

Patent No. 7,061,997  
Petition For *Inter Partes* Review

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SIRIUS XM RADIO INC.  
Petitioner

v.

FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER  
ANGEWANDTEN FORSCHUNG E.V.  
Patent Owner

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Case IPR2018-\_\_\_\_\_

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**PETITION FOR *INTER PARTES* REVIEW OF U.S.  
PATENT NO. 7,061,997 UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42**

**Mail Stop Patent Board**  
Patent Trial and Appeal Board U.S.  
Patent and Trademark Office  
P.O. Box 1450  
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## I. INTRODUCTION

Sirius XM Radio Inc. petitions for *inter partes* review under 35 U.S.C. §§ 311–319 and 37 C.F.R. § 42 of claims 1-3 of U.S. 7,061,997 (Ex. 1007; “the ’997 Patent”). Petitioner asserts there is a reasonable likelihood that at least one claim is unpatentable and respectfully requests review of, and judgment against, these claims as unpatentable under 35 U.S.C. § 102 and/or § 103.

The ’997 Patent discloses a mechanism to measure and correct for a particular type of error, called a frequency deviation, that occurs during multi-carrier modulation (“MCM”) transmission of a signal between a transmitter and receiver. *See generally*, Ex. 1007; Ex. 1001, ¶76. An MCM transmission is one whereby information is transmitted over a series of carrier frequencies, also called subcarriers, that carry symbols that contain the information to be transmitted. Ex. 1001, ¶¶ 56-63. Frequency deviation between the transmitter and the receiver’s carrier frequencies causes phases of symbols on an individual subcarrier frequency to rotate. Ex. 1001, ¶ 63. The ’997 Patent recites methods that measure and correct for the frequency deviation through determinations of the phase differences and related frequency offsets of the symbols being transmitted over the MCM subcarriers, and then uses the average of the frequency offsets for each of the carriers in the MCM transmission to correct for the frequency deviations. Ex. 1007, claim 1. This practice of measuring and correcting for frequency deviations

in communications systems utilizing differential phase modulation between phases of the same subcarrier in different MCM symbols, *i.e.*, phase differences in the time domain, was well-known in the art at the time the '997 Patent was filed.

Indeed, during prosecution of the '997 patent, Applicants were unable to overcome well-known art related to measuring and correcting for frequency deviation. Instead, the claims were issued over the art based on the addition of a “wherein” clause that required averaging the frequency offsets determined for each individual frequency of an MCM transmission and then using the averaged value of the frequency offsets to correct for that frequency deviation. However, prior art that was not before the Examiner during prosecution clearly disclosed the challenged claims, including the wherein clause added to obtain issuance. Such art includes, at least, U.S. Patent No. 6,341,123 to Tsujishita (“Tsujishita”) (Ex. 1002) and Classen et al., Frequency Synchronization Algorithms for OFDM Systems Suitable for Communication over Frequency Selective Fading Channels, IEEE, 1994 (“Classen”) (Ex. 1003).

For the reasons set forth herein, Petitioner requests that the Challenged Claims be found unpatentable.

## **II. MANDATORY NOTICES (37 C.F.R. § 42.8)**

### **A. REAL PARTY-IN-INTEREST (37 C.F.R. § 42.8(b)(1))**

Petitioner certifies that it is the real party-in-interest.

**B. RELATED MATTERS (37 C.F.R. § 42.8(b)(2))**

Patent Owner asserted the '997 Patent against Petitioner in *Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V. v. Sirius XM Radio Inc.*, 1:17-cv-00184 (D. Del. Feb. 22, 2017) (the "Litigation").

Petitioner has also filed petitions for *inter partes* review of U.S. Patent Nos. 6,314,289; 6,931,084 and 6,933,084, which Patent Owner also asserted against Petitioner in the foregoing litigation. Shortly after the Patent Owner filed the Litigation, Petitioner filed a motion to dismiss the Complaint on grounds that Petitioner has had a license to the '997 Patent because of a license granted to Petitioner by the Patent Owner through an intermediary. Litigation at D.I. 10-13, 19-21, 29. That motion is currently pending before the District Court.

**C. DESIGNATION OF LEAD AND BACK-UP COUNSEL (37 C.F.R. § 42.8(b)(3))**

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**D. SERVICE INFORMATION (37 C.F.R. § 42.8(b)(4))**

Please address all correspondence to the lead counsel at the address provided in Section I(C) of this Petition. Petitioner also consents to service by

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