

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

<b>SAINT LAWRENCE COMMUNICATIONS LLC,</b>	§	<b>Case No. 2:14-cv-1055-JRG</b>
	§	
	§	
<b>Plaintiff,</b>	§	<b>Jury Trial Requested</b>
	§	
<b>v.</b>	§	
	§	
<b>LG ELECTRONICS, INC., LG ELECTRONICS ALABAMA, INC., AND LG ELECTRONICS USA, INC.,</b>	§	
	§	
<b>Defendants.</b>	§	
	§	
	§	

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**JOINT CLAIM CONSTRUCTION AND PREHEARING STATEMENT**

Pursuant to the Court’s Docket Control Order (D.I. 25) and P.R. 4-3, Plaintiff Saint Lawrence Communications LLC (“St. Lawrence”) and Defendants LG Electronics, Inc., LG Electronics Alabama, Inc., and LG Electronics USA, Inc. (collectively, “LG”), hereby submit their Joint Claim Construction and Prehearing Statement.

**I. P.R. 4-3(a) – AGREED CLAIM CONSTRUCTIONS**

Exhibit A, attached hereto, provides the construction of those claim terms on which the parties have agreed on a construction.

**II. P.R. 4-3(b) – DISPUTED CLAIM CONSTRUCTIONS**

In Exhibit B, Plaintiff St. Lawrence proposes claim constructions for the disputed claim terms/phrases of the patents-in-suit and identifies intrinsic and extrinsic evidence upon which it may rely to support its proposed constructions.

In Exhibit C, the LG Defendants propose claim constructions for the disputed claim terms/phrases of the patents-in-suit and identify intrinsic and extrinsic evidence upon which they may rely to support their proposed constructions.

**III. P.R. 4-3(c) – LENGTH OF CLAIM CONSTRUCTION HEARING**

The Claim Construction Hearing is set to begin at 1:30 p.m. in Marshall, Texas before Judge Rodney Gilstrap on October 9, 2015. The parties propose that the Court allow a total of 4 hours (2 hours per side) for the hearing.

**IV. P.R. 4-3(d) – LIVE WITNESS TESTIMONY AT CLAIM CONSTRUCTION HEARING**

At this time, the parties do not intend to call live witnesses at the claim construction hearing.

**V. P.R. 4-3(e) – OTHER ISSUES**

At this time, the parties are not aware of any other issues for a prehearing conference.

Dated: July 17, 2015

Respectfully submitted,

/s/ Melissa R. Smith (by permission BES)

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**CERTIFICATE OF SERVICE**

The undersigned hereby certifies that all counsel of record who are deemed to have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3) on July 17, 2015.

/s/ Brian E. Simmons  
Brian E. Simmons

# **EXHIBIT A**

**EXHIBIT A**

**P.R. 4-3 Joint Claim Construction Statement**

**St. Lawrence's and LG's Agreed Proposed Constructions**

At the time of the submission of this Joint Claim Construction Statement, the parties have been able to reduce the number of terms for construction from those presented in their respective P.R. 4-1 and P.R. 4-2 disclosures. At the present time, there are no additional terms upon which any agreement has been reached. After the submission of this Joint Claim Construction Statement, the parties will meet and confer to determine whether agreements can be reached that will result in further narrowing of the claim construction issues for the Court.

## **EXHIBIT B**

**EXHIBIT B****P.R. 4-3 Joint Claim Construction Statement****St. Lawrence's Proposed Constructions and Support****Terms Shared Among the Asserted Patents**

Patent(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support <sup>1, 2</sup>
'805, '524, '802, and '123 Patents	"[synthesized] [weighted] wideband [speech] signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '805, '524, '802, '123, and '521 Patents, including their claims and file histories
'805, '524, '802, '123, and '521 Patents	"[cellular/communication] network element"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '805, '524, '802, '123, and '521 Patents, including their claims and file histories

<sup>1</sup> Plaintiff reserves the right to rely on and/or distinguish any intrinsic or extrinsic evidence identified by the LG Defendants in the P.R. 4-3 submission and the LG Defendants' P.R. 4-2 disclosure. Plaintiff reserves the right to rely on any intrinsic or extrinsic evidence identified by the Plaintiff in its P.R. 4-2 disclosure.

<sup>2</sup> In addition to the intrinsic and extrinsic evidence identified in the column below, SLC identified Dr. Roch Lefebvre, of the University of Sherbrooke, <https://www.usherbrooke.ca/gelecinfo/fr/departement/profs/lefr-fr/lefr-en/>, as a witness who may testify as to the meaning of any term or the definiteness of any term, including the constructions proposed by SLC and those proposed by LG. For terms identified by a party where a construction is offered, Dr. Lefebvre may testify as to the meaning of that term to one skilled in the art. For terms identified by a party as being subject to 35 U.S.C. § 112(6), Dr. Lefebvre may testify that the term is not subject to 35 U.S.C. § 112(6), for example because the claim recites sufficient structure for carrying out the function, or may testify that the term is not indefinite because the specification discloses structure for the function. For other terms that LG identifies as indefinite (but not subject to 35 U.S.C. § 112(6)), Dr. Lefebvre may testify that the claims point out and distinctly claim the subject matter of the invention.

**U.S. Patent No. 6,795,805**

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
1, 11, 21, 31, 51, 61	"low frequency portion"	<p>No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.</p> <p>LG has alleged that this term is indefinite and does not propose an alternative construction. The term is not indefinite.</p>	The '805 Patent, including its claims and file history
12, 13, 16	"a method for enhancing periodicity as defined in claim [10/13]"	<p>LG has alleged that this term is indefinite and does not propose an alternative construction. The term is not indefinite.</p> <p>SLC will request that the Court correct the dependency of claims 12 and 13 such that they depend from claim 11. The recitation of claim "10" as the claim upon claims 12 and 13 depend was a mistake that is readily apparent from the face of the patent.</p>	The '805 Patent, including its claims and file history
1, 21, 31, 51, 61	"factor generator for calculating a periodicity factor related to the wideband speech signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '805 Patent, including its claims and file history
1, 21, 31	"innovation filter for filtering the	No construction is necessary. The	The '805 Patent, including its claims and file

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	innovative codevector in relation to said periodicity factor to thereby reduce energy of a low frequency portion of the innovative codevector and enhance periodicity of a low frequency portion of the excitation signal"	meaning of the term or phrase, as used in the context of the claims, is well understood.	history
2, 12, 22, 32, 42, 52, 62	"means for calculating a periodicity factor in response to the pitch codevector and the innovative codevector"	<p>Function: calculating a periodicity factor in response to the pitch codevector and the innovative codevector</p> <p>Structure, material, or acts:</p> <p><math>\alpha=0.125 (1+r_v)</math></p> <p>or</p> <p><math>\alpha=qR_p</math> bounded by <math>\alpha &lt; q</math></p> <p>or</p> <p><math>\sigma=0.25 (1+r_v)</math></p> <p>or</p> <p><math>\sigma=2qR_p</math> bounded by <math>\sigma &lt; 2q</math>.</p>	<p>The '805 Patent, including its claims and file history, including:</p> <p>'805 Patent: 2:42-4:25; 14:20-15:50.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>

Claim(s)	Claim Term	St. Lawrence's Construction or equivalents thereof	St. Lawrence's Support
6, 26, 36, 56, 66	"means for calculating said periodicity factor $\alpha$ using the relation: $\alpha = 0.125(1 + r_v)$ , where $r_v = (E_v - E_c) / (E_v + E_c)$ where $E_v$ is the energy of the pitch codevector and $E_c$ is the energy of the innovative codevector"	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: calculating said periodicity factor <math>\alpha</math>.</p> <p>Structure, material, or acts:</p> <p><math>\alpha = 0.125(1 + r_v)</math>, where <math>r_v = (E_v - E_c) / (E_v + E_c)</math> where <math>E_v</math> is the energy of the pitch codevector and <math>E_c</math> is the energy of the innovative codevector, or equivalents thereof.</p>	<p>The '805 Patent, including its claims and file history, including:</p> <p>'805 Patent: 2:42-4:25; 14:20-15:50.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action</p> <p>September 6, 2006 Examiner Interview Summary</p> <p>November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
21, 31	"signal fragmenting device for receiving an encoded wideband speech signal and extracting from said encoded wideband speech signal at least pitch codebook parameters, innovative codebook parameters, and synthesis filter coefficients"	<p>No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.</p> <p>The term is not subject to 35 U.S.C. § 112(6).</p>	The '805 Patent, including its claims and file history
21, 31	"combiner circuit for combining said pitch codevector and said	No construction is necessary. The meaning of the term or phrase, as	The '805 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	innovative codevector filtered by said innovation filter to thereby produce said periodicity enhanced excitation signal" / "combiner circuit for combining said pitch codevector and innovative codevector to thereby produce an excitation signal"	used in the context of the claims, is well understood.	
21, 31	"signal synthesis filter for filtering said [periodicity enhanced] excitation signal in relation to said synthesis filter coefficients to thereby produce said synthesized wideband speech signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '805 Patent, including its claims and file history

**U.S. Patent No. 6,807,524**

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
1, 8	"[enhanced] high frequency content"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  LG has alleged that this term is indefinite and does not propose an alternative construction. The term is not indefinite.	The '524 Patent, including its claims and file history
1, 8	"weighting of said wideband speech signal in a formant region"	No construction is necessary. The meaning of the term or phrase, as	The '524 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	is substantially decoupled from a spectral tilt of said wideband speech signal"	used in the context of the claims, is well understood.  LG has alleged that this term is indefinite and does not propose an alternative construction. The term is not indefinite.	
1	"signal preemphasis filter responsive to the wideband speech signal for enhancing a high frequency content of the wideband speech signal to thereby produce a preemphasised signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '524 Patent, including its claims and file history
1	"a synthesis filter calculator responsive to said preemphasised signal for producing synthesis filter coefficients"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '524 Patent, including its claims and file history
1, 8	"a perceptual weighting filter, responsive to said preemphasised signal and said synthesis filter coefficients, for filtering said preemphasised signal in relation to said synthesis filter coefficients to thereby produce said perceptually weighted signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '524 Patent, including its claims and file history
15	"pitch codebook search device responsive to said perceptually	No construction is necessary. The meaning of the term or phrase, as	The '524 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	weighted signal for producing pitch codebook parameters and an innovative search target vector"	used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	
15	"innovative codebook search device, responsive to said synthesis filter coefficients and to said innovative search target vector, for producing innovative codebook parameters"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '524 Patent, including its claims and file history
15	"signal forming device for producing an encoded wideband speech signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '524 Patent, including its claims and file history

**U.S. Patent No. 7,151,802**

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
1, 9, 25	"signal fragmenting device for receiving an encoded version of a wideband signal previously down-sampled during encoding and extracting from said encoded	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '802 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	wideband signal version at least pitch codebook parameters, innovative codebook parameters, and linear prediction filter coefficients"	The term is not subject to 35 U.S.C. § 112(6).	
1, 9, 25	"combiner circuit for combining said pitch codevector and said innovative codevector to thereby produce an excitation signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '802 Patent, including its claims and file history
1, 9, 25	"signal synthesis device including a linear prediction filter for filtering said excitation signal in relation to said linear prediction filter coefficients to thereby produce a synthesized wideband signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '802 Patent, including its claims and file history
1, 9, 25	"oversampler responsive to said synthesized wideband signal for producing an over-sampled signal version of the synthesized wideband signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '802 Patent, including its claims and file history
1, 9, 25	"said full-spectrum synthesized wideband signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  LG has alleged that this term is indefinite and does not propose an alternative construction. The term	The '802 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
		is not indefinite.	
1, 9, 25	"random noise generator for producing a noise sequence having a given spectrum"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '802 Patent, including its claims and file history
1, 9, 25	"spectral shaping unit for shaping the spectrum of the noise sequence in relation to linear prediction filter coefficients related to said down-sampled wideband signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '802 Patent, including its claims and file history
1, 9, 25	"signal injection circuit for injecting said spectrally-shaped noise sequence in said over-sampled synthesized signal version"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '802 Patent, including its claims and file history
3, 11, 27, 35	"gain adjustment module, responsive to said white noise sequence and a set of gain adjusting parameters, for producing a scaled white noise sequence"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '802 Patent, including its claims and file history
3, 11, 27, 35, 49, 50, 52, 53	"spectral shaper for filtering the [said scaled white] noise sequence in relation to a bandwidth	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims,	The '802 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	expanded version of the linear prediction filter coefficients to produce a filtered [scaled white] noise sequence"	is well understood.	
3, 11, 27, 35, 49, 50, 52, 53	"a frequency bandwidth generally higher than a frequency bandwidth of the [said] over-sampled synthesized signal version"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  LG has alleged that this term is indefinite and does not propose an alternative construction. The term is not indefinite.	The '802 Patent, including its claims and file history
3, 11, 27, 35	"a band-pass filter responsive to said filtered scaled white noise sequence for producing a band-pass filtered scaled white noise sequence"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '802 Patent, including its claims and file history

**U.S. Patent No. 7,191,123**

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
9	"a factor $\lambda=0$ indicates a pure voiced signal and a factor $\lambda=1$ indicates a pure unvoiced signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  LG has alleged that this term is	The '123 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
13, 14, 16, 33, 34, 36, 65, 66, 68, 81, 82, 84	"the first $\lambda$ and second $\theta$ factors"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  LG has alleged that this term is indefinite and does not propose an alternative construction. The term is not indefinite.	The '123 Patent, including its claims and file history
20	"codevector finder . . . delivering a codevector found in relation to said at least one first wideband signal encoding parameter"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '123 Patent, including its claims and file history
20	"voicing factor calculator . . . delivering a first factor representative of voicing in the wideband signal in response to said at least one second wideband signal encoding parameter"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '123 Patent, including its claims and file history
20	"stability factor calculator . . . delivering a second factor representative of stability of said wideband signal in response to said at least one third wideband signal encoding parameter"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '123 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
20	"smoothing gain calculator . . . delivering a smoothing gain based on said first and second factors"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '123 Patent, including its claims and file history
20	"amplifier . . . amplifying said found codevector with said smoothing gain to thereby produce said gain-smoothed codevector"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '123 Patent, including its claims and file history
21, 53, 69, 102, 103	"means for finding a codevector in relation to at least one first wideband signal encoding parameter of said set"	Function: finding a codevector in relation to at least one first wideband signal encoding parameter of said set  Structure, materials, or acts: codebook or equivalents thereof:	The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 2:33-5:12; 14:53-15:12; see also claim 20.  '521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.
21, 53, 69	"means for calculating a first factor representative of voicing in the wideband signal in response to at least one second wideband signal encoding parameter of said set"	Function: calculating a first factor representative of voicing in the wideband signal in response to at least one second wideband signal encoding parameter of said set  Structure, materials, or acts:	The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 2:33-5:12; 15:13-50; 18:21-20:55; see also claim 20.  '521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
21, 53, 69	<p>"means for calculating a second factor representative of stability of said wideband signal in response to at least one third wideband signal encoding parameter of said set"</p>	<p><math>rv = (Ev - Ec) / (Ev + Ec)</math> or equivalents thereof</p> <p>Function: calculating a second factor representative of stability of said wideband signal in response to at least one third wideband signal encoding parameter of said set</p> <p>Structure, material, or acts:</p> <p><math>\theta = 1.25 - D_s / 400000.0</math> or equivalents thereof</p>	<p>November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p> <p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 15:61-16:60; see also claim 20.</p> <p>'521 Patent File History, including:</p> <p>June 8, 2006 Office Action</p> <p>September 6, 2006 Examiner Interview Summary</p> <p>November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
21, 53, 69	<p>"means for calculating a smoothing gain based on said first and second factors"</p>	<p>Function: calculating a smoothing gain based on said first and second factors</p> <p>Structure, material, or acts:</p> <p><math>\lambda = 0.5(1 - rv)</math></p> <p><math>S_m = \lambda \theta</math></p>	<p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 2:33-5:12; 15:13-17:3; see also claim 20.</p> <p>'521 Patent File History, including:</p> <p>June 8, 2006 Office Action</p> <p>September 6, 2006 Examiner Interview Summary</p> <p>November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
		<p>if <math>g &lt; g - 1</math> then <math>g^0 = g^{*1,15}</math> bounded by <math>g^0 \leq g - 1</math>  and  if <math>g \geq g - 1</math> then <math>g^0 = g^{*1,19}</math> bounded by <math>g^0 \geq g - 1</math></p> <p><math>g_s = S_m * g_0 + (1 - S_m) * g</math>  or equivalents thereof</p>	
21, 53, 69, 102, 103	“means for amplifying the found codevector with said smoothing gain to thereby produce said gain-smoothed codevector”	<p>Function: amplifying the found codevector with said smoothing gain to thereby produce said gain-smoothed codevector</p> <p>Structure, material, acts: multiplying the found codevector by the smoothing gain or equivalents thereof</p>	<p>The '123 Patent, including its claims and file history, including:  '123 Patent: Abstract; 2:33-5:12; 13:22-61; 16:44-17:3; 18:5-14; see also claim 20</p> <p>'521 Patent File History, including:  June 8, 2006 Office Action  September 6, 2006 Examiner Interview Summary  November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
22, 24, 35, 54, 56, 67, 70, 72, 83	“means for finding an innovative codevector in an innovative codebook in relation to said at least one first wideband signal encoding parameter”	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: finding an innovative codevector in an innovative codebook in relation to said at least one first wideband signal</p>	<p>The '123 Patent, including its claims and file history, including:  '123 Patent: Abstract; 2:33-5:12; 14:53-15:12; see also claim 20.</p> <p>'521 Patent File History, including:  June 8, 2006 Office Action  September 6, 2006 Examiner Interview Summary  November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
		<p>encoding parameter</p> <p>Structure: , materials, or acts: innovative codebook or equivalents thereof</p>	above in Footnote 2.
22, 54, 70	“means for calculating the smoothing gain also in relation to an innovative codebook gain forming a fourth wideband signal encoding parameter of said set”	<p>Function: calculating the smoothing gain also in relation to an innovative codebook gain forming a fourth wideband signal encoding parameter of said set</p> <p>Structure, material, or acts:</p> $\lambda = 0.5(1 - r^v)$ $S_m = \lambda \theta$ <p>if <math>g \leq g - 1</math> then <math>g^0 = g^* 1.19</math> bounded by <math>g^0 \leq g - 1</math>  and  if <math>g \geq g - 1</math> then <math>g^0 = g^* 1.19</math> bounded by <math>g^0 \geq g - 1</math></p> $g_s = S_m^* g_0 + (1 - S_m)^* g$ <p>or equivalents thereof</p>	<p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 2:33-5:12; 15:13-16:43; 16:44-17:3; see also claim 20.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
23, 55, 71	“means for finding a codevector in a codebook in relation to said at least one first wideband signal encoding parameter”	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.</p>	<p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 2:33-5:12; 14:53-16:43; see also claim 20.</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
26, 58, 74	<p>"means for finding an innovative codevector in an innovative codebook in relation to an index k of said innovative codebook"</p>	<p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: finding a codevector in a codebook in relation to said at least one first wideband signal encoding parameter</p> <p>Structure, materials, or acts: codebook or equivalents thereof</p>	<p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
26, 58, 74	<p>"means for finding an innovative codevector in an innovative codebook in relation to an index k of said innovative codebook"</p>	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: finding an innovative codevector in an innovative codebook in relation to an index k of said innovative codebook</p> <p>Structure, materials, or acts: innovative codebook or equivalents thereof</p>	<p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 2:33-5:12; 14:53-16:43; see also claim 20.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
26, 58, 74	<p>"means for computing a voicing factor rv by means of the following relation: <math>rv = (Ev - Ec) / (Ev + Ec)</math> . . ."</p>	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.</p>	<p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 2:33-5:12; 15:13-50; 18:21-20:55; see also claim 20.</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
28, 60, 76	<p>"means for computing a factor <math>\lambda</math> using the following relation:  <math>\lambda=0.5(1-rv)</math>"</p>	<p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:            Function: computing a voicing factor <math>rv</math>.            Structure, material, or acts:  <math>"rv=(Ev-Ec)/(Ev+Ec) \dots"</math>            or equivalents thereof</p>	<p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment            Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
30, 62, 78	<p>"means for determining a distance measure giving a similarity</p>	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.            Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:            Function: means for computing a factor <math>\lambda</math>.            Structure, material, or acts:  <math>\lambda=0.5(1-rv)</math>            or equivalents thereof</p>	<p>The '123 Patent, including its claims and file history, including:            '123 Patent: Abstract; 2:33-5:12; 15:13-60; 18:21-20:55; see also claim 20.            '521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment            Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
	<p>"means for determining a distance measure giving a similarity</p>	<p>Function: determining a distance measure giving a similarity</p>	<p>The '123 Patent, including its claims and file history, including:</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	between adjacent, successive linear prediction filters computed during encoding of the wideband signal"	between adjacent, successive linear prediction filters computed during encoding of the wideband signal  Structure, material, acts:  $D_s = \sum_{i=1}^{p-1} (isp_i^{(n)} - isp_i^{(n-1)})^2$	'123 Patent: Abstract; 2:33-5:12; 15:13-16:31; see also claim 20.  '521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment  Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.
31, 63, 79	"means for calculating an Immitance Spectral Pair distance measure between the Immitance Spectral Pairs in a present frame n of the wideband signal and the Immitance Spectral Pairs of a past frame n-1 of the wideband signal through the following relation . . . where p is the order of the linear prediction filters"	Or equivalents thereof  This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function  Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:  Function: calculating an Immitance Spectral Pair distance measure between the Immitance Spectral Pairs in a present frame n of the wideband signal and the Immitance Spectral Pairs of a past frame n-1 of the wideband signal.  Structure, material, or acts:  $.D_s = \sum_{i=1}^{p-1} (isp_i^{(n)} - isp_i^{(n-1)})^2$ where p is the order of the linear	The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 2:33-5:12; 15:13-16:31; see also claim 20.  '521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment  Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
33, 36, 65, 68, 81, 84	"means for calculating a gain smoothing factor $S_m$ based on both the first $\lambda$ and second $\theta$ factors through the following relation: $S_m = \lambda\theta$ "	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: calculating a gain smoothing factor <math>S_m</math> based on both the first <math>\lambda</math> and second <math>\theta</math> factors</p> <p>Structure, material, or acts:</p> <p><math>S_m = \lambda\theta</math></p> <p>or equivalents thereof</p>	<p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 2:33-5:12; 15:13-16:43; see also claim 20.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
35, 67, 83	"means for computing an initial modified gain $g_0$ "	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.</p> <p>Specifically, the recited structure is described with respect to the term</p>	<p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 2:33-5:12; 16:43-60; see also claim 20.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
35, 67, 83	<p>"means for comparing an innovative codebook gain <math>g</math> computed during encoding of the wideband signal to a threshold given by the initial modified gain from the past subframe <math>g-1</math> as follows if <math>g &lt; g-1</math> then <math>g0 = g \times 1.19</math> bounded by <math>g0 \leq g-1</math> and if <math>g \geq g-1</math> then <math>g0 = g/1.19</math> bounded by <math>g0 \geq g-1</math>"</p>	<p>"means for comparing an innovative codebook gain <math>g</math>" which immediately follows this term.</p> <p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: comparing an innovative codebook gain <math>g</math> computed during encoding of the wideband signal to a threshold given by the initial modified gain from the past subframe <math>g-1</math></p> <p>Structure, material, or acts:</p> <hr/> <p>if <math>g &lt; g-1</math> then <math>g0 = g \times 1.19</math> bounded by <math>g \leq g-1</math> and if <math>g \geq g-1</math> then <math>g0 = g/1.19</math> bounded by <math>g0 \geq g-1</math></p> <hr/> <p>or equivalents thereof</p>	<p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p> <p>The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 2:33-5:12; 16:43-60; see also claim 20.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
36	"a gain-smoothed codevector	LG has alleged that this term is	The '123 Patent, including its claims and file

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	producing method as claimed in claim 35"	<p>indefinite and does not propose an alternative construction. The term is not indefinite.</p> <p>SLC will request that the Court correct the reference to a "method" such that the claim refers to a "device." The recitation of a "method" was a mistake that is readily apparent from the face of the patent.</p>	<p>history, including: '123 Patent: Abstract; 2:33-5:12; 14:53-17:3; Claims 35 and 36.</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
36, 68, 84	"means for determining said smoothing gain through the following relation: $g_s = S m * g_0 + (1 - S m) * g$ "	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: determining said smoothing gain</p> <p>Structure, material, or acts:</p> <p><math>g_s = S m * g_0 + (1 - S m) * g</math></p> <p>or equivalents thereof</p>	<p>The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 2:33-5:12; 16:43-17:3; see also claim 20.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
53, 69	"means for transmitting the encoded wideband signal"	Function: transmitting the encoded wideband signal	<p>The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 6:12-7:4.</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
		Structure: transmission circuit or equivalents thereof	'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment  Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.
53, 69	"means for receiving a transmitted encoded wideband signal"	Function: receiving a transmitted encoded wideband signal  Structure: receiving circuit or equivalents thereof	The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 6:12-7:4.  '521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment  Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.
53, 69	"means responsive to a set of wideband signal encoding the parameters for decoding the received encoded wideband signal"	This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.  Specifically, the claim further recites "wherein said wideband signal decoding means comprises a device as recited in claim 21, for producing a gain-smoothed codevector during decoding of the	The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 6:12-7:4; 14:53-15:30; claim 21.  '521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment  Dr. Roch Lefebvre may testify as to the meaning

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
		<p>encoded wideband signal from said set of wideband signal encoding parameters.”</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: responsive to a set of wideband signal encoding parameters for decoding the received encoded wideband signal</p> <p>Structure, material, or acts:</p> <p>a device as recited in claim 21, for producing a gain-smoothed codevector during decoding of the encoded wideband signal from said set of wideband signal encoding parameters</p> <p>or equivalents thereof</p>	<p>and/or definiteness of this term as discussed above in Footnote 2.</p>
102	<p>“means for calculating a factor representative of voicing in the wideband signal in response to at least one second wideband signal encoding parameter of said set”</p>	<p>Function: calculating a factor representative of voicing in the wideband signal in response to at least one second wideband signal encoding parameter of said set</p> <p>Structure, materials, or acts:</p> $rv = (Ev - Ec) / (Ev + Ec)$	<p>The '123 Patent, including its claims and file history, including:</p> <p>'123 Patent: Abstract; 2:33-5:12; 15:13-50; 18:21-20:55; see also claim 20.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
102	"means for calculating a smoothing gain using a non linear operation based on said voicing representative factor"	<p>Function: calculating a smoothing gain using a non linear operation based on said voicing representative factor</p> <p>Structure, material, or acts:</p> $\lambda = 0.5(1 - r^v)$ $S_m = \lambda \theta$ <p>if <math>g \leq g - 1</math> then <math>g_0 = g^{*1.19}</math> bounded by <math>g_0 \leq g - 1</math>  and  if <math>g \geq g - 1</math> then <math>g_0 = g^{*1.19}</math> bounded by <math>g_0 \geq g - 1</math></p> $g_s = S_m * g_0 + (1 - S_m) * g$ <p>or equivalents thereof</p>	<p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p> <p>The '123 Patent, including its claims and file history, including:  '123 Patent: Abstract; 2:33-5:12; 15:13-17:3; see also claim 20.</p> <p>'521 Patent File History, including:  June 8, 2006 Office Action  September 6, 2006 Examiner Interview Summary  November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
103	"means for calculating a factor representative of stability of said wideband signal in response to at least one second wideband signal encoding parameter of said set"	<p>Function: calculating a factor representative of stability of said wideband signal in response to at least one second wideband signal encoding parameter of said set</p> <p>Structure, material, or acts:</p>	<p>The '123 Patent, including its claims and file history, including:  '123 Patent: Abstract; 2:33-5:12; 15:13-17:3; see also claim 20.</p> <p>'521 Patent File History, including:  June 8, 2006 Office Action</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
		$\theta = 1.25 - D_s / 400000.0$ or equivalents thereof	September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment  Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.
103	"means for calculating a smoothing gain using a non linear operation based on said stability representative factor"	Function: calculating a smoothing gain using a non linear operation based on said stability representative factor  Structure, material, or acts:  $\lambda = 0.5(1 - rv)$  $S_m = \lambda \theta$  <div><div>if <math>g &lt; g - 1</math> then <math>g^0 = g^{1.19}</math> bounded by <math>g^0 \leq g - 1</math> and if <math>g \geq g - 1</math> then <math>g^0 = g^{1.19}</math> bounded by <math>g^0 \geq g - 1</math></div> <math>g_s = S_m * g_0 + (1 - S_m) * g</math> or equivalents thereof</div>	The '123 Patent, including its claims and file history, including: '123 Patent: Abstract; 2:33-5:12; 15:13-17:3; see also claim 20.  '521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment  Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.

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Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
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Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
1	"a pitch codebook search device configured to generate a pitch code vector"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '521 Patent, including its claims and file history
1, 2, 7, 8, 10, 11, 17, 29, 35, 38, 44, 55, 56, 59, 62	"signal path" / "signal paths"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history
1	"pitch prediction error calculating device for calculating a pitch prediction error of said pitch codevector from said pitch codebook search device"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '521 Patent, including its claims and file history
1, 2, 3	"filter for filtering the pitch codevector before supplying said pitch codevector to the pitch prediction error calculating device"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history
1	"a selector for comparing the pitch prediction errors calculated in said at least two signal paths, for choosing the signal path having	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	the lowest calculated pitch prediction error and for selecting the set of pitch codebook parameters associated to the chosen signal path"		
5, 14, 32, 41	"convolution unit for convolving the pitch codevector with a weighted synthesis filter impulse response signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '521 Patent, including its claims and file history
5, 14, 32, 41	"pitch gain calculator for calculating a pitch gain in response to the convolved pitch codevector and a pitch search target vector"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history
5, 14, 32, 41	"amplifier for multiplying the convolved pitch codevector by the pitch gain"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history
5, 14, 32, 41	"combiner circuit for combining the amplified convolved pitch codevector with the pitch search target vector to thereby produce the pitch prediction error"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history
6, 15, 33, 42	"means for calculating said pitch	This term is not subject to 35	The '521 Patent, including its claims and file

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	gain $b(j)$ using the relation: $b^{(j)} = x^T y^{(j)} / \ y^{(j)}\ ^2$	<p>U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: calculating said pitch gain <math>b(j)</math>.</p> <p>Structure, material, or acts:</p> <p><math>b^{(j)} = x^T y^{(j)} / \ y^{(j)}\ ^2</math> where <math>j=0, 1, 2, \dots, K</math>, and <math>K</math> corresponds to a number of signal paths, and where <math>x</math> is said pitch search target vector and <math>y^{(j)}</math> is said convolved pitch codevector</p> <p>or equivalents thereof.</p>	<p>history, including:</p> <p>'521 Patent: Abstract; 3:27-51; 11:66-12:56.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>
8, 17, 35, 44	"means for calculating an energy of the corresponding pitch prediction error"	<p>Function: calculating an energy of the corresponding pitch prediction error</p> <p>Structure, material, or acts:</p> <p><math>E = \ x - by_T\ ^2</math></p> <p>or equivalents thereof</p>	<p>The '521 Patent, including its claims and file history, including:</p> <p>'521 Patent: Abstract; 3:3-51; 9:40-13:25.</p> <p>'521 Patent File History, including: June 8, 2006 Office Action September 6, 2006 Examiner Interview Summary November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed</p>

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
8, 17, 35, 44	<p>"means for comparing the energies of said pitch prediction errors of the different signal paths and for choosing as the signal path having the lowest calculated pitch prediction error the signal path having the lowest calculated energy of the pitch prediction error"</p>	<p>This term is not subject to 35 U.S.C. § 112(6) as the claim recites sufficient structure to perform the recited function.</p> <p>Alternatively, if the Court finds that 35 U.S.C. § 112(6) applies:</p> <p>Function: comparing the energies of said pitch prediction errors of the different signal paths and choosing as the signal path having the lowest calculated pitch prediction error</p> <p>Structure, material, or acts:</p> <p>choosing the signal path having the lowest calculated energy of the pitch prediction error</p>	<p>above in Footnote 2.</p> <p>SIMON HAYKIN &amp; BARRY VAN VEEN, SIGNALS AND SYSTEMS 20-21 (1999)</p> <p>HUIBERT KWAKERNAK &amp; RAPHAEL SIVAN, MODERN SIGNALS AND SYSTEMS 33-34 (1991)</p> <p>JOHN G. PROAKIS &amp; MASOUD SALEHI, COMMUNICATION SYSTEMS ENGINEERING 41-42 (2d ed. 2002)</p> <p>The '521 Patent, including its claims and file history, including:</p> <p>'521 Patent: Abstract; 3:3-51; 9:40-13:25.</p> <p>'521 Patent File History, including:</p> <p>June 8, 2006 Office Action</p> <p>September 6, 2006 Examiner Interview Summary</p> <p>November 8, 2006 Amendment</p> <p>Dr. Roch Lefebvre may testify as to the meaning and/or definiteness of this term as discussed above in Footnote 2.</p>

Claim(s)	Claim Term	St. Lawrence's Construction or equivalents thereof.	St. Lawrence's Support
10	"linear prediction synthesis filter calculator...for producing linear prediction synthesis filter coefficients"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history
10	"perceptual weighting filter...for producing a perceptually weighted signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history
10	"impulse response generator...for producing a weighted synthesis filter impulse response signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history
10	"pitch search unit for producing pitch codebook parameters"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '521 Patent, including its claims and file history
10	"pitch codebook search device responsive to the perceptually weighted signal and linear prediction synthesis filter coefficients for producing the pitch codevector and an innovative	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35	The '521 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
	search target vector"	U.S.C. § 112(6).	
10	"pitch analysis device responsive to the pitch codevector for selecting, from said sets of pitch codebook parameters, the set of pitch codebook parameters associated to the single path having the lower calculated pitch prediction error"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '521 Patent, including its claims and file history
10	"innovative codebook search device...for producing innovative codebook parameters"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '521 Patent, including its claims and file history
10	"signal forming device for producing an encoded wideband signal"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.  The term is not subject to 35 U.S.C. § 112(6).	The '521 Patent, including its claims and file history
55	"pitch codebook search device"	No construction is necessary. The meaning of the term or phrase, as used in the context of the claims, is well understood.	The '521 Patent, including its claims and file history

Claim(s)	Claim Term	St. Lawrence's Construction	St. Lawrence's Support
		LG has alleged that this term is indefinite and does not propose an alternative construction. The term is not indefinite.	

4830-5517-3413, v. 1

## **EXHIBIT C**

**EXHIBIT C**  
**LG's Proposed Constructions and Support**

By LG's count, 84 claim terms remain in dispute. Although this appears to be a large number of terms, they fall within just four categories:

1. 45 of the terms are governed by 35 U.S.C. § 112, ¶ 6, which the parties must identify under P.R. 4-2(a). LG contends that 42 are indefinite.
2. 26 of the terms are patent-specific phrases like "factor generator for calculating a periodicity factor related to the wideband speech signal," which have no readily apparent meaning, and which LG believes should be construed for the jury to explain the operation of the claimed circuitry. St. Lawrence refused to provide LG with any proposed constructions for these terms prior to submission of this P.R. 4-3 Statement.
3. 10 of the terms are terms that LG contends are indefinite (besides the terms governed by § 112, ¶ 6 mentioned above). LG is required to identify these terms under the Docket Control Order.
4. 3 of the terms are miscellaneous terms that LG identified for construction.

LG has attempted in good faith to reduce the number of disputed claim terms during the claim construction process. To that end, at the time of the P.R. 4-2 Disclosure, LG withdrew terms that it originally identified in its P.R. 4-1 Disclosure in a good faith endeavor to narrow the remaining issues. As part of the P.R. 4-2(c) process, LG agreed to withdraw additional terms for which LG previously provided proposed constructions in LG's P.R. 4-2 Disclosure. However, LG has reduced the number of claim terms as much as it reasonably can without prejudicing its position. St. Lawrence is asserting 170 claims across 5 different patents and has steadfastly refused numerous requests to reduce the number of asserted claims.

Moreover, St. Lawrence never provided LG with its proposed corresponding structures for any means-plus-function limitations prior to submission of this P.R. 4-3 Statement despite the clear requirement of P.R. 4-2(a) and numerous requests from LG. Similarly, St. Lawrence refused to provide constructions or meet and confer on any of the terms identified by LG for construction prior to submission of this P.R. 4-3 Statement. LG has been participating in a one-sided meet and confer process and remains hopeful that St. Lawrence will meaningfully engage in the meet and confer process in the future so that the parties can continue to narrow the disputed issues prior to the *Markman* hearing.

**Terms Shared Among the Asserted Patents**

Patent(s)	Claim Term	LG's Construction	LG's Support
'805, '524, '802, and '123 Patents	"[synthesized] [weighted] wideband [speech] signal"	a [synthesized] [weighted] signal containing [speech] information at least in the frequency range of 50-7000Hz	<b><u>Intrinsic Evidence</u></b> '805 Patent: Abstract, Col. 1:12-25, 2:6-19, 6:20-7:11, 7:18-55, 12:14-17, 16:17-38, 17:64-18:4, 18:16-30:11; File History, Notice of Allowance dated June 16, 2004 at pp. 2-6

Patent(s)	Claim Term	LG's Construction	LG's Support
'805, '524,	"[cellular/communication]"	a [cellular] base station	<p>'524 Patent: Abstract, Col. 1:13-32, 2:8-3:26, 6:48-8:14, 8:60-65, 10:8-20, 12:25-28, 16:28-44, 18:6-13, 18:24-22:65; Fig. 1; U.S. Patent App. No. 09/830,726 (a related application) File History, Response to Office Action dated January 23, 2004 (e.g., pp. 5-11), Examiner's Amendment Communication dated April 14, 2004 (e.g., pp. 7-8)</p> <p>'802 Patent: Abstract, Col. 1:16-29, 2:9-62, 7:36-8:67, 13:35-38, 17:49-64, 19:36-43, 19:55-28:45; U.S. Patent App. No. 09/830,332 (a related application) File History, Response to Office Action dated January 05, 2005 (e.g., pp. 26-29), Response to Office Action dated December 13, 2005 (e.g., pp. 29-31), Response to Office Action dated July 14, 2006 (e.g., pp.24-26)</p> <p>'123 Patent: Abstract, Col. 1:10-23, 2:4-22, 7:5-60, 8:1-37; 13:18-21, 19:35-57, 21:44-40:7; File History, Applicant Response dated January 1, 2006 at pp. 41-47, Applicant Response dated August 4, 2006 at pp. 38-46</p> <p><b>Extrinsic Evidence</b>  Abboud, <i>Wideband CELP Speech Coding</i>, McGill Univ., November 1992  U.S. Patent No. 5,646,961 to Shoham et al.  U.S. Patent No. 5,235,669 to Ordentlich et al.  Newton's Telecom Dictionary 15th ed. (1999)  The American Heritage Dictionary 4th ed. (2001)</p>
'805, '524,	"[cellular/communication]"	a [cellular] base station	<b>Intrinsic Evidence</b>

Patent(s)	Claim Term	LG's Construction	LG's Support
'802, '123, and '521 Patents	network element"		'805 Patent: Col. 4:26-6:19, Fig. 4 '524 Patent: Col. 4:14-62, 5:17-6:27, Fig. 4 '802 Patent: Col. 5:43-47, 6:4-7:1, Fig. 4 '123 Patent: Col. 5:1-6:64, Fig. 4 '521 Patent: Col. 4:26-6:15, Fig. 4. <b><u>Extrinsic Evidence</u></b> Newton's Telecom Dictionary 15th ed. (1999)

**U.S. Patent No. 6,795,805**

Claim(s)	Claim Term	LG's Construction	LG's Support
1, 11, 21, 31, 51, 61	"low frequency portion"	Indefinite	
12, 13, 16	"a method for enhancing periodicity as defined in claim [10/13]"	Indefinite	
1, 21, 31, 51, 61	"factor generator for calculating a periodicity factor related to the wideband speech signal"	a specialized circuit for calculating a value that represents the amount of pitch contribution of the excitation signal for the wideband speech signal	<b><u>Intrinsic Evidence</u></b> Abstract, Col. 2:30-3:45, 4:53-7:15, 13:35-15:62, 17:8-28, 18:16-30:11, Figs. 1-4 '805 Patent File History, Notice of Allowance dated June 16, 2004 at pp. 2-6
1, 21, 31	"innovation filter for filtering the innovative codevector in relation to said periodicity factor to thereby reduce energy of a low frequency	a specialized circuit for using a periodicity factor to filter an innovative codevector to reduce energy of a low frequency portion	<b><u>Intrinsic Evidence</u></b> Abstract, Col. 2:30-3:45, 4:53-7:15, 13:35-15:62, 18:16-30:11, Figs. 1-4

Claim(s)	Claim Term	LG's Construction	LG's Support
	portion of the innovative codevector and enhance periodicity of a low frequency portion of the excitation signal"	of the innovative codevector and enhance periodicity of a low frequency portion of the excitation signal	'805 Patent File History, Notice of Allowance dated June 16, 2004 at pp. 2-6  <b><u>Extrinsic Evidence</u></b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
2, 12, 22, 32, 42, 52, 62	"means for calculating a periodicity factor in response to the pitch codevector and the innovative codevector"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
6, 26, 36, 56, 66	"means for calculating said periodicity factor $\alpha$ using the relation: $\alpha = 0.125(1 + r_v)$ , where $r_v = (E_v - E_c) / (E_v + E_c)$ where $E_v$ is the energy of the pitch codevector and $E_c$ is the energy of the innovative codevector"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
21, 31	"signal fragmenting device for receiving an encoded wideband speech signal and extracting from said encoded wideband speech signal at least pitch codebook parameters, innovative codebook parameters, and synthesis filter coefficients"	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
21, 31	This term is subject to 35 U.S.C. § 112(6). “combiner circuit for combining said pitch codevector and said innovative codevector filtered by said innovation filter to thereby produce said periodicity enhanced excitation signal” / “combiner circuit for combining said pitch codevector and innovative codevector to thereby produce an excitation signal”	a specialized circuit for generating a [periodicity enhanced] excitation signal by combining pitch and innovative codevectors	<b>Intrinsic Evidence</b> Abstract, Col. 3:46-4:25, 4:53-7:15, 13:35-15:62, 18:6-30:11, Figs. 1-4  '805 Patent File History, Notice of Allowance dated June 16, 2004 at pp. 2-6  <b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
21, 31	“signal synthesis filter for filtering said [periodicity enhanced] excitation signal in relation to said synthesis filter coefficients to thereby produce said synthesized wideband speech signal”	a specialized circuit for using synthesis filter coefficients to filter a [periodicity enhanced] excitation signal to generate a synthesized wideband speech signal	<b>Intrinsic Evidence</b> Abstract, Col. 3:46-4:25, 4:53-7:15, 13:35-16:15, 18:16-30:11, Figs. 1-4  '805 Patent File History, Notice of Allowance dated June 16, 2004 at pp. 2-6  <b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)

## U.S. Patent No. 6,807,524

Claim(s)	Claim Term	LG's Construction	LG's Support
1, 8	“[enhanced] high frequency content”	Indefinite	
1, 8	“weighting of said wideband speech signal in a formant region	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
1	is substantially decoupled from a spectral tilt of said wideband speech signal" "signal preemphasis filter responsive to the wideband speech signal for enhancing a high frequency content of the wideband speech signal to thereby produce a preemphasised signal"	a specialized circuit that converts a wideband speech signal into a preemphasized signal with enhanced high frequency content	<b><u>Intrinsic Evidence</u></b> Abstract, Col. 2:16-30, 3:6-4:2, 6:48-8:18, 9:32-63, 18:24-22:65; Fig. 1, Fig. 2; U.S. Patent App. No. 09/830,726 (a related application) File History, Response to Office Action dated January 23, 2004 (e.g., pp. 5-11), Examiner's Amendment Communication dated April 14, 2004 (e.g., pp. 7-8) <b><u>Extrinsic Evidence</u></b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
1	"a synthesis filter calculator responsive to said preemphasised signal for producing synthesis filter coefficients"	a specialized circuit that uses a preemphasised signal to calculate synthesis filter coefficients	<b><u>Intrinsic Evidence</u></b> Abstract, Col. 1:41-4:2, 6:33-8:59, 9:32-63, 18:24-22:65; Fig. 1, Fig. 2; U.S. Patent App. No. 09/830,726 (a related application) File History, Response to Office Action dated January 23, 2004 (e.g., pp. 5-11), Examiner's Amendment Communication dated April 14, 2004 (e.g., pp. 7-8). <b><u>Extrinsic Evidence</u></b> The American Heritage Dictionary 4th ed. (2001)
1, 8	"a perceptual weighting filter, responsive to said preemphasised signal and said synthesis filter coefficients, for filtering said preemphasised signal in relation to said synthesis filter coefficients to	a specialized circuit that converts a preemphasised signal into a perceptually weighted signal by filtering the preemphasized signal using synthesis filter coefficients	<b><u>Intrinsic Evidence</u></b> Abstract, Col. 2:6-4:2, 6:34-7:63, 8:59-9:63, 10:8-38, 18:24-22:65; Fig. 1; U.S. Patent App. No. 09/830,726 (a related application) File History, Response to Office Action dated January 23, 2004 (e.g., pp. 5-11), Examiner's Amendment

Claim(s)	Claim Term	LG's Construction	LG's Support
	thereby produce said perceptually weighted signal"		Communication dated April 14, 2004 (e.g., pp. 7-8)  <u><b>Extrinsic Evidence</b></u> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
15	"pitch codebook search device responsive to said perceptually weighted signal for producing pitch codebook parameters and an innovative search target vector"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
15	"innovative codebook search device, responsive to said synthesis filter coefficients and to said innovative search target vector, for producing innovative codebook parameters"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
15	"signal forming device for producing an encoded wideband speech signal"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	

## U.S. Patent No. 7,151,802

Claim(s)	Claim Term	LG's Construction	LG's Support
1, 9, 25	<p>“signal fragmenting device for receiving an encoded version of a wideband signal previously down-sampled during encoding and extracting from said encoded wideband signal version at least pitch codebook parameters, innovative codebook parameters, and linear prediction filter coefficients”</p> <p>This term is subject to 35 U.S.C. § 112(6).</p>	Indefinite	
1, 9, 25	<p>“combiner circuit for combining said pitch codevector and said innovative codevector to thereby produce an excitation signal”</p>	a specialized circuit for generating an excitation signal by combining pitch and innovative codevectors	<p><b>Intrinsic Evidence</b> Col. 3:1-5:52, 7:29-8:21, 16:5-29, 17:7-25, 19:55-28:45; Fig. 2</p> <p><b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)</p>
1, 9, 25	<p>“signal synthesis device including a linear prediction filter for filtering said excitation signal in relation to said linear prediction filter coefficients to thereby produce a synthesized wideband signal”</p> <p>This term is subject to 35 U.S.C. § 112(6).</p>	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
1, 9, 25	"oversampler responsive to said synthesized wideband signal for producing an over-sampled signal version of the synthesized wideband signal"	a specialized circuit that uses a synthesized wideband signal to generate an over-sampled signal version of the synthesized wideband signal	<b>Intrinsic Evidence</b> Abstract, Col. 1:9-14, 2:46-62, 3:1-5:52, 7:29-8:21, 5:33-35, 17:48-64, 19:55-28:45, Fig. 2; U.S. Patent App. No. 09/830,332 (a related application) File History, Response to Office Action dated January 05, 2005 (e.g., pp. 26-29), Response to Office Action dated December 13, 2005 (e.g., pp. 29-31), Response to Office Action dated July 14, 2006 (e.g., pp.24-26)
1, 9, 25	"said full-spectrum synthesized wideband signal"	Indefinite	
1, 9, 25	"random noise generator for producing a noise sequence having a given spectrum"	a specialized circuit that generates a noise sequence having a given spectrum	<b>Intrinsic Evidence</b> Abstract, Col. 1:9-14, 2:46-62, 3:1-5:52, 7:29-8:21, 17:57-18:14, 19:55-28:45, Fig. 2; U.S. Patent App. No. 09/830,332 (a related application) File History, Response to Office Action dated January 05, 2005 (e.g., pp. 26-29), Response to Office Action dated December 13, 2005 (e.g., pp. 29-31), Response to Office Action dated July 14, 2006 (e.g., pp.24-26)
1, 9, 25	"spectral shaping unit for shaping the spectrum of the noise sequence in relation to linear prediction filter coefficients related to said down-sampled wideband signal"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
1, 9, 25	"signal injection circuit for injecting said spectrally-shaped	a specialized circuit for combining a spectrally-shaped noise sequence	<b>Intrinsic Evidence</b> Abstract, Col. 1:9-14, 2:46-62, 3:1-5:52, 7:29-

Claim(s)	Claim Term	LG's Construction	LG's Support
	noise sequence in said over-sampled synthesized signal version"	with an over-sampled synthesized signal version	8:21, 17:47-64, 19:29-43, 19:55-28:45; Fig. 2; U.S. Patent App. No. 09/830,332 (a related application) File History, Response to Office Action dated January 05, 2005 (e.g., pp. 26-29), Response to Office Action dated December 13, 2005 (e.g., pp. 29-31), Response to Office Action dated July 14, 2006 (e.g., pp. 24-26)  <b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
3, 11, 27, 35	"gain adjustment module, responsive to said white noise sequence and a set of gain adjusting parameters, for producing a scaled white noise sequence"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
3, 11, 27, 35, 49, 50, 52, 53	"spectral shaper for filtering the [said scaled white] noise sequence in relation to a bandwidth expanded version of the linear prediction filter coefficients to produce a filtered [scaled white] noise sequence"	a specialized circuit for using a bandwidth expanded version of the linear prediction filter coefficients to generate a filtered [scaled white] noise sequence	<b>Intrinsic Evidence</b> Abstract, Col. 1:9-14, 2:46-62, 3:1-5:52, 7:29-8:21, 17:47-19:35, 19:55-28:45, Fig. 2; U.S. Patent App. No. 09/830,332 (a related application) File History, Response to Office Action dated January 05, 2005 (e.g., pp. 26-29), Response to Office Action dated December 13, 2005 (e.g., pp. 29-31), Response to Office Action dated July 14, 2006 (e.g., pp. 25-26)  <b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999)

Claim(s)	Claim Term	LG's Construction	LG's Support
3, 11, 27, 35, 49, 50, 52, 53	"a frequency bandwidth generally higher than a frequency bandwidth of the [said] over-sampled synthesized signal version"	Indefinite	The American Heritage Dictionary 4th ed. (2001)
3, 11, 27, 35	"a band-pass filter responsive to said filtered scaled white noise sequence for producing a band-pass filtered scaled white noise sequence"	a specialized circuit for receiving and using a filtered scaled white noise sequence to generate a band-pass filtered scale white noise sequence	<p><b>Intrinsic Evidence</b> Abstract, Col. 1:9-14, 2:46-62, 3:1-5:52, 7:29-8:21, 17:57-64, 19:36-43, 19:55-28:45, Fig. 2; U.S. App. 09/830,332 (a related application) File History, Response to Office Action dated January 05, 2005 (e.g., p. 29)</p> <p><b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)</p>

## U.S. Patent No. 7,191,123

Claim(s)	Claim Term	LG's Construction	LG's Support
9	"a factor $\lambda=0$ indicates a pure voiced signal and a factor $\lambda=1$ indicates a pure unvoiced signal"	Indefinite	
13, 14, 16, 33, 34, 36, 65, 66, 68, 81, 82, 84	"the first $\lambda$ and second $\theta$ factors"	Indefinite	
20	"codevector finder . . . delivering a codevector found in relation to said at least one first wideband signal encoding parameter"	a specialized circuit for using at least one first wideband signal encoding parameter to find and output a codevector	<p><b>Intrinsic Evidence</b> Abstract, Col. 2:33-5:12, 5:39-7:65, 14:53-17:3, 21:44-40:7, Figs. 1-5</p> <p>'123 Patent File History, Applicant Response</p>

Claim(s)	Claim Term	LG's Construction	LG's Support
20	"voicing factor calculator . . . delivering a first factor representative of voicing in the wideband signal in response to said at least one second wideband signal encoding parameter"	a specialized circuit for receiving and using at least one second wideband signal encoding parameter to calculate and output a value that represents the voicing of the encoded wideband signal	dated January 1, 2006 at pp. 41-47; Applicant Response dated August 4, 2006 at pp. 38-46  <b><u>Intrinsic Evidence</u></b> Abstract, Col. 2:33-5:12, 5:39-7:65, 14:53-19:8, 20:21-55, 21:44-40:7, Figs. 1-5  '123 Patent File History, Applicant Response dated January 1, 2006 at pp. 41-47; Applicant Response dated August 4, 2006 at pp. 38-46  <b><u>Extrinsic Evidence</u></b> The American Heritage Dictionary 4th ed. (2001)  <b><u>Intrinsic Evidence</u></b> Abstract, Col. 2:33-5:12, 5:39-7:65; 14:53-17:3, 21:44-40:7, Figs. 1-5  '123 Patent File History, Applicant Response dated January 1, 2006 at pp. 41-47; Applicant Response dated August 4, 2006 at pp. 38-46  <b><u>Extrinsic Evidence</u></b> The American Heritage Dictionary 4th ed. (2001)
20	"stability factor calculator . . . delivering a second factor representative of stability of said wideband signal in response to said at least one third wideband signal encoding parameter"	a specialized circuit for receiving and using at least one third wideband signal encoding parameter to calculate and output a value that represents the stability of the encoded wideband signal	<b><u>Intrinsic Evidence</u></b> Abstract, Col. 2:33-5:12, 5:39-7:65; 14:53-17:3, 21:44-40:7, Figs. 1-5  '123 Patent File History, Applicant Response dated January 1, 2006 at pp. 41-47; Applicant Response dated August 4, 2006 at pp. 38-46  <b><u>Extrinsic Evidence</u></b> The American Heritage Dictionary 4th ed. (2001)
20	"smoothing gain calculator . . . delivering a smoothing gain based on said first and second factors"	a specialized circuit for using the first and second factors to calculate and output a smoothing gain	<b><u>Intrinsic Evidence</u></b> Abstract, Col. 2:33-5:12, 5:39-7:65; 14:53-17:3, 21:44-40:7, Figs. 1-5  '123 Patent File History, Applicant Response dated January 1, 2006 at pp. 41-47; Applicant Response dated August 4, 2006 at pp. 38-46  <b><u>Extrinsic Evidence</u></b> The American Heritage Dictionary 4th ed. (2001)

Claim(s)	Claim Term	LG's Construction	LG's Support
20	"amplifier . . . amplifying said found codevector with said smoothing gain to thereby produce said gain-smoothed codevector"	a specialized circuit for using the smoothing gain to amplify the found codevector to generate a gain-smoothed vector	The American Heritage Dictionary 4th ed. (2001) <b>Intrinsic Evidence</b> Abstract, Col. 2:33-5:12, 5:39-7:65; 14:53-17:3, 21:44-40:7, Figs. 1-5  '123 Patent File History, Applicant Response dated January 1, 2006 at pp. 41-47; Applicant Response dated August 4, 2006 at pp. 38-46  <b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
21, 53, 69, 102, 103	"means for finding a codevector in relation to at least one first wideband signal encoding parameter of said set"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
21, 53, 69	"means for calculating a first factor representative of voicing in the wideband signal in response to at least one second wideband signal encoding parameter of said set"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
21, 53, 69	"means for calculating a second factor representative of stability of said wideband signal in response to at least one third wideband	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
	signal encoding parameter of said set"  This term is subject to 35 U.S.C. § 112(6).		
21, 53, 69	"means for calculating a smoothing gain based on said first and second factors"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
21, 53, 69, 102, 103	"means for amplifying the found codevector with said smoothing gain to thereby produce said gain-smoothed codevector"  This term is subject to 35 U.S.C. § 112(6).	Function: amplifying a found codevector with a smoothing gain to produce a gain-smoothed codevector  Corresponding structure: amplifier circuit	<b>Intrinsic Evidence</b> Abstract, Col. 2:33-5:12, 14:53-17:3, 21:44-40:7, Figs. 1-5  '123 Patent File History, Applicant Response dated January 1, 2006 at pp. 41-47; Applicant Response dated August 4, 2006 at pp. 38-46  <b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
22, 24, 35, 54, 56, 67, 70, 72, 83	"means for finding an innovative codevector in an innovative codebook in relation to said at least one first wideband signal encoding parameter"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
22, 54, 70	"means for calculating the smoothing gain also in relation to	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
	an innovative codebook gain forming a fourth wideband signal encoding parameter of said set"  This term is subject to 35 U.S.C. § 112(6).		
23, 55, 71	"means for finding a codevector in a codebook in relation to said at least one first wideband signal encoding parameter"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
26, 58, 74	"means for finding an innovative codevector in an innovative codebook in relation to an index k of said innovative codebook"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
26, 58, 74	"means for computing a voicing factor rv by means of the following relation: $rv = (E_v - E_c) / (E_v + E_c)$ . . ."  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
28, 60, 76	"means for computing a factor $\lambda$ using the following relation: $\lambda = 0.5(1 - rv)$ "  This term is subject to 35 U.S.C. § 112(6).	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
30, 62, 78	§ 112(6). “means for determining a distance measure giving a similarity between adjacent, successive linear prediction filters computed during encoding of the wideband signal”  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
31, 63, 79	“means for calculating an Immitance Spectral Pair distance measure between the Immitance Spectral Pairs in a present frame n of the wideband signal and the Immitance Spectral Pairs of a past frame n-1 of the wideband signal through the following relation . . . where p is the order of the linear prediction filters”  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
33, 36, 65, 68, 81, 84	“means for calculating a gain smoothing factor $S_m$ based on both the first $\lambda$ and second $\theta$ factors through the following relation: $S_m = \lambda\theta$ ”  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
35, 67, 83	“means for computing an initial	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
	modified gain $g_0$ "  This term is subject to 35 U.S.C. § 112(6).		
35, 67, 83	"means for comparing an innovative codebook gain $g$ computed during encoding of the wideband signal to a threshold given by the initial modified gain from the past subframe $g_{-1}$ as follows if $g < g_{-1}$ then $g_0 = g \times 1.19$ bounded by $g_0 \leq g_{-1}$ and if $g \geq g_{-1}$ then $g_0 = g/1.19$ bounded by $g_0 \geq g_{-1}$ "  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
36	"a gain-smoothed codevector producing method as claimed in claim 35"	Indefinite	
36, 68, 84	"means for determining said smoothing gain through the following relation: $g_s = S_m * g_0 + (1 - S_m) * g$ "  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
53, 69	"means for transmitting the encoded wideband signal"  This term is subject to 35 U.S.C. § 112(6).	Function: transmitting an encoded wideband signal  Corresponding structure: transmission circuit	<u>Intrinsic Evidence</u> Col. 5:1-7:4, Fig. 4

Claim(s)	Claim Term	LG's Construction	LG's Support
53, 69	<p>“means for receiving a transmitted encoded wideband signal”</p> <p>This term is subject to 35 U.S.C. § 112(6).</p>	<p>Function: receiving a transmitted encoded wideband signal</p> <p>Corresponding structure: receiving circuit</p> <p>Indefinite</p>	<p><b><u>Intrinsic Evidence</u></b></p> <p>Col. 5:1-7:4, Fig. 4</p>
53, 69	<p>“means responsive to a set of wideband signal encoding parameters for decoding the received encoded wideband signal”</p> <p>This term is subject to 35 U.S.C. § 112(6).</p>	Indefinite	
102	<p>“means for calculating a factor representative of voicing in the wideband signal in response to at least one second wideband signal encoding parameter of said set”</p> <p>This term is subject to 35 U.S.C. § 112(6).</p>	Indefinite	
102	<p>“means for calculating a smoothing gain using a non linear operation based on said voicing representative factor”</p> <p>This term is subject to 35 U.S.C. § 112(6).</p>	Indefinite	
103	<p>“means for calculating a factor representative of stability of said wideband signal in response to at least one second wideband signal</p>	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
	encoding parameter of said set"		
103	This term is subject to 35 U.S.C. § 112(6). "means for calculating a smoothing gain using a non linear operation based on said stability representative factor" This term is subject to 35 U.S.C. § 112(6).	Indefinite	

**U.S. Patent No. 7,260,521**

Claim(s)	Claim Term	LG's Construction	LG's Support
1	"a pitch codebook search device configured to generate a pitch code vector" This term is subject to 35 U.S.C. § 112(6).	Indefinite	
1, 2, 7, 8, 10, 11, 17, 29, 35, 38, 44, 55, 56, 59, 62	"signal path" / "signal paths"	a series of circuits for processing a signal	<b>Intrinsic Evidence</b> Abstract, Col. 2:56-3:19, 3:42-48, 3:52-4:17, 5:20-42, 11:11-12:56, 18:25-26:50, Figs. 1-3 '521 Patent File History, Applicant Response dated November 1, 2002 (e.g., pp. 2-6, pp.29-37) <b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)

Claim(s)	Claim Term	LG's Construction	LG's Support
1	<p>“pitch prediction error calculating device for calculating a pitch prediction error of said pitch codevector from said pitch codebook search device”</p> <p>This term is subject to 35 U.S.C. § 112(6).</p>	Indefinite	
1, 2, 3	“filter for filtering the pitch codevector before supplying said pitch codevector to the pitch prediction error calculating device”	a specialized circuit for filtering a pitch codevector and supplying the filtered pitch codevector to the pitch prediction error calculating device	<p><b><u>Intrinsic Evidence</u></b> Col. 2:56-3:19, 5:20-42, 6:35-7:3, 11:11-12:56, 18:25-26:50, Fig. 1, Fig. 3</p> <p>’521 Patent File History, Applicant Response dated November 1, 2002 (e.g., pp.29-37)</p> <p><b><u>Extrinsic Evidence</u></b> Newton’s Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)</p>
1	“a selector for comparing the pitch prediction errors calculated in said at least two signal paths, for choosing the signal path having the lowest calculated pitch prediction error and for selecting the set of pitch codebook parameters associated to the chosen signal path”	a specialized circuit connected to at least two signal paths for using calculated pitch prediction errors to select a set of pitch codebook parameters from the signal path with the lowest calculated pitch prediction error	<p><b><u>Intrinsic Evidence</u></b> Col. 2:56-3:19, 5:20-42, 6:35-7:3, 11:11-12:56, 18:25-26:50, Fig. 1, Fig. 3</p> <p>’521 Patent File History, Applicant Response dated November 1, 2002 (e.g., pp.29-37)</p>
5, 14, 32, 41	“convolution unit for convolving the pitch codevector with a	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
	weighted synthesis filter impulse response signal"  This term is subject to 35 U.S.C. § 112(6).		
5, 14, 32, 41	"pitch gain calculator for calculating a pitch gain in response to the convolved pitch codevector and a pitch search target vector"	a specialized circuit for receiving and using a convolved pitch codevector and a pitch search target vector to calculate a pitch gain	<b><u>Intrinsic Evidence</u></b> Col. 2:56-3:19, 5:20-42, 6:35-7:3, 11:43-12:56, 18:25-26:50, Fig. 1, Fig. 3  <b><u>Extrinsic Evidence</u></b> The American Heritage Dictionary 4th ed. (2001)
5, 14, 32, 41	"amplifier for multiplying the convolved pitch codevector by the pitch gain"	a specialized circuit for multiplying a convolved pitch codevector with a pitch gain	<b><u>Intrinsic Evidence</u></b> Col. 2:56-3:19, 5:20-42, 11:43-12:56, 18:25-26:50, Fig. 1, Fig. 3  <b><u>Extrinsic Evidence</u></b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
5, 14, 32, 41	"combiner circuit for combining the amplified convolved pitch codevector with the pitch search target vector to thereby produce the pitch prediction error"	a specialized circuit for generating a pitch prediction error by combining an amplified convolved pitch codevector with a pitch search target vector	<b><u>Intrinsic Evidence</u></b> Col. 2:56-3:19, 5:20-42, 11:43-12:56, 18:25-26:50, Fig. 1, Fig. 3  <b><u>Extrinsic Evidence</u></b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
6, 15, 33, 42	"means for calculating said pitch gain $b(j)$ using the relation: $b(j) = x^T y^{(j)} / \ y^{(j)}\ ^2$ "  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
8, 17, 35, 44	"means for calculating an energy	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
	of the corresponding pitch prediction error"  This term is subject to 35 U.S.C. § 112(6).		
8, 17, 35, 44	"means for comparing the energies of said pitch prediction errors of the different signal paths and for choosing as the signal path having the lowest calculated pitch prediction error the signal path having the lowest calculated energy of the pitch prediction error"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
10	"linear prediction synthesis filter calculator...for producing linear prediction synthesis filter coefficients"	a specialized circuit for receiving and using a wideband signal to calculate linear prediction synthesis filter coefficients	<b><u>Intrinsic Evidence</u></b> Col. 2:56-4:17, 5:20-42, 6:35-7:3, 7:55-8:24, 9:6-38, 11:43-12:56, 18:25-26:50, Fig. 1, Fig. 3  <b><u>Extrinsic Evidence</u></b> The American Heritage Dictionary 4th ed. (2001)
10	"perceptual weighting filter...for producing a perceptually weighted signal"	a specialized circuit for receiving and converting a wideband signal into a perceptually weighted signal using linear prediction synthesis filter coefficients	<b><u>Intrinsic Evidence</u></b> Col. 2:56-4:17, 5:20-42, 6:35-7:3, 8:39-9:39, 11:43-12:56, 18:25-26:50, Fig. 1, Fig. 3  <b><u>Extrinsic Evidence</u></b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)

Claim(s)	Claim Term	LG's Construction	LG's Support
10	"impulse response generator...for producing a weighted synthesis filter impulse response signal"	a specialized circuit for receiving and using linear prediction synthesis filter coefficients to generate a weighted synthesis filter impulse response signal	<b>Intrinsic Evidence</b> Col. 2:56-4:17, 5:20-42, 6:35-7:3, 10:9-31, 11:43-12:56, 18:25-26:50, Fig. 1, Fig. 3 <b>Extrinsic Evidence</b> Newton's Telecom Dictionary 15th ed. (1999) The American Heritage Dictionary 4th ed. (2001)
10	"pitch search unit for producing pitch codebook parameters"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
10	"pitch codebook search device responsive to the perceptually weighted signal and linear prediction synthesis filter coefficients for producing the pitch codevector and an innovative search target vector"  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
10	"pitch analysis device responsive to the pitch codevector for selecting, from said sets of pitch codebook parameters, the set of pitch codebook parameters associated to the single path having the lower calculated pitch prediction error"	Indefinite	

Claim(s)	Claim Term	LG's Construction	LG's Support
	This term is subject to 35 U.S.C. § 112(6).		
10	“innovative codebook search device...for producing innovative codebook parameters”  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
10	“signal forming device for producing an encoded wideband signal”  This term is subject to 35 U.S.C. § 112(6).	Indefinite	
55	“pitch codebook search device”	Indefinite	