

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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KEMET ELECTRONICS, CORP. and VISHAY AMERICAS, INC.,  
Petitioner,

v.

MEC RESOURCES, LLC,  
Patent Owner.

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IPR2019-00583  
Patent 6,137,390

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Before KALYAN K. DESHPANDE, TREVOR M. JEFFERSON, and  
ROBERT J. WEINSCHENK, *Administrative Patent Judges*.

WEINSCHENK, *Administrative Patent Judge*.

JUDGMENT  
Final Written Decision  
Determining All Challenged Claims Unpatentable  
*35 U.S.C. § 318(a)*

ORDER  
Denying Petitioner's Motion to Exclude  
*37 C.F.R. § 42.64(c)*

## I. INTRODUCTION

### A. *Background and Summary*

KEMET Electronics, Corp. and Vishay Americas, Inc. (collectively, “Petitioner”) filed a Petition (Paper 3, “Pet.”) requesting an *inter partes* review of claims 1–20 (“the challenged claims”) of U.S. Patent No. 6,137,390 (Ex. 1001, “the ’390 patent”). MEC Resources, LLC (“Patent Owner”) filed a Preliminary Response (Paper 7, “Prelim. Resp.”) to the Petition. We instituted an *inter partes* review of the challenged claims on August 12, 2019. Paper 8 (“Dec. on Inst.”), 39. After institution, Patent Owner filed a Response (Paper 15, “PO Resp.”) to the Petition, Petitioner filed a Reply (Paper 20, “Pet. Reply”) to the Response, and Patent Owner filed a Sur-reply (Paper 21, “PO Sur-reply”) to the Reply. We held an oral hearing on May 13, 2020, and a transcript of the hearing is included in the record. Paper 30 (“Tr.”).

For the reasons set forth below, Petitioner has shown by a preponderance of the evidence that claims 1–20 of the ’390 patent are unpatentable.

### B. *Real Parties in Interest*

Petitioner identifies the following real parties in interest: 1) KEMET Electronics, Corp.; 2) KEMET Corp.; 3) TOKIN Corp.; 4) Vishay Americas, Inc.; 5) Vishay Intertechnology, Inc.; and 6) Vishay Dale Electronics, LLC. Pet. 70. Patent Owner identifies itself as the only real party in interest. Paper 6, 2.

### C. *Related Matters*

The parties indicate that the ’390 patent is the subject of the following district court cases: 1) *MEC Resources, LLC v. Vishay Americas, Inc.*, No.

3:18-cv-2770 (N.D. Tex.); and 2) *MEC Resources, LLC v. KEMET Electronics Corp.*, No. 3:18-cv-2771 (N.D. Tex.). Pet. 70; Paper 6, 2.

*D. The '390 Patent*

The '390 patent relates to an inductor “with improved inductance and minimized electromagnetic induction (EMI) interference.” Ex. 1001, 1:6–9. Specifically, the '390 patent explains that its improvement involves compression molding a conventional inductor coil with a layer of a magnetic resin mixture. *Id.* at 1:59–63, 2:60–64. According to the '390 patent, “[o]ne of the advantages of the method disclosed in the present invention is that the inductance of the coil can be controlled by adjusting the magnetic permeability of the magnetic-resin mixture, and/or the thickness of the magnetic-resin layer.” *Id.* at 2:1–5. Further, “[b]y using the compression molding process, the void space in the entire inductor is minimized,” which “minimizes the EMI interference and magnetic leakage, and increases the inductance per unit volume.” *Id.* at 2:5–8.

*E. Illustrative Claim*

Of the challenged claims, claims 1 and 11 are independent. Claim 1 is reproduced below.

1. An inductor with enhanced inductance comprising:
  - (a) a magnetic core;
  - (b) an electrically conducting coil wound about said magnetic core;
  - (c) a magnetic resin layer compression-molded to embed at least a portion of an outer periphery of said electrically conducting coil;
  - (d) wherein said magnetic resin layer contains a magnetic powder dispersed in a polymer resin.

Ex. 1001, 6:24–33.

*F. Evidence*

Petitioner submits the following evidence:

<b>Evidence</b>	<b>Exhibit No.</b>
Declaration of Robert W. Erickson, Ph.D. (“Erickson Declaration”)	Ex. 1003
Sergio Franco, ELECTRIC CIRCUITS FUNDAMENTALS (Emily Barrosse et al. eds., 1995) (“Franco”)	Ex. 1005
Amada, US 6,144,280, issued Nov. 7, 2000 (“Amada”)	Ex. 1006
Shafer, US 6,204,744 B1, issued Mar. 20, 2001 (“Shafer”)	Ex. 1007
Rittner, US 6,600,403 B1, issued July 29, 2003 (“Rittner”)	Ex. 1008
Kaneko, US 5,010,313, issued Apr. 23, 1991 (“Kaneko”)	Ex. 1009
Butherus, US 3,953,251, issued Apr. 27, 1976 (“Butherus”)	Ex. 1010
Ohkawa, EP 0265839 A2, published May 4, 1988 (“Ohkawa”)	Ex. 1011

Patent Owner submits the Declaration of Curt R. Raschke, Ph.D.  
Ex. 2009 (“Raschke Declaration”).

*G. Asserted Grounds*

Petitioner asserts that the challenged claims are unpatentable on the following grounds:

<b>Claims Challenged</b>	<b>35 U.S.C. §</b>	<b>References/Basis</b>
1, 3, 4, 7, 9–11, 13, 14, 17, 19, 20	103 <sup>1</sup>	Franco, Shafer
2, 12	103	Franco, Shafer, Rittner
5, 15	103	Franco, Shafer, Butherus
6, 16	103	Franco, Shafer, Kaneko
8, 18	103	Franco, Shafer, Ohkawa

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<sup>1</sup> The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, which was enacted on September 16, 2011, made amendments to 35 U.S.C. §§ 102, 103. AIA § 3(b), (c). Those amendments became effective on March 16, 2013. *Id.* at § 3(n). Because the challenged claims of the ’390 patent have an effective filing date before March 16, 2013, any citations herein to 35 U.S.C. §§ 102, 103 are to their pre-AIA versions.

Claims Challenged	35 U.S.C. §	References/Basis
1, 3, 4, 7, 9–11, 13, 14, 17, 19, 20 <sup>2</sup>	103	Amada, Shafer
2, 12	103	Amada, Shafer, Rittner
5, 15	103	Amada, Shafer, Butherus
6, 16	103	Amada, Shafer, Kaneko
8, 18	103	Amada, Shafer, Ohkawa

## II. ANALYSIS

### A. Legal Standards

A claim is unpatentable as obvious under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including 1) the scope and content of the prior art; 2) any differences between the claimed subject matter and the prior art; 3) the

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<sup>2</sup> The Petition and the Decision on Institution inadvertently omitted claims 7 and 17 from the listing of challenged claims for the Amada and Shafer combination. Pet. 2, 40; Dec. on Inst. 4, 26; Pet. Reply 22 n.8. But the Petition substantively addresses claims 7 and 17 for the Amanda and Shafer combination, and the Decision on Institution instituted this *inter partes* review on all the asserted grounds in the Petition. Pet. 55; Dec. on Inst. 39. Patent Owner does not dispute that this *inter partes* review includes the asserted ground that claims 7 and 17 would have been obvious over Amada and Shafer. See PO Resp. 43–59; Tr. 45:10–23.

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