

PATENT N°: US 8401845 B2

Jurisdiction: US

Names of the Evaluators		
Lead Evaluator	Assistant Evaluator #1	Assistant Evaluator #2
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The above mentioned Evaluators hereby declare that the following claim(s):

- Claim 1
- Claim 11

in the above referenced patent, is(are) essential to making, using in, selling within, or importing into, the countries of registration, any 3GPP product (the applicable Product Categories are given below) that is or purports to be in compliance with the following parts of the Third Generation Partnership Program (3GPP) technical standards:

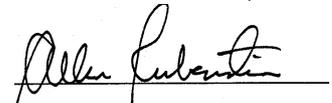
- Document 3GPP TS 26.445 V12.1.0 (2014-12) Sections 1, 4.4, 4.4.2, 6.1.1.3.4, 6.1.1.3.4.1, 6.1.1.3.4.2, 6.1.1.3.4.3, 6.1.1.3.4.4 and 6.1.1.3.4.5; Table 156

Claim 1 is relevant for 3GPP Terminal Products and 3GPP Base Station Products.

Claim 11 is relevant for 3GPP Terminal Products and 3GPP Base Station Products.

Authorized signature and date

December 12, 2017



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(12) **United States Patent**
Vaillancourt et al.

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(54) **SYSTEM AND METHOD FOR ENHANCING A DECODED TONAL SOUND SIGNAL**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 347 days.

(21) Appl. No.: **12/918,586**

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§ 371 (c)(1),
(2), (4) Date: **Nov. 8, 2010**

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(51) **Int. Cl.**

G10L 21/02 (2006.01)

G10L 19/14 (2006.01)

G10L 19/00 (2006.01)

H04B 15/00 (2006.01)

(52) **U.S. Cl.** **704/228; 704/205; 704/219; 704/230; 704/500; 381/94.1**

(58) **Field of Classification Search** None
See application file for complete search history.

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(57) **ABSTRACT**

A system and method for enhancing a tonal sound signal decoded by a decoder of a speech-specific codec in response to a received coded bit stream, in which a spectral analyser is responsive to the decoded tonal sound signal to produce spectral parameters representative of the decoded tonal sound signal. A quantization noise in low-energy spectral regions of the decoded tonal sound signal is reduced in response to the spectral parameters produced by the spectral analyser. The spectral analyser divides a spectrum resulting from spectral analysis into a set of critical frequency bands each comprising a number of frequency bins, and the reducer of quantization noise comprises a noise attenuator that scales the spectrum of the decoded tonal sound signal per critical frequency band, per frequency bin, or per both critical frequency band and frequency bin.

20 Claims, 6 Drawing Sheets

