

**Joint Video Experts Team (JVET)
of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC
29/WG 11**

Document: JVET-AM0222

MPEG: m73138

39th Meeting, Daejeon, KR, 26 June - 4 July 2025

Title: AHG18: On test conditions for ultra-low latency and packet loss resilience

Status: Input document to JVET

Purpose: Proposal

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Abstract

This contribution proposes simplification of ultra-low latency test by replacing packet trace files by channel bandwidth traces, introduces single frame reconstruction test under various packet loss conditions, and optional configuration of bypassing portion of key important information suitable for scalable coding technologies.

Introduction

Current version of AHG18 simulation software uses network transmission emulation based on packet trace files obtaining from NS-3 simulator emulating indoor Wi-Fi connection. The details can be found in contribution JVET-AK0193. Packet trace file contains packet delivery information: sending time, receiving time, and whether packet was successfully accepted by Wi-Fi station or discarded due to errors.

Packet Number | is lost sending time receiving time 2 1 / 0 5320 us 5360 us

MAC layer retransmission logic is simulated in software to reflect common behavior of Wi-Fi networks, number of retransmission attempts is configurable.

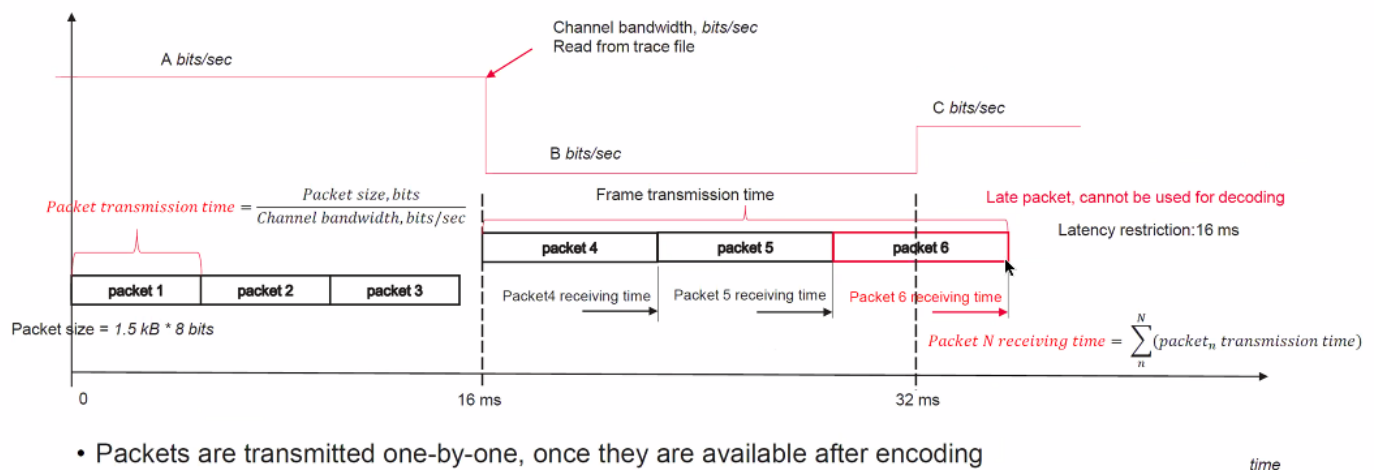
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MEETING NOTES

[JVET-AM0222](#) AHG18: On test conditions for ultra-low latency and packet loss resilience [S. Ikonin, I. Gribushin, M. Sychev, E. Alshina (Huawei)]

This contribution proposes simplification of ultra-low latency test by replacing packet trace files by channel bandwidth traces, introduces single frame reconstruction test under various packet loss conditions, and optional configuration of bypassing portion of key important information suitable for scalable coding technologies.

Packet transmission time based on Channel bandwidth



- Packets are transmitted one-by-one, once they are available after encoding
- Transmission time is calculated based on current instant bandwidth and packet size
- Rest part of AHG18 ULL SW can remain unchanged

It was commented that the bypassing of high priority packets could also be extended by giving them priority in the queue, i.e. shifting them forward such that they will be lost with less probability. As a first step, bypassing would be appropriate.

Further study in AHG, is assessed to have advantages for simplifying simulations, and also introducing priority mechanisms.

CITATION

S. Ikonin, I. Gribushin, M. Sychev, E. Alshina, "AHG18: On test conditions for ultra-low latency and packet loss resilience", JVET-AM0222, 39th Meeting: Daejeon, KR, June 2025.