DOCKET NO.: 1033300-00287

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT: 7,916,781

INVENTORS: JIN HUI, AAMOD KHANDEKAR, ROBERT J. McELIECE

FILED: JUNE 30, 2008

ISSUED: MARCH 29, 2011

TITLE: SERIAL CONCATENATION OF INTERLEAVED
               CONVOLUTIONAL CODES FORMING TURBO-LIKE
               CODES

_____

BEFORE THE PATENT TRIAL AND APPEAL BOARD
_____

Apple Inc.
Petitioner

v.

California Institute of Technology
Patent Owner

Case IPR2017-00423

PETITIONERS' UPDATED EXHIBIT LIST

EXHIBITS

Exhibit	Description
1101	U.S. Patent No. 7,916,781
1102	D. J. C. MacKay, S. T. Wilson, and M. C. Davey, "Comparison of constructions of irregular Gallager codes," *IEEE Trans. Commun.*, Vol. 47, No. 10, pp. 1449-54, 1999
1103	L. Ping, W. K. Leung, N. Phamdo, "Low Density Parity Check Codes with Semi-random Parity Check Matrix." *Electron. Letters*, Vol. 35, No. 1, pp. 38-39, 1999
1104	Declaration of Professor James Davis, Ph.D. ("Davis Declaration")
1105	Gallager, R., *Low-Density Parity-Check Codes*, Monograph, M.I.T. Press, 1963
1106	Berrou *et al.*, "Near Shannon Limit Error-Correcting Coding and Decoding: Turbo Codes," *ICC '93*, Technical Program, Conference Record 1064, Geneva 1993
1107	Benedetto, S. et al., *Serial Concatenation of Block and Convolutional Codes*, 32.10 Electronics Letters 887-8, 1996
1108	Luby, M. *et al.*, "Practical Loss-Resilient Codes," *STOC '97*, 1997
1109	Luby, M. *et al.*, "Analysis of Low Density Codes and Improved Designs Using Irregular Graphs," *STOC '98*, pp. 249-59, published in 1998
1110	Replacement copy of Frey, B. J. and MacKay, D. J. C., "Irregular Turbocodes," *Proc. 37th Allerton Conf. on Comm., Control and Computing*, Monticello, Illinois, published on or before March 20, 2000
1111	Final Written Decision, *Hughes Network Systems, LLC et al. v. Cal. Institute of Tech.*, IPR2015-00059, Paper 42 (PTAB Apr. 21, 2016)
1112	Prosecution History of the '781 Patent, Response Dated Jan. 27, 2011
1113	Claim Construction Order, *California Institute of Technology v. Hughes Communications Inc.*, No. 13-cv-7245 (C.D. Cal.)
1114	Decision on Institution, *Hughes Network Systems, LLC et al. v. Cal.*

	Institute of Tech., IPR2015-00059, Paper 18 (PTAB Apr. 27, 2015)
1115	Expert Report of Dr. Brendan Frey (Case No. 2:13-cv-07245)
1116	MacKay, D. J. C, and Neal, R. M. "Near Shannon Limit Performance of Low Density Parity Check Codes," *Electronics Letters*, vol. 32, pp. 1645-46, 1996
1117	Replacement copy of D. Divsalar, H. Jin, and R. J. McEliece, "Coding theorems for "turbo-like" codes," *Proc. 36th Allerton Conf. on Comm., Control and Computing*, Allerton, Illinois, pp. 201-09, September, 1998
1118	U.S. Patent No. 4,271,520 (1981)
1119	Declaration of Robin Fradenburgh Concerning the "Proceedings, 36th Allerton Conference on Communications, Control, and Computing" Reference
1120	Chris Heegard and Stephen B. Wicker, *Turbo Coding*, pp. 12-14, 1999
1121	George C. Clark, Jr. and J. Bibb Cain, *Error-Correction Coding for Digital Communications*, pp. 6, 229, 1938
1122	Declaration Of Richard Goldenberg In Support Of Unopposed Motions To Submit Replacement Exhibits Pursuant To 37 C.F.R. § 42.104(c)
1123	Declaration Of Jonathan Barbee In Support Of Unopposed Motions To Submit Replacement Exhibits Pursuant To 37 C.F.R. § 42.104(c)

Dated: February 28, 2017

Respectfully Submitted,

/Dominic E. Massa/
Dominic E. Massa
Registration No. 44,905
WILMER CUTLER PICKERING
HALE AND DORR LLP
60 State Street
Boston, MA 02109
Tel: (617) 526-6386
Fax: (617) 526-5000

Attorney for Petitioner