*/</del>   <del>Max_BW_UL:= bw;</del>   <del>Max_BW_DL:= bw;</del>   <del>ENDIF;</del> ENDIF; ENDIF; ELSE /* RTCP IP flow(s) */   IF b<sub>RS</sub>=RS:&lt;bandwidth&gt; and b<sub>RR</sub>=RR:&lt;bandwidth&gt; is present THEN     Max_BW_UL:= (b<sub>RS</sub> + b<sub>RR</sub>) / 1000;     Max_BW_DL:= (b<sub>RS</sub> + b<sub>RR</sub>) / 1000;   ELSE     IF b<sub>AS</sub>=AS:&lt;bandwidth&gt; is present THEN       IF b<sub>RS</sub>=RS:&lt;bandwidth&gt; is present and b<sub>RR</sub>=RR:&lt;bandwidth&gt; is not present THEN         Max_BW_UL:= MAX[0.05 * b<sub>AS</sub>, b<sub>RS</sub> / 1000];         Max_BW_DL:= MAX[0.05 * b<sub>AS</sub>, b<sub>RS</sub> / 1000];       ENDIF;       IF b<sub>RS</sub>=RS:&lt;bandwidth&gt; is not present and b<sub>RR</sub>=RR:&lt;bandwidth&gt; is present THEN         Max_BW_UL:= MAX[0.05 * b<sub>AS</sub>, b<sub>RR</sub> / 1000];         Max_BW_DL:= MAX[0.05 * b<sub>AS</sub>, b<sub>RR</sub> / 1000];       ENDIF;     ENDIF;   ENDIF; </pre>

<b>Authorized UMTS QoS Parameter per <del>media</del> <del>component flow</del> identifier</b>	<b>Derivation from SDP Parameters <a href="#">(see note x)</a></b>
<a href="#">&gt;&gt;&gt; Skipped text &lt;&lt;&lt;</a>	<a href="#">&gt;&gt;&gt; Skipped text &lt;&lt;&lt;</a>

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~~NOTE 3: For a RTP media component the Maximum Authorized Bandwidth DL/UL are the sum of the Maximum Authorized Bandwidths DL/UL for the RTP media streams and the associated RTCP IP flows DL/UL.~~

[NOTE x: The SDP parameters are described in RFC 2327 \[9\].](#)

[NOTE y: The 'b=RS:' and 'b=RR:' SDP bandwidth modifiers are defined in RFC 3556 \[10\].](#)

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**[End of modifications](#)**