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**RTCP XR - Audio Metrics Report Block**  
**draft-ietf-avt-rtcpxr-audio-01**

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Abstract

This document defines extensions to the RTCP XR extended report packet type blocks to support the performance monitoring of audio streams transmitted using RTP.

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**[1. Introduction](#)**

This draft defines a block type to augment those defined in [RFC3611](#) for use in Quality of Service reporting for audio over IP. The new block type defined in this draft is the IP Audio Metrics Report Block. This is intended to support both the identification of problems affecting performance and the collection of data that may be useful in optimizing system configuration.

Audio performance may be measured using zero (no) reference, partial (reduced) reference or full reference. The primary application of this draft is to support the reporting of real-time, in-service performance obtained using a zero or partial reference model however this approach could also be used to support the remote reporting of metrics from a full reference test.

**[2. Definitions](#)****[3 Audio Metrics Report Block](#)****[3.1 Block Description](#)**

```

      0               1               2               3
    0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|      BT=N      |  Reserved  |      block length      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                                     SSRC                                     |

```

```

+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| 0 0 0 |      Program ID      |      Reserved      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|      Measurement Interval (ms)      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|      Mean Audio bit rate (bits/sec)      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

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```

+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|      Round Trip Delay      |      A-V Delay (Video I/F)      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|      Playout Interrupt Count      |      Mean Playout Interrupt Size      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|      Audio Playout buffer size      |      Mean buffer level      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

## 3.2 Definition of Metrics

### 3.2.1 Header

The header comprises:

- (i) Block Type for this report block
- (ii) Reserved (set to 0xFF)
- (iii) Block length in words (set to 0x0008)
- (iv) SSRC of the received RTP stream that this report refers to
- (v) Program ID (PID) for the audio stream (if MPEG Transport encapsulation is used)
- (vi) Reserved (set to 0xFFFF)

### 3.2.2 Measurement Interval

The interval of time over which these metrics were measured, expressed in milliseconds.

### 3.2.3 Mean Audio Bit Rate

The average bit rate of the audio stream expressed in bits per second.

### 3.2.4 Round Trip Delay

The Round Trip Delay between the originating and terminating ends of this RTP stream, expressed in milliseconds. In unicast or multicast applications this parameter may be set to "undefined" (0xFFFF).

### 3.2.5 A-V Delay

The relative delay between decoded audio and video streams expressed in milliseconds.

### 3.2.6 Playout Interrupt Count

The number of interruptions that occurred during playout, due to

either packet loss or buffer underrun.

#### 3.2.7 Mean Playout Interrupt Size

The mean duration of interruptions in playout expressed in milliseconds.

#### 3.2.8 Audio Playout Buffer Size

The available playout buffer size, expressed in milliseconds.

#### 3.2.9 Mean Buffer Level

The mean playout buffer size, expressed in milliseconds.

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## 4. Summary

This draft defines an RTCP XR block for audio quality reporting. This is intended for in-service monitoring of audio streaming, IPTV and IP videoconferencing services to provide real time performance feedback and support performance management.

## 5. IANA Considerations

The block type "mmm" will need to be replaced with an IANA assigned number within those allocated for RTCP XR report blocks ([RFC 3611](#)).

## 6. Security Considerations

RTCP reports can contain sensitive information since they can provide information about the nature and duration of a session established between two endpoints. As a result, any third party wishing to obtain this information should be properly authenticated and the information transferred securely.

## 7. Acknowledgments

## 8. Informative References

- [1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [2] Schulzrinne, H., Casner, S., Frederick, R. and V. Jacobson, "RTP: A Transport Protocol for Real-Time Applications", STD 64, [RFC 3550](#), July 2003.
- [3] Friedman, T., Caceres, R. and A. Clark, "RTP Control Protocol

Extended Reports (RTCP XR)", [RFC 3611](#), November 2003.

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