PATENT N°: US 9053705 B2

Jurisdiction: US

<table>
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<th>Names of the Evaluators</th>
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<tr>
<td>Lead Evaluator</td>
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<td>Allen RUBENSTEIN</td>
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The above mentioned Evaluators hereby declare that the following claim(s):

- Claim 1
- Claim 19

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, 2, 4.4, 5.2.3.1.1, 5.2.3.1.2, 5.2.3.1.4.1, 5.2.3.1.5.3, 5.2.3.1.5.9, 5.2.3.1.6, 5.2.3.1.6.1 and 5.2.3.1.6.4; Figures 1 and 29

Claim 1 is relevant for 3GPP Terminal Products and 3GPP Base Station Products. Claim 19 is relevant for 3GPP Terminal Products and 3GPP Base Station Products.

Authorized signature and date
August 21, 2017

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FLEXIBLE AND SCALABLE COMBINED INNOVATION CODEBOOK FOR USE IN CELP CODER AND DECODER

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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 605 days.
This patent is subject to a terminal disclaimer.

Appl. No.: 13/083,900
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Related U.S. Application Data
Provisional application No. 61/324,191, filed on Apr. 14, 2010.

Int. Cl.
G10L 19/00  (2013.01)
G10L 19/02  (2013.01)
G10L 19/24  (2013.01)

U.S. Cl.
CPC ..........  G10L 19/12 (2013.01); G10L 19/0212 (2013.01); G10L 19/09 (2013.01); G10L 19/24 (2013.01)

Field of Classification Search
None

See application file for complete search history.

ABSTRACT

In a CELP coder, a combined innovation codebook coding device comprises a pre-quantizer of a first, adaptive-codebook excitation residual, and a CELP innovation-codebook search module responsive to a second excitation residual produced from the first, adaptive-codebook excitation residual. In a CELP decoder, a combined innovation codebook comprises a de-quantizer of pre-quantized coding parameters into a first excitation contribution, and a CELP innovation-codebook structure responsive to CELP innovation-codebook parameters to produce a second excitation contribution.

34 Claims, 4 Drawing Sheets