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Paper No. 8
Entered: October 25, 2017

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

SAINT LAWRENCE COMMUNICATIONS, LLC,
Patent Owner.

Case IPR2017-01244
Patent 6,807,524 B1

Before DANIEL N. FISHMAN, ROBERT J. WEINSCHENK, and MICHELLE N. ANKENBRAND, *Administrative Patent Judges*.

FISHMAN, *Administrative Patent Judge.*

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

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I. INTRODUCTION

Apple, Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 1–21 and 29–42 (hereinafter the "challenged claims") of U.S. Patent No. 6,807,524 B1 (Ex. 1001, "the '524 patent") pursuant to 35 U.S.C. §§ 311–319. Saint Lawrence Communications, LLC. ("Patent Owner") filed a Patent Owner Preliminary Response (Paper 7, "Prelim. Resp."). We have authority to determine whether to institute a trial under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). An *inter partes* review may be instituted only if "the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a).

We are not persuaded there is a reasonable likelihood that Petitioner would prevail in showing that the challenged claims are unpatentable. Pursuant to 35 U.S.C. § 314, we *deny* institution of an *inter partes* review as to all challenged claims of the '524 patent.

A. Real Parties in Interest and Related Matters

Petitioner identifies Apple Inc. as the real party in interest. Pet. 1. Patent Owner identifies itself (Saint Lawrence Communications LLC) as the owner of the entire interest in the '524 patent. Paper 3, 1.

Both Petitioner and Patent Owner identify litigation matters relating to the '524 patent in the U.S. District Court for the Eastern District of Texas captioned as: *Saint Lawrence Communications LLV v. ZTE Corp. et al.*, Case No. 2:15-cv-349-JRG; *Saint Lawrence Communications LLC v. Motorola Mobility LLC*, Case No. 2:15-cv-351-JRG; and *Saint Lawrence Communications LLC v. Apple Inc, et al.*, Case No. 2:16-cv-082-JRG. Pet.

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5–6; Paper 3, 2. Petitioner also identifies six other litigations related to the '524 patent, all of which have been terminated. Pet. 5.

B. The '524 Patent

According to the '524 patent, digital encoding of speech/audio is widely applicable to numerous applications including audio/video teleconferencing, multimedia, and wireless applications. Ex. 1001, 1:19–23. Speech encoding (or any audio encoding) converts an audio signal (e.g., speech) into a digital bitstream that can be transmitted to a receiver with a decoder, or stored for later retrieval by a device with a decoder, to reproduce the encoded audio signal. *Id.* at 1:33–40. For speech applications, early techniques utilized a narrow band of speech signals encoding only audio signals ranging between 200–3400 Hz (so-called "narrowband" encoding). *Id.* at 1:24–26. Some techniques utilized wideband encoding to provide better quality of speech reproduction—encoding signals ranging from about 50 through about 7000 Hz. *Id.* at 1:26–30. In digital encoding, the speech signal is periodically sampled to generate a digitized value and the encoder is applied to the sequence of digitized values to reduce the number of bits required to represent each digitized sample value while maintaining good quality in the encoded sounds. *Id.* at 1:32–38.

According to the '524 patent, one widely accepted encoding technique for providing a good balance between the bit rate and the resulting quality is so-called Code Excited Linear Predictor ("CELP") encoding. *Id.* at 1:41–43.

The '524 patent summarizes CELP encoding as follows:

> [T]he sampled speech signal is processed in successive blocks of L samples usually called frames where L is some predetermined number (corresponding to 10-30 ms of speech). In CELP, a linear prediction (LP) synthesis filter is computed and transmitted every frame. The L-sample frame is then divided

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> into smaller blocks called subframes of size N samples, where L=kN and k is the number of subframes in a frame (N usually corresponds to 4-10 ms of speech). An excitation signal is determined in each subframe, which usually consists of two components: one from the past excitation (also called pitch contribution or adaptive codebook) and the other from an innovative codebook (also called fixed codebook). This excitation signal is transmitted and used at the decoder as the input of the LP synthesis filter in order to obtain the synthesized speech.
>
> An innovative codebook in the CELP context, is an indexed set of N-sample-long sequences which will be referred to as N-dimensional codevectors. Each codebook sequence is indexed by an integer k ranging from 1 to M where M represents the size of the codebook often expressed as a number of bits b, where $M=2^b$.
>
> To synthesize speech according to the CELP technique, each block of N samples is synthesized by filtering an appropriate codevector from a codebook through time varying filters modelling the spectral characteristics of the speech signal. At the encoder end, the synthesis output is computed for all, or a subset, of the codevectors from the codebook (codebook search). The retained codevector is the one producing the synthesis output closest to the original speech signal according to a perceptually weighted distortion measure. This perceptual weighting is performed using a so-called perceptual weighting filter, which is usually derived from the LP synthesis filter.

Id. at 1:44–2:8.

According to the ’524 patent, CELP encoding has been widely adopted for encoding telephone band (narrowband) sound signals (i.e., ranging between 200 and 3400 Hz). *Id.* at 2:9–14. In such applications, the speech signal is typically sampled at a bit rate of about 8000 samples/second. *Id.* at 2:13–14. By contrast, wideband speech encoding applications typically sample the speech signal at a higher bit rate of about

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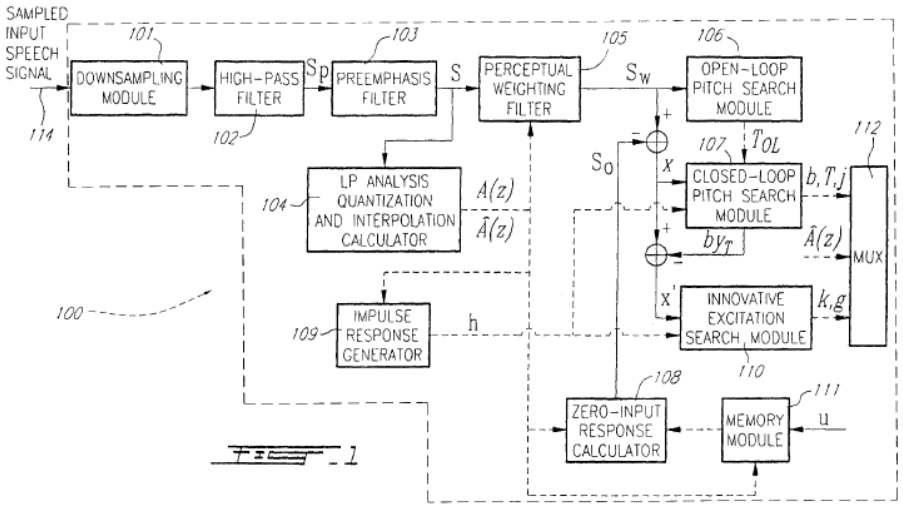
16000 samples/second to further enhance quality of the encoded speech. *Id.* at 2:14–16. However, according to the '524 patent, problems arise when applying CELP techniques for wideband signal encoding. *Id.* at 2:17–20. In particular, the frequency range of signals to be encoded typically has higher energy levels in the lower range of frequencies as compared to the higher range of frequencies (a property often referred to as "spectral tilt") that is exacerbated by wider dynamic range of wideband signals to be encoded. *Id.* at 2:24–27. The '524 patent discloses that a perceptual weighting filter of the CELP encoder is modified to adapt to wideband signals and preemphasis filters may be utilized to boost the energy of the higher range of frequencies. *Id.* at 2:27–34. However, the '524 patent also discloses that such modifications to the perceptual weighting filter are inefficient for encoding wideband signals. *Id.* at 2:49–57.

The '524 patent purports to resolve these problems with a particular arrangement of filters in a perceptual weighting device (i.e., an encoder) for digitizing wideband audio signals (e.g., speech). *Id.* at 2:66–3:21. Figure 1, reproduced below, is a block diagram of an exemplary CELP-type wideband encoding device according to the '524 patent. *Id.* at 6:48–50.



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