

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC., DISH NETWORK, LLC,
COMCAST CABLE COMMUNICATIONS, LLC,
COX COMMUNICATIONS, INC.,
TIME WARNER CABLE ENTERPRISES LLC,
VERIZON SERVICES CORP., and ARRIS GROUP, INC.,
Petitioner

v.

TQ DELTA, LLC,
Patent Owner

Case IPR2016-01008¹
Patent 8,238,412 B2

PETITIONER'S REPLY

¹ DISH Network, LLC, who filed a Petition in IPR2017-00253, and Comcast Cable Communications, LLC, Cox Communications, Inc., Time Warner Cable Enterprises LLC, Verizon Services Corp., and ARRIS Group, Inc., who filed a Petition in IPR2017-00419, have been joined in this proceeding.

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 2. Milbrandt’s power spectrum density per sub-frequency teaches
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 B. Milbrandt in combination with ANSI T1.413 teaches “*an array
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 3. ANSI T1.413’s measured “SNR” discloses “*Signal to Noise
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PETITIONER'S UPDATED EXHIBIT LIST

June 8, 2017

1001	U.S. Patent No. 8,238,412 to Krinsky et al.
1002	Prosecution File History of U.S. 8,432,956
1003	Prosecution File History of U.S. 8,238,412
1004	Prosecution File History of U.S. 7,835,430
1005	Prosecution File History of U.S. 7,570,686
1006	Prosecution File History of U.S. 6,658,052
1007	U.S. Provisional Application No. 60/224,308
1008	U.S. Provisional Application No. 60/174,865
1009	Declaration of Dr. Sayfe Kiaei Under 37 C.F.R. § 1.68
1010	Curriculum Vitae of Dr. Sayfe Kiaei
1011	U.S. Patent No. 6,636,603 to Milbrandt
1012	U.S. Patent No. 6,891,803 to Chang et al.
1013	U.S. Patent No. 6,590,893 to Hwang et al.
1014	ANSI T1.413-1995 Standard
1015	Charles K. Summers, ADSL STANDARDS, IMPLEMENTATION, AND ARCHITECTURE (CRC Press 1999) (selected pages)
1016	Walter Goralski, ADSL AND DSL TECHNOLOGIES (McGraw-Hill 1998) (selected pages)
1017	Harry Newton, Newton's Telecom Dictionary, 16 th Ed. (2000) (selected pages)

1018	Valerie Illingworth and John Daintith, THE FACTS ON FILE DICTIONARY OF COMPUTER SCIENCE (Market House Books 2001) (selected pages)
1019	Thomas Starr, John M. Cioffi, Peter J. Silverman, Understanding Digital Subscriber Line Technology, (Prentice Hall 1999) (selected pages)
1020	Andrew S. Tanenbaum, COMPUTER NETWORKS (Prentice Hall 1996) (selected pages)
1021	B. P. Lathi, Modern Digital and Analog Communication Systems (Oxford University Press 1998) (selected pages)
1022	Behzad Razavi, RF MICROELECTRONICS (Prentice Hall 1997) (selected pages)
1023	Declaration of David Bader
1100	Second Declaration of Dr. Sayfe Kiaei Under 37 C.F.R. § 1.68
1101	George Abe, RESIDENTIAL BROADBAND (Cisco Press, Second Edition 2000) (selected pages)
1102	Martin Rowe, ADSL Testing Moves Out of the Lab (April 1, 1999)
1103	Declaration of Robert Short
1104	U.S. 6,625,219
1105	U.S. 7,292,627
1106	Douglas Chrissan, Uni-DSL: One DSL for Universal Service, White Paper (June 2004)
1107	U.S. 6,374,288
1108	Ata Elahi, Network Communications Technology (Delmar Thomson

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