

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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CISCO SYSTEMS, INC.,  
Petitioner,

v.

TQ DELTA, LLC,  
Patent Owner.

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Case IPR2016-01009  
Patent 8,238,412 B2

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Before SALLY C. MEDLEY, TREVOR M. JEFFERSON, and  
MATTHEW R. CLEMENTS, *Administrative Patent Judges*.

CLEMENTS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*Inter Partes* Review  
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

## I. INTRODUCTION

In this *inter partes* review, instituted pursuant to 35 U.S.C. § 314, Cisco Systems, Inc. (“Petitioner”) challenges claims 9–12, 15–18, and 21 (“the challenged claims”) of U.S. Patent No. 8,238,412 B2 (Ex. 1001, “the ’412 patent”), owned by TQ Delta, LLC (“Patent Owner”). We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is entered pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons discussed below, Petitioner has shown by a preponderance of the evidence that the challenged claims are unpatentable. Patent Owner’s Motion to Exclude is *dismissed*.

### A. Procedural History

Petitioner filed a Petition requesting an *inter partes* review of claims 9–12, 15–18, and 21 of the ’412 patent. Paper 2 (“Pet.”). Patent Owner filed a corrected Preliminary Response. Paper 7. On November 4, 2016, we instituted *inter partes* review of claims 9–12, 15–18, and 21 of the ’412 patent under 35 U.S.C. § 103(a) as obvious over Milbrandt,<sup>1</sup> Chang,<sup>2</sup> Hwang,<sup>3</sup> and ANSI T1.413.<sup>4</sup> Paper 8 (“Inst. Dec.”), 30.

Thereafter, Patent Owner filed a Patent Owner Response (Paper 13, “PO Resp.”), to which Petitioner filed a Reply (Paper 15, “Reply”).

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<sup>1</sup> U.S. Patent No. 6,636,603 B1; issued Oct. 21, 2003 (Ex. 1011) (“Milbrandt”).

<sup>2</sup> U.S. Patent No. 6,891,803 B1; issued May 10, 2005 (Ex. 1012) (“Chang”).

<sup>3</sup> U.S. Patent No. 6,590,893 B1; issued July 8, 2003 (Ex. 1013) (“Hwang”).

<sup>4</sup> *Network and Customer Installation Interfaces – Asymmetric Digital Subscriber Line (ADSL) Metallic Interface*, AMERICAN NATIONAL STANDARDS INSTITUTION (ANSI) T1.413-1995 STANDARD (Ex. 1014) (“ANSI T1.413”).

IPR2016-01009  
Patent 8,238,412 B2

Pursuant to an Order (Paper 19), Patent Owner filed a listing of alleged statements and evidence in connection with Petitioner's Reply that Patent Owner considered to be beyond the proper scope of a reply. Paper 20. Petitioner filed a response to Patent Owner's listing. Paper 24.

Patent Owner filed a Motion to Exclude (Paper 27), Petitioner filed an Opposition (Paper 31), and Patent Owner filed a Reply (Paper 34). Patent Owner also filed a Motion for Observation (Paper 29) to which Petitioner filed a Response (Paper 32).

We held a consolidated hearing on August 3, 2017, for this case and related Cases IPR2016-01006, IPR2016-01007, and IPR2016-01008, and a transcript of the hearing is included in the record. Paper 36 ("Tr.").

#### *B. Related Proceedings*

The parties indicate that the '412 patent is involved in the following district court cases: (1) *TQ Delta LLC v. Comcast Cable Communications LLC*, No. 1:15-cv-00611 (D. Del.); (2) *TQ Delta LLC v. CoxCom, LLC*, No. 1:15-cv-00612 (D. Del.); (3) *TQ Delta LLC v. DIRECTV*, No. 1:15-cv-00613 (D. Del.); (4) *TQ Delta LLC v. DISH Network Corp.*, No. 1:15-cv-00614 (D. Del.); (5) *TQ Delta LLC v. Time Warner Cable Inc.*, No. 1:15-cv-00615 (D. Del.); (6) *TQ Delta LLC v. Verizon Communications, Inc.*, No. 1:15-cv-00616 (D. Del.); (7) *ARRIS Group, Inc. v. TQ Delta LLC*, Case IPR2016-00430; (8) *Comcast Cable Communications, LLC v. TQ Delta, LLC*, Case IPR2017-00419; and (9) *DISH Networks, LLC v. TQ Delta, LLC*, Case IPR2017-00253. Paper 11, 1; Paper 6, 2–4. Patent Owner further identifies (1) *TQ Delta LLC v. 2Wire, Inc.*, No. 13-cv-1835 (D. Del.); (2) *TQ Delta LLC v. Zhone Technologies, Inc.*, No. 13-cv-1836 (D. Del.); (3) *TQ Delta LLC v. ZyXEL Communications, Inc. and ZyXEL Communications*

IPR2016-01009  
Patent 8,238,412 B2

*Corp.*, No. 13-cv-02013 (D. Del.); (4) *TQ Delta LLC v. ADTRAN, Inc.*, No. 1:14-cv-00954 (D. Del.); and (5) *ADTRAN, Inc. v. TQ Delta LLC*, No. 1:15-cv-00121 (D. Del.). Paper 6, 3–4. Also, Petitioner filed, concurrently with this Petition, a second petition challenging claims of the '412 patent, which became Case IPR2016-01008.

Petitioner also indicates that the '412 patent is related to U.S. Patent No. 8,432,956 B2 and U.S. Patent No. 7,835,430 B2, which are the subjects of IPR2016-00428 and IPR2016-00429, respectively. Pet. 1. U.S. Patent No. 8,432,956 B2 also is the subject of IPR2016-01007 and IPR2017-00422. U.S. Patent No. 7,835,430 B2 also is the subject of IPR2016-01006, IPR2017-00251, and IPR2017-00420.

### *C. The '412 patent (Ex. 1001)*

The '412 patent discloses systems and methods for reliably exchanging diagnostic and test information between transceivers over a digital subscriber line in the presence of disturbances. Ex. 1001, 1:59–62. The systems and methods include the use of a diagnostic link mode in the communication of diagnostic information from a remote terminal (RT) transceiver or modem to the central office (CO) transceiver or modem, where either modem transmits a message to the other modem to enter diagnostic link mode. *Id.* at 2:60–64, 3:34–42. In diagnostic mode, the RT modem sends diagnostic and test information as bits to the CO modem. *Id.* at 3:48–53.

Figure 1 illustrates the additional modem components associated with the diagnostic link mode, and is reproduced below:

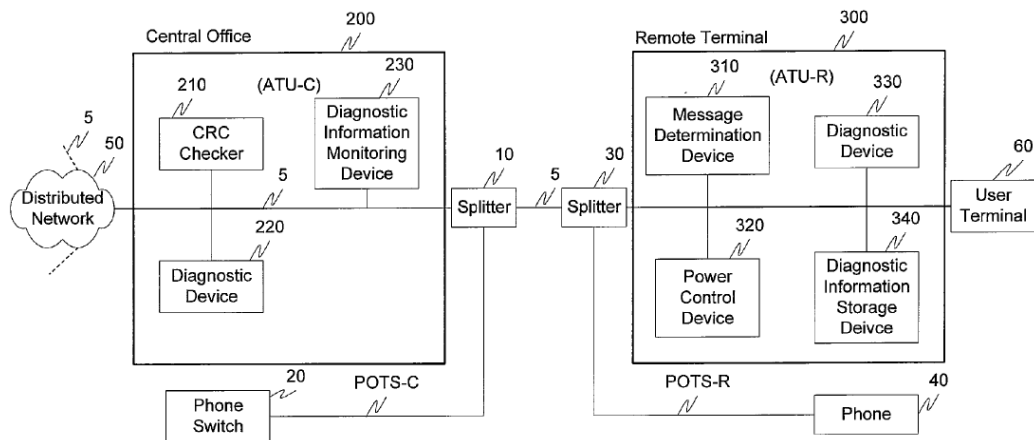


Fig. 1

Figure 1 illustrates a diagnostic mode system, where CO modem 200 and RT modem 300 are connected via link 5 to splitter 10 for a phone switch, and a splitter 30 for a phone 40. *Id.* at 4:58–5:5. CO modem 200 includes CRC checker 210, diagnostic device 220, and diagnostic information monitoring device 230. *Id.* RT modem includes message determination device 310, power control device 320, diagnostic device 330, and diagnostic information storage device 340. *Id.*

#### *D. Illustrative Claims*

Of the instituted claims, claims 9, 11, 15–18, and 21 are independent claims. Claims 10 and 12 depend from independent claims 9 and 11, respectively. Claims 15, 17, and 21 are illustrative of the claims at issue and are reproduced below:

15. One or more non-transitory computer-readable information storage media having stored thereon instructions that, if executed, cause a communications system for DSL service to perform a method comprising:

transmitting a message from a first transceiver, wherein the message comprises one or more data variables that represent the test information, wherein bits in the message are modulated onto DMT symbols using Quadrature Amplitude Modulation

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