UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SIEMENS MOBILITY, INC., GROUND TRANSPORTATION SYSTEMS USA, INC., HUMATICS CORP., and PIPER NETWORKS, INC.
Petitioners,

v.

METROM RAIL, LLC,
Patent Owner.

Case No. IPR2023-00468, -470
Patent Nos. 9,043,131 and 8,812,227

DECLARATION OF JAMES A. MARCHI IN SUPPORT OF PATENT OWNER

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I. INTRODUCTION

1. I, James A. Marchi of Hawthorn Woods, Illinois, am the Chief Executive Officer (CEO) of Patent Owner, Metrom Rail, LLC (Metrom) and a co-founder of the company.

2. I have been the CEO of Metrom since Metrom's founding in 2010 and am familiar with Metrom's day to day operations and Metrom's efforts to compete for business, as well as the major customers in Metrom's industry and the products offered by Metrom's major competitors.

3. I have been asked to prepare this declaration for submission in *inter partes* review proceedings instituted against U.S. Patent Nos. 9,043,131 (the "131 Patent") and 8,812,227 (the "227 Patent"), both assigned to Metrom Rail, LLC and hereinafter the "Asserted Patents."

4. My compensation is not dependent on the outcome of these proceedings, and I am not receiving any compensation for submitting this declaration beyond the normal compensation for my job.

5. Set forth in this declaration is a summary of my qualifications, safety in the railroad industry, and the Metrom Rail® AURA® Maintenance of Way collision avoidance system, hereinafter AURA CAS.

6. I have also summarized sales information from accounting information kept in the normal course of our business setting forth orders that Metrom has received from major US and Canada freight companies for its AURA CAS.

II. SUMMARY OF MY QUALIFICATIONS

7. I was awarded a Bachelor of Science degree in business administration by the University of Illinois, Chicago in May of 1990.

8. I have held various roles in Sales, Marketing, and Operations positions at the onset of my career.

9. Over the past twenty-five years of my career as an entrepreneur, I have founded, operated, and sold multiple companies.

10. I addition to my role as CEO, I am also the Managing Board Member for Metrom Rail. I have been involved with Metrom continuously since 2010, including supervising or participating in all of our major sales efforts.

III. FOUNDATION FOR INDUSTRY OBSERVATIONS

11. Metrom was founded in 2010 with the goal of developing innovative products and solutions to enhance safety in the railroad industry.

12. Since 2012, Metrom has made, offered for sale, and sold a variety of products used to reduce collisions between equipment operating on railroad tracks, including products that assist with collision avoidance between maintenance of way (MOW) equipment.

13. I have over twelve years of experience in the sales and marketing of Metrom's railroad collision avoidance products.

14. As result of this, I am familiar with the railroad industry and specifically the evolution of collision avoidance in the railroad industry.

15. Early in our history, we recognized that existing solutions for avoiding collisions between railroad vehicles were either unreliable, extraordinarily expensive, or both. We set out to develop and deploy better solutions, but quickly found that the railroad industry resists innovation, technical risk, and change.

16. Equipment supply to the railroad industry has been dominated by large multi-national corporations like Siemens and Thales, the Petitioners in these proceedings. They have dominated the market for decades, but none of these corporations had developed an acceptable solution for collision avoidance between MOW vehicles, while their solutions for passenger and freight rail applications continue to rely on technology and operating principles that date back decades.

17. To address this market need, in 2010, I co-founded Metrom to develop railroad safety equipment, starting with the development of auxiliary train approach sensing to initiate crossing gate lowering, followed by the MOW "Aura" solution discussed in Part IV, below.

18. We have continued to recognize the potential that radio-based train positioning detection had to improve railroad safety, so we turned our attention to

transit applications, where heavy and light rail trains may run with high frequency and short spacing. Under my direction, the team at Metrom worked on the development of complete train control systems, culminating in what we called PTCS-2, a primary train safety system which was demonstrated for New York City Transit (NYCT)/Metropolitan Transportation Authority (MTA) on the Culver Test Track in September and October of 2018. That system included AURA CAS, described below, and our prior demonstration of the capabilities of that system was a major factor in our subsequent success with the MTA. The MTA awarded Metrom a "genius" prize for our approach to solving the MTA's problems with high cost, unreliable, conventional signaling. A picture of the award and the MTA announcement are Exhibits 2014 and 2015 respectively. Much of this work was directly observed by representatives from Petitioners Thales Ground Transport and Siemens, who were seeking to retain the largest single customer for transit rail safety equipment in the United States using their legacy systems.

IV. THE AURA MAINTENANCE OF WAY COLLISION AVOIDANCE SYSTEM (AURA CAS)

19. I directed the development of the industry's first ever commercially deployed and successful, terrestrial radio-ranging-based, railroad collision avoidance system. Metrom called this system the AURA collision avoidance system, or simply the AURA CAS.

20. The AURA CAS used UWB radio technology to provide an accurate time-of-flight ranging system. The system offered the flexibility of operator-defined detection and alarm criteria, with integrated, expandable hardware options and the ability to function in all environments and terrain – even tunnels.

21. The AURA CAS mounted in one MOW vehicle communicates data wirelessly with the AURA CAS mounted in other MOW vehicles. Each AURA CAS uses the time of flight measurement technique together with GPS data to determine a separation distance between the MOW vehicles.

22. The AURA CAS has eliminated nearly all collisions between equipped MOW railroad vehicles in railroad networks that have installed the AURA CAS.

23. When the AURA CAS was being developed, there were no comparable systems being offered for sale. To protect its inventions embodied in the AURA CAS, Metrom filed patent applications to cover these inventive aspects. These applications issued as the Asserted Patents.

24. Metrom employees, including myself, spent many hours convincing railroad executives about the value of our novel AURA CAS system.

25. In 2013, Metrom's effort bore fruit, when Metrom secured its first order for the AURA CAS from Canadian National Railway. The value of this order was approximately $4,000,000. Metrom successfully installed the AURA CAS in approximately 900 MOW vehicles. That system continues to be used today.

26. The table below sets forth the sales by year for the AURA CAS:

Year	**Revenue**
2013	$1,501,772
2014	$3,428,366
2015	$3,405,793
2016	$3,288,482
2017	$2,028,411
2018	$6,026,860[1]
2019	$859,213
2020	$428,091
2021	$318,707
2022	$1,007,103
2023 (YTD)	$1,100,000

Altogether, we estimate that the Aura CAS system protects all Canadian National and Canadian Pacific Railways MOW assets, in addition to systems at MOW contractors and CSX, comprising roughly 33% of mainline freight MOW equipment in the United States. Until Petitioner Piper entered this space in about 2022, Metrom had virtually 100% of the installed market for a radio based collision avoidance system between MOW vehicles.

27. In 2017, Metrom began gaining traction with transit agencies, in direct competition with Petitioner's Siemens and Thales. Petitioner Piper was also involved in attempting to develop novel signaling solutions for transit agencies, and worked with the same consulting engineers as Metrom in that work, which to our

[1] The AURA CAS system enabled approximately $4,000,000 of proof of concept activity with the New York MTA which is included in this table.

knowledge was the first time that Piper had attempted to enter the railroad space. Metrom's efforts to bring its patented technology to the New York Metropolitan Transit Agency resulted in Metrom receiving a "genius" award from the MTA, Exhibits 2014, 2015, and an invitation to bid on the MTA's "pilot" project to demonstrate that technology after multiple "proof of concept" small scale demonstrations that were attended by the Petitioners. Unfortunately, Metrom ultimately lost that project to the Petitioners, as described in the lawsuit between the Metrom and the Petitioners shown by IPR Exhibit 1010.

28. In addition to the Pilot Project, Piper Networks has further sought to capitalize on Metrom's pioneering technology by copying Metrom's AURA CAS for Piper's own MOW collision avoidance system.

29. We are unaware of any attempt by Piper to introduce a MOW collision avoidance system until Piper launched its "Helix™" system sometime in late 2021 or early 2022. The data sheets for Helix™ show that Piper Networks incorporated all the desirable and patented features of Metrom's AURA CAS. Recently, we learned that Piper has made what appears to be a substantial sale of what appears at its core to be our patented system to Amtrak, that it touts on its website. (Exhibit 2013, retrieved from the internet on September 8, 2023). The same page states that "We [Piper]" believe that the use of UWB . . . in train control systems is an important evolutionary leap forward . . . ."

I, James A. Marchi declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that those statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

September 14, 2023

James A. Marchi