

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,
Petitioner,

v.

TQ DELTA, LLC,
Patent Owner.

Case IPR2016-01009
Patent 8,238,412 B2

Before SALLY C. MEDLEY, KALYAN K. DESHPANDE, and
TREVOR M. JEFFERSON, *Administrative Patent Judges*.

DESHPANDE, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Cisco Systems, Inc. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 9–12, 15–18, and 21 of U.S. Patent No. 8,238,412 B2 (Ex. 1001, “the ’412 patent”). Paper 2 (“Pet.”). TQ Delta, LLC (“Patent Owner”) filed a corrected Preliminary Response. Paper 7 (“Prelim. Resp.”). We have jurisdiction under 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” After considering the Petition, the Preliminary Response, and associated evidence, we conclude that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of claims 9–12, 15–18, and 21 of the ’412 patent. Thus, we authorize institution of an *inter partes* review of claims 9–12, 15–18, and 21 of the ’412 patent.

A. Related Proceedings

Petitioner indicates that the ’412 patent is the subject of several proceedings. *See* Pet. 1. Petitioner also indicates that the ’412 patent was the subject of IPR2016-00430. *Id.* at 1–2. Petitioner additionally 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 subject of IPR2016-00428 and IPR2016-00429. *Id.*

B. 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 model 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:

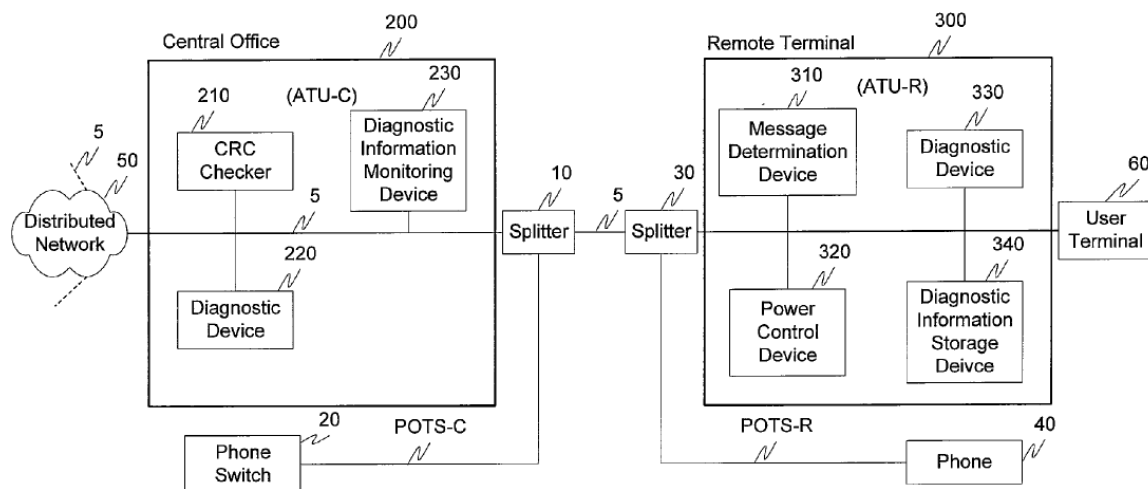


Fig. 1

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 220. *Id.* RT modem includes message determination device 310, power control device 320, diagnostic device 330, and diagnostic information storage device 340. *Id.*

C. Illustrative Claim

Petitioner challenges claims 9–12, 15–18, and 21 of the '412 patent. Pet. 13–68. 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 (QAM) with more than 1 bit per subchannel and wherein at least one data variable of the one or more data variables comprises an array representing Signal to Noise ratio per subchannel during Showtime information; and

receiving the message at a second transceiver, wherein the message comprises the one or more data variables that represent the test information, wherein the bits in the message were modulated onto the DMT symbols using Quadrature Amplitude Modulation (QAM) with more than 1 bit per subchannel and wherein the at least one data variable of the one or more data variables comprises the array representing Signal to Noise ratio per subchannel during Showtime information.

Ex. 1001, 10:40–61.

17. In a communications system for DSL service with a first DSL transceiver capable of transmitting test information over a communication channel using multicarrier modulation and a second DSL transceiver capable of receiving the test information over the communication channel using multicarrier modulation, a method comprising:

transmitting a message, 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 (QAM) with more than 1 bit per subchannel and wherein at least one data variable of the one or more data variables comprises an array representing frequency domain received idle channel noise information; and

receiving the message, wherein the message comprises the one or more data variables that represent the test information, wherein the bits in the message were modulated onto the DMT symbols using Quadrature Amplitude Modulation (QAM) with more than 1 bit per subchannel and wherein the at least one data variable of the one or more data variables comprises the array representing frequency domain received idle channel noise information.

Ex. 1001, 11:19–41.

21. 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, 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 (QAM) with more than 1 bit per subchannel and wherein at least one data variable of the one or more data variables comprises an array representing power level per subchannel information; and

receiving the message, wherein the message comprises the one or more data variables that represent the test information, wherein the bits in the message were modulated onto DMT symbols using Quadrature Amplitude Modulation (QAM) with more than 1 bit per subchannel and wherein at least one data variable of the one or more data variables comprises an array representing power level per subchannel information

Ex. 1001, 12:44–63.

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