

**UNITED STATES PATENT AND TRADEMARK OFFICE**

---

**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

---

ARRIS GROUP, INC.  
Petitioner

v.

TQ DELTA, LLC  
Patent Owner

---

U.S. PATENT NO. 8,432,956

---

**DECLARATION OF LANCE MCNALLY**

**EX. 1002**

## Table of Contents

I.	Introduction.....	4
II.	List of documents I considered in forming my opinions .....	11
III.	Background and Qualifications .....	12
IV.	Person of ordinary skill in the art (POSA) .....	15
V.	Relevant Legal Standards .....	17
VI.	The State of the Art .....	18
A.	Overview of Diagnostic and Testing Techniques .....	19
B.	Overview of Link Protocols .....	20
C.	Overview of Multicarrier Modulation Techniques .....	21
D.	Historical Background and Implementations of Discrete Multi-Tone (DMT) .....	23
E.	Relative and Absolute Measurements - Signal Levels and Gains .....	25
F.	Simple Network Management Protocol (SNMP) .....	27
G.	Overview of U.S. Patent No. 4,679,227 ('227 Patent).....	30
H.	Overview of U.S. Patent No. 4,438,511 ('511 Patent).....	30
I.	Overview of U.S. Patent No. 5,838,268 ('268 Patent).....	31
J.	Overview of U.S. Patent No. 6,219,378 ('378 Patent).....	31
K.	Overview of TR-024 .....	32
L.	Overview of TR-004 .....	32
VII.	Overview of U.S. Patent No. 8,432,956 ('956 Patent).....	33
VIII.	Claims 1, 3, 5 and 7 of the '956 Patent are Obvious over U.S. Patent No. 4,679,227 ("227") to Hughes-Hartogs in view of U.S. Patent No. 4,438,511 ("511") to Baran and further in view of U.S. Patent No. 5,838,268 ("268") to Frankel	34

A. Claim 1 .....	34
B. Claim 3 .....	37
C. Claim 5 .....	39
D. Claim 7 .....	40
IX. Claims 2, 4, 6 and 8 of the ‘956 Patent is Obvious over U.S. Patent No. 4,679,227 (“227”) to Hughes-Hartogs in view of U.S. Patent No. 4,438,511 (“511”) to Baran in view of U.S. Patent No. 5,838,268 (“268”) to Frankel and further in view of U.S. Patent No. 6,219,378 (“378”) to Wu.....	41
A. Claim 2 .....	41
B. Claim 4 .....	42
C. Claim 6 .....	43
D. Claim 8 .....	44
X. Claim 9 of the ‘956 Patent is Obvious over U.S. Patent No. 4,679,227 (“227”) to Hughes-Hartogs in view of U.S. Patent No. 4,438,511 (“511”) to Baran in view of U.S. Patent No. 5,838,268 (“268”) to Frankel and further in view of ADSL Forum TR-024.....	45
A. Claim 9 .....	45
XI. Claim 10 of the ‘956 Patent is Obvious over U.S. Patent No. 4,679,227 (“227”) to Hughes-Hartogs in view of U.S. Patent No. 4,438,511 (“511”) to Baran in view of U.S. Patent No. 5,838,268 (“268”) to Frankel in view of ADSL Forum TR-024 and further in view of ADSL Forum TR-004.....	52
A. Claim 10 .....	52

## **I. Introduction**

1. I am over the age of eighteen (18) and otherwise competent to make this declaration.
2. I have been asked to provide assistance, if needed, to the Patent Trial and Appeal Board of the United States Patent and Trademark Office in its consideration of the '956 Patent and the references that are cited in support of the petition for *inter partes* review of the '956 Patent. I am being compensated for my time at \$105.00 per hour, which is not dependent upon the outcome of this *inter partes* review or any related litigation.
3. I have been informed and understand that this Petition for *inter partes* review involves Claims 1-10 (collectively "the Challenged Claims") of U.S. Patent No. 8,432,956 (the "'956 Patent"). (Ex. 1001.)
4. I have been informed and understand that the '956 Patent issued on April 30, 2013, from U.S. Patent Application No. 13/476.310 filed on May 21, 2012, which was a continuation of U.S. Patent Application No. 12/779,660 (the "'660 Application") filed on May 13, 2010, now U.S. Patent 8,238,412, which is a continuation of U.S. Application No. 12/477,742, filed June 3, 2009, not U.S. Patent 7,835,430, which is a continuation of U.S. Application No. 10/619,691, filed Jul. 16, 2003, now U.S. Patent 7,570,686, which is a continuation of U.S. Application No. 09/755,173, filed Jan. 8, 2001, now

US. Pat. No. 6,658,052, which claims the benefit of and priority under 35 USC §119(e) to U.S. Provisional Application No. 60/224,308, filed August 10, 2000 entitled “Characterization of transmission lines using broad band signals in a multi-carrier DSL system,” and US. Provisional Application No. 60/174,865, filed January 7, 2000 entitled “Multicarrier Modulation System With Remote Diagnostic Transmission Mode.”

5. For the purposes of my opinions expressed herein I will use January 7, 2000 as the priority date of the subject matter of the Challenged Claims.
6. I have been informed and further understand that, according to USPTO records, the ‘956 Patent is assigned to TQ Delta, LLC.
7. Claims 1-10 of the ‘956 Patent are reproduced below.

*1. A transceiver capable of transmitting diagnostic information over a communication channel using multicarrier modulation comprising:*

*a transmitter portion capable of transmitting a message,*

*wherein the message comprises one or more data variables that represent the diagnostic 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*

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.