

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 IPR2018-00689  
Patent No. 6,993,084

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**PETITIONER'S EXHIBIT LIST**

## PETITIONER'S EXHIBIT LIST

| EXHIBIT NO.         | DESCRIPTION  |
|---------------------|--|
| <b>Exhibit-1001</b> | U.S. Patent No. 6,993,084 (the “3084 Patent”) titled, Coarse Frequency Synchronisation in Multicarrier Systems, issued on January 31, 2006   |
| <b>Exhibit-1002</b> | Declaration of David Lyon, Ph.D., in support of Petition for <i>Inter Partes Review</i> of U.S. Patent 6,993,084, dated February 22, 2018 (“Lyon Dec.”)  |
| <b>Exhibit-1003</b> | U.S. Patent No. 5,914,933 (“Cimini”) titled, Clustered OFDM Communication System, issued on June 22, 1999  |
| <b>Exhibit-1004</b> | American National Standard for Telecommunications, Network and Consumer Installation Interfaces, Asymmetric Digital Subscriber Line (ADSL) Metallic Interface, approved for publication August 18, 1995 (“ADSL”) |
| <b>Exhibit-1005</b> | A. Palacherla, DSP- $\mu$ P Routine Computes Magnitude, Electrical Design News, Vol. 34, No. 22, Oct. 26, 1989 (“Palacherla”)  |
| <b>Exhibit-1006</b> | U.S. Patent No. 5,732,113 (“Schmidl”) titled, Timing and Frequency Synchronization of OFDM Signals, issued on March 24, 1998   |
| <b>Exhibit-1007</b> | Spilker, Digital Communications by Satellite, 1977 (“Spilker”)   |
| <b>Exhibit-1008</b> | G. Turin, <i>Introduction to Spread-Spectrum Antimultipath Techniques and Their Application to Urban Digital Radio</i> , Proceedings of the IEEE, Vol. 68, No. 3, March 1980 (“Turin”)                           |
| <b>Exhibit-1009</b> | RESERVED   |
| <b>Exhibit-1010</b> | Prosecution History of U.S. Patent No. 6,993,084 (excerpts)  |
| <b>Exhibit-1011</b> | U.S. Patent No. 5,353,352 (the “352 Patent”) titled, Multiple Access Coding for Radio Communications, issued on October 4, 1994  |

| EXHIBIT NO.         | DESCRIPTION  |
|---------------------|--|
| <b>Exhibit-1012</b> | IEEE Xplore web archive denoting, G. Turin, <i>Introduction to Spread-Spectrum Antimultipath Techniques and Their Application to Urban Digital Radio</i> , Proceedings of the IEEE, Vol. 68, No. 3, March 1980 (“Turin”), available at <a href="http://ieeexplore.ieee.org/document/1455914/">http://ieeexplore.ieee.org/document/1455914/</a> |
| <b>Exhibit-1021</b> | J. G. Proakis, <i>Digital Communications</i> , McGraw Hill, Inc., 2nd Ed. 1989, (“Proakis”) (excerpts)   |
| <b>Exhibit-1022</b> | B. P. Lathi, <i>Modern Digital and Analog Communication Systems</i> , The Dryden Press, Saunders College Publishing, 2nd Ed., 1989 (“Lathi”) (excerpts)  |
| <b>Exhibit-1023</b> | W. Zou and Y. Wu, <i>COFDM: An Overview</i> , IEEE Transactions on Broadcasting, Vol. 41, No. 1, March 1995 (“Zou”)  |
| <b>Exhibit-1024</b> | M. Abramowitz and I. A. Stegun, <i>Handbook of Mathematical Functions with Formulas, Graphs, and Mathematical Tables</i> , Dover Publications, Inc., p. 16 (1968) (“Abramowitz”)   |
| <b>Exhibit-1025</b> | Declaration of Patrick Donnelly  |
| <b>Exhibit-1026</b> | December 7, 2018 E-mail Correspondence Among Counsel for the Parties and the Board   |
| <b>Exhibit-1027</b> | January 2019 E-mail Correspondence Among Counsel for the Parties and the Board   |
| <b>Exhibit-1028</b> | February 2019 E-mail Correspondence Among Counsel for the Parties and the Board  |
| <b>Exhibit-1029</b> | April 2019 E-mail Correspondence Among Counsel for the Parties and the Board   |

**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. § 42.6(e), the undersigned certifies that a true and correct copy of the foregoing Petitioner's Exhibit List was served on May 6, 2019, by filing this document through the PTAB E2E System as well as delivering via electronic mail upon the following counsel of record for Patent Owner:

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