

Exhibit 2 – Preliminary Claim Chart For U.S. Patent No. 7,421,032

Claim Language	Analysis
Claim 1	
<p>[1] A method of encoding a signal, comprising:</p>	<p>To the extent this preamble is construed to be limiting, the Accused method of encoding a signal.</p> <p>For example, the Accused Products implement the IEEE Standards, method of encoding a signal.</p> <p>For example, the IEEE 802.11n-2009 amendment to the IEEE 802.11 standard include “low-density parity check (LDPC) encoding.”</p> <p>An HT STA has PHY features consisting of the modulation and coding scheme 20.3.5 and physical layer convergence procedure (PLCP) protocol data unit (PPDU) 20.1.4. Some PHY features that distinguish an HT STA from a non-HT STA are reference signals (RS); multiple input multiple output (MIMO) operation; spatial multiplexing (SM); spatial mapping; beamforming; space-time block coding (STBC); low-density parity check (LDPC) selection (ASEL). The allowed PPDU formats are non-HT format, HT-mixed format, and HT format. The PPDU may be transmitted with 20 MHz or 40 MHz bandwidth.</p> <p>IEEE 802.11n-2009 at § 5.2.9; IEEE 802.11-2012 at § 4.3.10; IEEE 802.11-2012 at § 4.3.13 (emphasis added).</p>

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	<p>The HT Capabilities Info field of the HT Capabilities element is 2 octets in length and contains 16 bits of information bits. The structure of this field is defined in Figure 7-95o18.</p> <table border="1" data-bbox="797 898 1624 1024"> <tr> <td align="center">B0</td> <td align="center">B1</td> <td align="center">B2</td> <td align="center">B3</td> <td align="center">B4</td> <td align="center">B5</td> <td align="center">B6</td> </tr> <tr> <td align="center">LDPC Coding Capability</td> <td align="center">Supported Channel Width Set</td> <td align="center">SM Power Save</td> <td align="center">HT-Greenfield</td> <td align="center">Short GI for 20 MHz</td> <td align="center">Short GI for 40 MHz</td> <td align="center">Short GI for 80 MHz</td> </tr> </table> <table border="1" data-bbox="781 1087 1624 1213"> <tr> <td align="center">B10</td> <td align="center">B11</td> <td align="center">B12</td> <td align="center">B13</td> <td align="center">B14</td> </tr> <tr> <td align="center">HT-Delayed Block Ack</td> <td align="center">Maximum A-MSDU Length</td> <td align="center">DSSS/CCK Mode in 40 MHz</td> <td align="center">Reserved</td> <td align="center">Forty MHz Intolerant</td> </tr> </table> <p align="center">Figure 7-95o18—HT Capabilities Info field</p> <p>IEEE 802.11n-2009 at § 7.3.2.56.2; IEEE 802.11-2012 at § 8.4.2.58 and § 9.4.2.55 (emphasis added).</p> <p align="center">Table 7-43j—Subfields of the HT Capabilities Info field</p> <table border="1" data-bbox="781 1444 1624 1612"> <thead> <tr> <th>Subfield</th> <th>Definition</th> <th>Encoding</th> </tr> </thead> <tbody> <tr> <td>LDPC Coding Capability</td> <td>Indicates support for receiving LDPC coded packets</td> <td>Set to 0 if not supported Set to 1 if supported</td> </tr> </tbody> </table> <p>IEEE 802.11n-2009 at Table 7-43j; <i>see also</i> IEEE 802.11-2012 at Table 8-21 and Table 9-184.</p> <p>A STA shall not transmit a control response frame with TXVECTOR parameter LDPC_CODING unless it is in response to a reception of a frame with the TXVECTOR parameter FEC_CODING set to LDPC_CODING.</p>	B0	B1	B2	B3	B4	B5	B6	LDPC Coding Capability	Supported Channel Width Set	SM Power Save	HT-Greenfield	Short GI for 20 MHz	Short GI for 40 MHz	Short GI for 80 MHz	B10	B11	B12	B13	B14	HT-Delayed Block Ack	Maximum A-MSDU Length	DSSS/CCK Mode in 40 MHz	Reserved	Forty MHz Intolerant	Subfield	Definition	Encoding	LDPC Coding Capability	Indicates support for receiving LDPC coded packets	Set to 0 if not supported Set to 1 if supported
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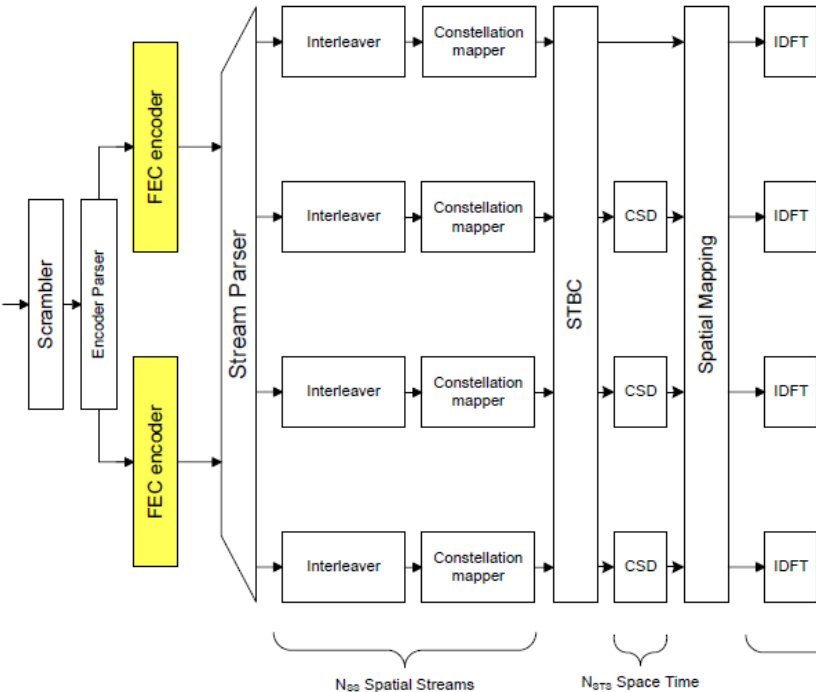
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	<p>IEEE 802.11n-2009 at § 9.6.0e.5.5; IEEE 802.11-2012 at § 9.7.6.5.5; § 10.6.6.5.7 (emphasis added).</p> <p>A STA shall not transmit a control frame that initiates a TXOP with the FEC_CODING set to a value of LDPC_CODING.</p> <p>IEEE 802.11n-2009 at § 9.6.0e.7; IEEE 802.11-2012 at § 9.7.6.7; IEEE 802.11-2012 at § 10.6.6.7 (emphasis added)</p> <p>LDPC coding was incorporated into the IEEE 802.11 standard via the 802.11n amendment. In general, the following sections of 802.11n discuss LDPC coding: § 20.3.11.6, Annex G at sections G.2 and G.3 and Annex R.</p> <p>9.7f LDPC operation</p> <p>An HT STA shall not transmit a frame with the TXVECTOR parameter FORMAT and the TXVECTOR parameter FEC_CODING set to LDPC_CODING unless the STA corresponds to a STA for which the LDPC Coding Capability subfield of the Capabilities element from that STA contained a value of 1 and the MIB variable LDPC_Coding_Enabled is set to TRUE.</p> <p>Further restrictions on TXVECTOR parameter values may apply due to rules four.</p> <p>IEEE 802.11n-2009 at § 9.7f; <i>see also</i> IEEE 802.11-2012 at § 9.14; IEEE 802.11-2012 at § 10.15.</p> <p align="center">Table 20-1—TXVECTOR and RXVECTOR parameter values</p> <table border="1" data-bbox="786 1667 1624 1898"> <thead> <tr> <th data-bbox="786 1667 841 1898">Parameter</th> <th data-bbox="841 1667 1078 1898">Condition</th> <th data-bbox="1078 1667 1624 1898">Value</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Parameter	Condition	Value			
Parameter	Condition	Value					

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	<p align="center">* * *</p> <table border="1" data-bbox="787 814 1624 995"> <tr> <td data-bbox="787 814 841 995" style="writing-mode: vertical-rl; transform: rotate(180deg);">FEC_CODING</td> <td data-bbox="841 814 1076 940">FORMAT is HT_MF or HT_GF</td> <td data-bbox="1076 814 1624 940">Indicates which FEC encoding is used. Enumerated type: BCC_CODING indicates binary convolutional code. LDPC_CODING indicates low-density parity check code.</td> </tr> <tr> <td></td> <td data-bbox="841 940 1076 995">Otherwise</td> <td data-bbox="1076 940 1624 995">Not present</td> </tr> </table> <p>IEEE 802.11n-2009 at Table 20-1; IEEE 802.11-2012 at Table 20-1 Table 19-1 (emphasis added).</p> <p>HT-mixed format and HT-greenfield format transmissions can be generated using the following blocks:</p> <ol style="list-style-type: none"> <i>Scrambler</i> scrambles the data to reduce the probability of long sequences of zeros. <i>Encoder parser</i>, if BCC encoding is to be used, demultiplexes the stream into (number of BCC encoders for the Data field) BCC encoders, in a round robin fashion. <i>FEC encoders</i> encode the data to enable error correction. An FEC encoder may include a convolutional encoder followed by a puncturing device, or it may include a low-density parity check code. <p>IEEE 802.11n-2009 at § 20.3.3 (emphasis added); see also IEEE 802.11-2012 at § 19.3.3</p>	FEC_CODING	FORMAT is HT_MF or HT_GF	Indicates which FEC encoding is used. Enumerated type: BCC_CODING indicates binary convolutional code. LDPC_CODING indicates low-density parity check code.		Otherwise	Not present
FEC_CODING	FORMAT is HT_MF or HT_GF	Indicates which FEC encoding is used. Enumerated type: BCC_CODING indicates binary convolutional code. LDPC_CODING indicates low-density parity check code.					
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	 <p align="center"> N_{sp} Spatial Streams $N_{sp} \cdot T_s$ Space Time Streams </p> <p> NOTES —There may be 1 or 2 FEC encoders when BCC encoding is used. —The stream parser may have 1, 2, 3 or 4 outputs. —When LDPC encoding is used, the interleavers are not used. —When STBC is used, the STBC block has more outputs than inputs. —When spatial mapping is used, there may be more transmit chains than space time streams. —The number of inputs to the spatial mapper may be 1, 2, 3, or 4. </p> <p> IEEE 802.11n-2009 at Fig. 20-3; IEEE 802.11-2012 at Fig. 20-3; IEEE 802.11-2007 at Fig. 19-3 (emphasis added) </p> <p> 20.3.4 Overview of the PPDU encoding process </p> <p> The encoding process is composed of the steps described below. The following facilitate an understanding of the details of the convergence procedure: </p>

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