



Qualcomm CDMA Technologies GmbH

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To whom it may concern:

I was kindly asked to support David Singer's Nomination for the INCITS Lifetime Achievement Award. I am wholeheartedly supporting this nomination as David was and still is a mentor and role model for technically and procedurally outstanding work and leadership in a collaborative standardization development environment for more than 30 years. I was collaborating with him for more than 15 years in multiple standards.

Today I am Senior Director Technical Standards in Qualcomm. In this role, I am active and have leadership and rapporteur positions in 3GPP, DVB, MPEG, IETF, ATSC, CTA, ETSI, Metaverse Standards Forum and the DASH-Industry Forum in multimedia communication, TV-distribution, 5G broadcast, content delivery protocols, immersive media representation, adaptive streaming, XR and the Metaverse. Among others, I lead MPEG-I Scene Description efforts, DASH-IF Technical working group, 3GPP Video and XR activities as well as DVB-5G activities. I received several awards for work on DASH, media delivery and 5G Broadcast, namely the INCITS Technical Excellence Award 2013, the 3GPP Excellence award 2017, the CTA Technology & Standards Achievement Award 2019 and an Emmy Inventor Award in 2022. Just recently I was also elevated to IEEE Fellow for my contributions to media delivery and video streaming standards.

Specifically in MPEG, I had several collaborative projects with David. I admire him for his continuous leadership in the File Format group, providing consistency, diligence, and technical substance for a large community. David and I created the idea to extract signal properties and associated code points from codec specifications, as we identified that copying those forward and fragmenting this information through video and systems specs is harmful for the industry. We created a set of ISO standards under the umbrella of ISO/IEC 23091 for Codec Independent Code Points (CICP). Dave was instrumental and led these efforts to drive it to completion. I also worked with David in setting up and completing the first standard for Dynamic Adaptive Streaming over HTTP (DASH). I served as the main rapporteur for the specification in DASH, but David was continuously guiding the work and complemented it with several efforts in the File Format group such as definition of Segments, Stream Access Points, Common Encryption as well as media codec integration. He also provided guidance and support to relate the work in DASH to IETF signaling. His framework developed as part of codecs and profiles parameters in IETF RFC 6381 served as a masterpiece to offer media data in a DASH manifest. In a follow-up of this work, we ported many of these concepts established in DASH to the Common Media Application Format (CMAF) to serve a common baseline format for streaming media. David's guidance was excellent. Throughout his career, he was a strong promoter of conformance and reference software and assets, proper registration procedures and excellent standards writing. David not only picks the shiny projects, but he is also addressing and completing the painful, hard and unpopular duties and tasks.



To summarize, I am very grateful to have met David and collaborated with him in multiple projects over a long period of time. His guidance and leadership by acting was and still is very beneficial and exemplary for many colleagues and in particular my work in standards and collaboration projects.

Thanks David.

Sincerely,

A handwritten signature in black ink, consisting of stylized loops and a long horizontal stroke extending to the right.

Dr. Thomas Stockhammer

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