SUMMARY OF OUT-OF-SCOPE QUESTIONS
FROM DR. MITZENMACHER'S DEPOSITION[1]

Citations	Subject Matter
25:12-27:24; 28:19-30:14; 32:12-35:24; 39:24-42:9; 44:24-45:10; 51:10-52:15; 55:16-63:6	Questions regarding whether it is theoretically possible to derive a systematic generator matrix from any parity-check matrix, and whether a person of ordinary skill in the art ("POSA") could have done so.
45:11-51:9	Questions regarding how one might implement an encoder for any given parity-check matrix, and Dr. Mitzenmacher's experience implementing encoders in software or hardware.
64:22-73:14; 74:19-78:18; 80:13-81:21; 82:3-86:7; 86:18-87:14; 88:24-89:10; 111:14-112:12	Questions regarding Exhibit 1044,[2] a new exhibit created by Petitioner's counsel and not disclosed until Dr. Mitzenmacher's deposition, purportedly depicting a Tanner graph of a code. Exhibit 1044 is labeled "Tanner graph for a code described by Fig. 2 of the '710 Patent." Questions include comparisons of Exhibit 1044 with Figure 3 of the '710 Patent, and whether Exhibit 1044 is within the scope of Claim 1 of the '710 Patent.

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[1] Exhibit 1062 in IPR2017-00210, which corresponds with Exhibit 1262 in

IPR2017-00219, Exhibit 1045 in IPR2017-00297) and Exhibit 2038 in IPR2017-

00700, -00701, and -00728.

[2] All exhibit numbers in the charts refer to the exhibit numbers assigned in

IPR2017-00210. Exhibit 1044 was also submitted as Exhibit 1244 in IPR2017-

(continued...)

131:12-135:5	Questions regarding whether Figure 3 of the '710 patent is an embodiment of Claim 1.
145:6-146:20; 147:2-155:16; 163:12-168:8; 401:14-404:2;	Questions regarding newly proposed modifications to Divsalar and whether such modifications would meet the limitations of Claim 1 of the '710 patent. Specifically, the questioning in the cited sections relate to new modifications to Divsalar: (1) where a regular repeat-Q is modified to repeat some bits Q times and other bits Q+1 times, (2) where a regular repeat-Q is modified to repeat some bits Q times and other bits Q+10 times, (3) where a regular repeat-3 is modified to repeat some bits 3 times and other bits 4 times.
156:12-162:8; 163:12-168:8	Questions regarding modifications to a Tanner graph found in Khandekar's thesis and whether they meet the limitations of Claim 1 of the '710 patent. The Board has rejected Khandekar's thesis as prior art.
181:3-192:10;	Questions regarding how a POSA would implement Divsalar's accumulator in hardware, as well as questions regarding the simplicity of Exhibit 1045, an exhibit created by Apple's counsel and first shown at Dr. Divsalar's deposition. Exhibit 1045 purports to be a circuit diagram for an accumulator consisting of a single XOR gate and a single bit flip-flop.[3]

(...continued from previous page)

00219 and Exhibit 1027 in IPR2017-00297.

[3] Also submitted as Exhibit 1245 in IPR2017-00219 and Exhibit 1028 in IPR2017-00297.

202:10-207:13	Questions regarding whether a POSA would find it easier to modify Divsalar's repeater to be irregular compared to modifying its accumulator.
228:21-233:22	Questions regarding whether a POSA would prefer Luby98's decoder to decode information bits or parity bits correctly.
259:5-265:13; 267:8-273:2; 276:21-278:2; 278:9-282:21; 283:14-21; 284:24 (the phrase "and 193Y")	Questions regarding Figures 5 and 6 from MacKay, content not relied upon in the petition materials.
404:16-407:2	Questions regarding the rate of hypothetically modified code.
413:24-418:13	Questions regarding Exhibit 1046, a new exhibit created by Petitioner's counsel and not disclosed until Dr. Mitzenmacher's deposition, labeled "Tanner graph for Divsalar with all information bits having degree 3."[4]

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[4] Also submitted as Exhibit 1246 in IPR2017-00219 and Exhibit 1029 in

IPR2017-00297.

418:14-424:14	Questions regarding Exhibit 1047, a new exhibit created by Petitioner's counsel and not disclosed until Dr. Mitzenmacher's deposition, labeled "Tanner graph for Luby98's Code 14."[5]
424:15-431:24	Questions regarding Exhibit 1048, a new exhibit created by Apple's counsel and not disclosed until Dr. Mitzenmacher's deposition, labeled "Tanner graph for Ping (with t=4, k=30,000, and n=90,000)."[6]
431:25-438:24	Questions regarding Exhibit 1049, a new exhibit created by Petitioner's counsel and not disclosed until Dr. Mitzenmacher's deposition, labeled "MacKay's Profile 93y" and purportedly a Tanner graph representation of said profile.[7]
445:11-446:12	Questions regarding the 802.11n standard.

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[5] Also submitted as Exhibit 1247 in IPR2017-00219 and Exhibit 1030 in IPR2017-00297.

[6] Also submitted as Exhibit 1248 in IPR2017-00219 and Exhibit 1031 in IPR2017-00297.

[7] Also submitted as Exhibit 1249 in IPR2017-00219 and Exhibit 1032 in IPR2017-00297.

Citations	Subject Matter
23:7-25:24	Questions regarding CCSDS standard whether it includes irregular LDPC codes.
29:1-36:18	Questions regarding the Allerton Conference, including, general practices for publication of the papers presented at the conference.
48:20-49:19, 50:13-54-20	Questions regarding whether POSA would understand Divsalar to disclose claimed partitioning.
56:12-58:2, 58:22-68:9, 69:8-18	Questions regarding modification to Divsalar RA code not presented in petition; specifically, modifying it to repeat some bits five times and some bits three times. This includes questions regarding such a modification could be accomplished by a POSA (see, e.g., 61:1-15, 63:18-64:5, 64:14-65:1, 68:2-68:9) and whether it is simple to implement (see, e.g., 61:23-63:12, 657-67:1).
77:23-78:23, 82:5-93:16	Questions regarding Tanner graph implementation of RA code, including questions regarding new "Tanner graph" exhibit 1057.[9]

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[8] Ex 1064 of IPR2017-00210, which corresponds with Exhibit 1264 in

IPR2017-00219 and Exhibit 2039 in IPR2017-00700, -00701, and -00728.

[9] Also submitted as Exhibit 1257 in IPR2017-00219.

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