

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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HUGHES NETWORK SYSTEMS, LLC and  
HUGHES COMMUNICATIONS, INC.,  
Petitioner,

v.

CALIFORNIA INSTITUTE OF TECHNOLOGY,  
Patent Owner.

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Case IPR2015-00067  
Patent 7,116,710

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**PATENT OWNER'S PRELIMINARY RESPONSE  
PURSUANT TO 37 C.F.R. § 42.107**

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## I. INTRODUCTION

The Board should not institute *inter partes* review (IPR) on claims 1, 3-6, 15, 16, 20, 21, and 22 of U.S. Patent No. 7,116,710 (“the ‘710 patent”) because petitioner, Hughes Network Systems, LLC and Hughes Communications, Inc. (“Petitioner” or “Hughes”), has filed a fatally flawed petition and has not met its burden of showing it has a reasonable likelihood of prevailing on any of its proposed grounds of unpatentability.<sup>1</sup>

The ‘710 patent represents a seminal improvement to coding systems and methods used for digital satellite transmission. It discloses an ensemble of codes called irregular repeat-accumulate (IRA) codes, which are specific types of error-correcting codes. These IRA codes enable a transmission rate close to the theoretical limit, while also providing the advantage of a low encoding complexity. *See, e.g.*, Ex. 2001 p. 1711 (noting inventors’ unique contribution).

Moreover, the current industry standard for digital satellite transmissions uses channel codes that are the claimed IRA codes. This digital satellite transmission standard is titled “Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite

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<sup>1</sup> On October 14, 2014, Petitioner concurrently filed another petition for *inter partes* review (IPR2015-00068) of claims 1, 3-6, 15, 16, 20, 21, and 22 of the ‘710 patent.

applications” (the “DVB-S2 standard”). Experts in the industry widely credit the involved inventors for the IRA codes that the DVB-S2 standard uses. *See, e.g.*, Ex. 2002 p. 0001, n.8; *see also* Ex. 2003 p. 0001, n.8.

The ‘710 patent is directed to serial concatenation of interleaved convolutional codes forming turbo-like codes. For example, claim 1 of the ‘710 patent recites the following:

A method of encoding a signal, comprising:  
obtaining a block of data in the signal to be encoded;  
partitioning said data block into a plurality of sub-blocks, each sub-block including a plurality of data elements;  
first encoding the data block to form a first encoded data block, said first encoding including repeating the data elements in different sub-blocks a different number of times;  
interleaving the repeated data elements in the first encoded data block;  
and  
second encoding said first encoded data block using an encoder that has a rate close to one.

As discussed further below, the petition can be dismissed for a number of reasons. For example, the petition fails to properly identify all real parties-in-interest, a fatal deficiency that cannot be cured, given that the earliest filing date that could be accorded to the corrected petition would not fall within the one-year period specified in 35 U.S.C. § 315(b).<sup>2</sup> While the Board can deny institution

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<sup>2</sup> Petitioner has filed six petitions for *inter partes* review: IPR2015-00059, IPR2015-00060, IPR2015-00061, IPR2015-00067, IPR2015-00068, and IPR2015-

based on this reason alone and without considering the merits, also fatal to the proposed grounds is Petitioner’s failure to establish that the two primary references relied upon—Frey and Divsalar—even qualify as prior art printed publications. The petition suffers from other deficiencies as well. Significantly, the proposed grounds of challenge fail to demonstrate that each feature of claims 1, 3-6, 15, 16, 20, 21, and 22 of the ‘710 patent is found in the prior art. Accordingly, institution of *inter partes* review should be *denied*.

## II. THE PETITION FAILS TO IDENTIFY REAL PARTIES-IN-INTEREST

As a threshold matter, the petition should be dismissed because Hughes failed to identify all real parties-in-interest as required by 35 U.S.C. § 312(a)(2) and 37 C.F.R. § 42.8(b)(1). The petition identifies only Hughes Network Systems, LLC and Hughes Communications, Inc. as real parties-in-interest.<sup>3</sup> It at least fails to identify EchoStar Corporation (“EchoStar”), even though Hughes is the *wholly owned subsidiary* of EchoStar, and DISH Network Corporation, DISH Network L.L.C. and dishNET Satellite Broadband L.L.C. (collectively, “DISH”), even

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00081. All six petitions similarly fail to properly name all real parties-in-interest.

<sup>3</sup> While the petition notes that “EchoStar Corporation is the parent of Hughes Satellite Systems Corporation, which is the parent of Hughes Communications, Inc.,” it does *not* identify EchoStar as a real party-in-interest. Pet. p. 1.

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