

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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**APPLE INC.,**  
Petitioner,

v.

**RED.COM, LLC,**  
Patent Owner.

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Case No. IPR2019-01065  
Patent No. 9,245,314

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**DECLARATION OF ROB LOHMAN IN SUPPORT OF  
PATENT OWNER RED.COM, LLC'S PRELIMINARY RESPONSE**

<b>RED.COM Ex. 2023</b> Apple v. RED.COM
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I, Rob Lohman, declare and state as follows:

1. I am a principle software engineer at RED.COM (“RED”), the assignee of U.S. Patent Nos. 9,230,299 (“the ’299 patent”) and 9,245,314 (the ’314 patent). I am submitting this declaration in connection with Patent Owner Preliminary Responses to IPR2019-01064 and IPR2019-01065, filed by Petitioner Apple Inc., relating to the ’299 and ’314 patents, respectively.

2. I began working with RED in 2006 to assist with the development of the REDCODE programing that operated on the RED ONE motion picture cameras. From the time I began working with RED, my title has been Code Chef. As Code Chef on the RED ONE project, I assisted Graeme Nattress with his software prototyping for REDCODE, provided support on the decoding side after recording, and helped validate REDCODE and its associated algorithms.

3. I am generally familiar with the overall data flow for REDCODE that was used on the RED ONE motion picture cameras, including the Boris and Natasha RED ONE cameras. REDCODE operated by capturing raw Bayer-pattern image data from the image sensor, and sending it to a processing module for pixel correction and processing. Because the sensor had a Bayer-pattern filter, the data obtained by the sensor contained only one data value for each of the green, red and blue pixel locations. The processing of this raw sensor data by the processing module included GAS (green average subtraction) and pre-emphasis that Mr.

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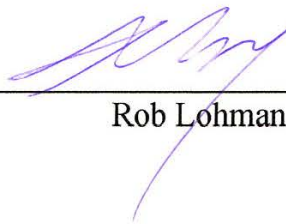
Declaration of Rob Lohman re POPR - IPR2019-01064 and IPR2019-01065

Nattress developed. Pre-emphasis in particular selectively spread apart pixel values in certain areas and squeezed them together in others, which had the effect of avoiding certain kinds of compression artifacts.

4. After processing, REDCODE then sent the processed raw Bayer-pattern image data to a compression module, where it compressed that data using the mathematically lossy JPEG 2000 wavelet codec. This compressed raw Bayer-pattern video image data was then sent to a memory device via a SATA port. When decompressed and demosaiced, the recorded video file output was visually lossless and achieved at least 2K resolution and at least 24 frames per second.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on August 14, 2019 at San Francisco, California.



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Rob Lohman

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