EXHIBIT 15
to Declaration of Ryan N. Miller

Hum's Preliminary Counter-Infringment Contentions dated December 9, 2022

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MISSOURI

AMSTED RAIL COMPANY, INC., Plaintiff, v. HUM INDUSTRIAL TECHNOLOGY, INC., and BRENT WILSON, Defendants.	)	Case No. 4:22-cv-00445-AGF **JURY TRIAL DEMANDED**

DEFENDANT'S PRELIMINARY COUNTER-INFRINGEMENT CONTENTIONS

Pursuant to Local Patent Rule 3-3 and the Court's Case Management Order, ECF No. 30, Defendants Hum Industrial Technology, Inc. ("Hum") and Brent Wilson ("Dr. Wilson") (collectively, "Defendants") provide their Preliminary Counter-Infringement Contentions for the Asserted Claims of U.S. Patent Nos. 9,365,223 (the "'223 patent"), 9,981,673 (the "'673 patent), and 10,137,915 (the "'915 patent), in response to Amsted Rail Company, Inc.'s ("Amsted") Preliminary Infringement Contentions ("PICs") served on November 14, 2022.

PRELIMINARY STATEMENT

Defendants make these preliminary counter-infringement contentions based on information reasonably available to them at this stage in the proceeding. Defendants reserve the right to supplement these preliminary counter-infringement contentions to address any amendments to Amsted's PICs as well as any claim construction rulings by the Court that affect Defendants' counter-infringement contentions.

Defendants provide this Local Patent Rule 3-3 disclosure notwithstanding deficiencies in Amsted's PICs which prevent Defendants from fully ascertaining Amsted's positions due to a lack of specificity and lack of detail which fails to satisfy the requirements of Local Patent Rule

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3-1. Defendants reserve the right to supplement these responses and contentions to the extent Amsted would be permitted to amend, modify, and/or supplement its PICs and/or if Defendants learn additional details regarding Amsted's contentions.

Defendants' contentions provided herein are based on a good faith understanding of Amsted's PICs. However, at this time the parties have not exchanged proposed claim constructions, and the Court has not issued a claim construction ruling. Thus, Defendants' counter-infringement contentions are provided without conceding or admitting that any claim terms of the Asserted Claims of the Asserted Patents are valid or enforceable. For example, to the extent a claim term is indefinite under 35 U.S.C. § 112(b), Hum will attempt to apply Amsted's apparent or implied claim construction for such a claim term for purposes of Defendants' counter-infringement contentions only, but expressly reserves the right to assert grounds of invalidity based on indefiniteness as the case proceeds and will disclose any indefiniteness grounds in accordance with the deadlines and requirements of the Local Patent Rules and the Court's Case Management Order. Defendants' attempts to apply Amsted's apparent or implied claim constructions in this context does not mean that Defendants agree with Amsted's contentions or implied constructions.

OBJECTIONS TO AMSTED'S PICs

1. Defendants object to the PICs to the extent the "Accused Instrumentalities" are defined as an amalgamation of devices, and various versions of those devices, which were not implemented together or otherwise used in the same system.

2. Defendants object to the PICs to the extent that Defendants have not committed acts of infringement under 35 U.S.C. § 271 and to the extent Hum's devices and/or systems do not practice all limitations of any valid and enforceable claim of Amsted's patent claims asserted

in this action.

3. Defendants object to Amsted's purported assertion of infringement under the doctrine of equivalents. Amsted's conclusory references to the doctrine of equivalents fail to satisfy Amsted's obligation to articulate, in a timely manner, contentions under the doctrine of equivalents and linking evidence specifically directed to the claim elements it contends are met by a theory of equivalents under, for example, the function/way/result and/or insubstantial difference tests.

4. Defendants object to Amsted's identification of claims 11 and 12 of the '223 patent as asserted claims pursuant to Local Patent Rule 3-1(a)(i). Pursuant to email correspondence from counsel for Amsted, dated November 29, 2022, Defendants understand that the purported assertion of claims 11 and 12 of the '223 patent was an error and Amsted has now represented that claims 11 and 12 are not asserted claims.

5. Defendants object to the PICs on the ground that Amsted did not comply with the requirements of Local Patent Rule 3-1(a)(v) in connection with allegations of indirect infringement. Specifically, Section D of Amsted's PICs is devoid of meaningful specificity and merely asserts conclusory and unsubstantiated allegations regarding "an identification of any direct infringement and a description of the acts of the alleged indirect infringer that contribute to or are inducing that direct infringement" and similarly fails to provide such information on a claim-by-claim basis. *See* Local Patent R. 3-1(a)(v). Additionally, Amsted failed to allege that any direct infringement is based on joint acts of multiple parties, and thus waived any such positions.

6. Defendants object to the PICs to the extent Amsted fails to establish that "a single actor can be held responsible for the performance of all steps" of asserted method claims. *See*

Limelight Networks, Inc. v. Akamai Techs., Inc., 572 U.S. 915, 924, 134 S. Ct. 2111, 2119, 189 L. Ed. 2d 52 (2014). Additionally, Defendants object to the PICs to the extent Amsted fails to establish that Hum "controls" and "benefits" from each claimed component of asserted system claims. *See Intell. Ventures I LLC v. Motorola Mobility LLC*, 870 F.3d 1320, 1329 (Fed. Cir. 2017).

7. Defendants object to the PICs to the extent Amsted's production of documents pursuant to Local Patent Rules 3-1(a)(vii), 3-2(a), and 3-2(b) is incomplete and/or inadequate. Defendants' review and analysis of Amsted's document productions is ongoing, and Defendants expressly reserve the right to demand Amsted's compliance with its document production obligations and/or move to strike or seek sanctions in connection with any evidence or positions proffered by Amsted which unfairly benefit from Amsted's withholding of documents required by Local Patent Rules 3-1 and/or 3-2.

PRELIMINARY COUNTER-INFRINGEMENT CONTENTIONS

In accordance with Local Patent Rule 3-3, Defendants have identified the elements from each Asserted Claim that are present in each Accused Instrumentality, and the elements that are absent from each Accused Instrumentality. As to the absent elements, Defendants have set forth in detail the basis for their contention that the element is absent. When an element is identified as absent from a claim, that element is deemed absent in all claims that depend from that claim, whether expressly stated or not.

Defendants' counter-infringement contentions are more fully set forth in the attached exhibits as follows:

- Exhibit A: Preliminary Counter-Infringement Contentions for the '223 patent;
- Exhibit B: Preliminary Counter-Infringement Contentions for the '673 patent; and

- Exhibit C: Preliminary Counter-Infringement Contentions for the '915 patent.

Defendants deny that any of the Accused Instrumentalities practice all limitations of any valid and enforceable Asserted Claim of any of the Asserted Patents, and contend that for each asserted claim, Amsted fails to satisfy its burden to demonstrate infringement under 35 U.S.C. § 271.

Dated: December 9, 2022

Respectfully Submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on this 9th day of December 2022, I caused the foregoing to be served via electronic mail upon the following:

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EXHIBIT A – COUNTER-INFRINGEMENT (NON-INFRINGEMENT) CHART FOR THE '223 PATENT

Defendants provide the chart below to further demonstrate that the "Accused Instrumentalities" do not practice all limitations of a valid and enforceable asserted claim of U.S. Patent No. 9,365,223 (the "'223 patent). As to elements that are identified as present in the Accused Instrumentalities, Defendants do not concede that Amsted has identified the correct components that relate to the corresponding claim limitation and do not concede that Amsted's PICs satisfy its burden to demonstrate infringement. For example, to the extent Amsted's PICs identify certain components on the circuit board of a Hum Boomerang or Hum Gateway, Defendants take no position as to whether the component identified by Amsted is the same component underlying Defendants' basis for contending that a particular claim limitation is present in the Accused Instrumentalities.

Additionally, Defendants object to Amsted's use of the term "Hum Boomerang System" to the extent Amsted has relied upon documents and allegations that represent an amalgamation of different versions of the Hum Boomerang and Hum Gateway without consideration as to whether such versions were implemented together in the same "Hum Boomerang System." As used herein, the term "Hum Boomerang System" will refer to the system including the most recent versions of the Hum Boomerang and Hum Gateway devices, which to date have yet to be sold to a customer in the United States. Defendants contend that all prior versions of the Hum Boomerang System do not infringe any valid and enforceable asserted claim of the '223 patent for at least the same reasons set forth below in connection with the most recent version of the Hum Boomerang System.

Claim 5	Counter-Infringement (Non-Infringement) Positions
5. A system for monitoring the operation of a railcar comprising:	Defendants deny infringement of Claim 5 of the '223 patent. Accordingly, Defendants also deny infringement of the asserted claims depending from Claim 5. Additionally, Defendants deny that Amsted has satisfied its burden to demonstrate that Defendants have committed acts constituting infringement of Claim 5 (or any asserted dependent claims) or that would otherwise render Defendants liable as an infringer of Claim 5 (or any asserted dependent claims) under 35 U.S.C. § 271. Without conceding that the preamble necessarily constitutes a limitation, the Hum Boomerang System is capable of monitoring the operation of a railcar.
a. one or more sensor units mounted on said railcar, each of said sensor units monitoring an operating parameter of said railcar wherein	The Hum Boomerang System includes one or more sensor units capable of being mounted on a railcar, and each sensor unit is capable of monitoring an operating parameter of a railcar.

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Claim 5	Counter-Infringement (Non-Infringement) Positions
each of said sensor units comprises a sensor,	The Hum Boomerang System includes sensor units which comprise a sensor.
a power source,	The Hum Boomerang System includes sensor units which comprise a power source.
a processor,	The Hum Boomerang System includes sensor units which comprise a processor.
memory,	The Hum Boomerang System includes sensor units which comprise a memory.
communications circuitry, and	The Hum Boomerang System includes sensor units which comprise communications circuitry.
software, stored in said memory and executed by said processor,	The Hum Boomerang System includes a sensor unit with software stored in memory which is capable of execution by the processor.
said software performing the functions of collecting data from said sensor at periodic intervals; and	The Hum Boomerang System includes a sensor unit with software capable of performing the functions of collecting data from the sensor at periodic intervals.
b. a communication management unit, mounted on said railcar, said communication management unit in wireless communication with said one or more sensor units;	The Hum Boomerang System includes a communication management unit capable of being mounted on a railcar, and the communication management unit is capable of wireless communication with one or more sensor units.
wherein said communication management unit applies heuristics to analyze data collected from said one or more sensor units (a) to determine if an actual failure exists and (b) to predict potential or imminent failures based on a statistical analysis of said collected data.	This limitation is absent from the Hum Boomerang System. [[[[redacted]]]] [[[[redacted]]]] [[[[redacted]]]]

Claim 10	Counter-Infringement (Non-Infringement) Positions
10. The system of claim 5 wherein said one or more sensor units and said communication management unit are in wireless communication with each other and form a local area wireless network for said railcar.	The Hum Boomerang System includes one or more sensor units and a communication unit that are capable of being in wireless communication with each other and capable of forming a local area wireless network for a railcar.

Claim 18	Counter-Infringement (Non-Infringement) Positions
18. The system of claim 5 wherein said sensor is selected from a group consisting essentially of temperature sensors, pressure sensors, strain sensors, load cell sensors, hand brake position sensors, magnetic sensors, vibration sensors, gyroscopes, acceleration sensors, hall effect sensors, piezio resistive microphones and switches.	The Hum Boomerang System includes at least a temperature sensor and a vibration sensor.

Claim 22	Counter-Infringement (Non-Infringement) Positions
22. The system of claim 5 wherein an alarm is raised based one or more of the following criteria: a. a pre-determined percentage of current data readings exceeds allowable peak readings; b. a pre-determined percentage of current data readings exceeds a determined value;	This limitation is absent from the Hum Boomerang System. [[[[redacted]]]]

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Claim 22	Counter-Infringement (Non-Infringement) Positions
c. a pre-determined percentage of current data readings exceeds a standard deviation from readings from the same railcar; d. a pre-determined percentage of current data readings exceeds a standard deviation from all railcars in the fleet; or e. the rate of change of current data readings exceeds a pre-determined threshold.	

Claim 32	Counter-Infringement (Non-Infringement) Positions
32. The system of claim 5 wherein said communication management unit is capable of communicating with a remote location located off of a train of which said railcar is a part.	The Hum Boomerang System includes a communication management unit that is capable of communication with a remote location located off of a train of which a railcar is a part.

Claim 2	Counter-Infringement (Non-Infringement) Positions
2. A system for monitoring a railcar, comprising:	Defendants deny infringement of Claim 2 of the '223 patent. Accordingly, Defendants also deny infringement of the asserted claims depending from Claim 2. Additionally, Defendants deny that Amsted has satisfied its burden to demonstrate that Defendants have committed acts constituting infringement of Claim 2 (or any asserted dependent claims) or that would otherwise render Defendants liable as an infringer of Claim 2 (or any asserted dependent claims) under 35 U.S.C. § 271. Without conceding that the preamble necessarily constitutes a limitation, the Hum Boomerang System is capable of monitoring a railcar.
a plurality of sensor devices located on the railcar for monitoring parameters or	The Hum Boomerang System includes a plurality of sensor devices capable of being located on a railcar for monitoring parameters or conditions of the railcar, and each of the sensor

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Claim 2	Counter-Infringement (Non-Infringement) Positions
conditions of the railcar, each of said sensor devices being separate from one another and including a sensor for monitoring one of said parameters or conditions of the railcar;	devices is capable of being separate from one another and including a sensor for monitoring one of said parameters or conditions of a railcar.
said plurality of sensor devices including at least one temperature sensor device having:	The Hum Boomerang system includes a plurality of sensor devices including at least one temperature sensor.
a housing,	The Hum Boomerang system includes a temperature sensor device having a housing.
a temperature sensor in thermal communication with an item of the railcar for which the temperature is being monitored, which item is external to said housing;	The Hum Boomerang system includes a temperature sensor device capable of being in thermal communication with an item of a railcar for which the temperature is being monitored, which item is external to said housing.
electrical circuitry in communication with said temperature sensor for obtaining information regarding the temperature being sensed, said electrical circuitry positioned within said housing;	The Hum Boomerang System includes a temperature sensor device having electrical circuitry capable of being in communication with a temperature sensor for obtaining information regarding the temperature capable of being sensed, and the electrical circuitry is positioned with the housing of the temperature sensor device.
a power source electrically connected to said electrical circuitry for providing power thereto, said power source positioned within said housing;	The Hum Boomerang System includes a temperature sensor device having a power source electrically connected to said electrical circuitry for providing power thereto, and the power source is positioned within the housing of the temperature sensor device.
a communication device capable of broadcasting information regarding the temperature sensed via wireless communication, said communication device positioned within said housing; and	The Hum Boomerang System includes a temperature sensor device having a communication device capable of broadcasting information regarding the temperature capable of being sensed via wireless communication, and the communication device is positioned within the housing of the temperature sensor device.
a communication management unit, mounted on the railcar, capable of two way wireless communication with each of said plurality of sensor devices for receiving	The Hum Boomerang System includes a communication management unit capable of being mounted on a railcar, capable of two way wireless communication with a plurality of sensor devices for receiving information therefrom, and the communication management unit has a

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Claim 2	Counter-Infringement (Non-Infringement) Positions
information therefrom, said communication management unit having a wireless communication device for broadcasting information about the parameter or condition being monitored.	wireless communication device for broadcasting information about the parameter or condition being monitored.

Claim 26	Counter-Infringement (Non-Infringement) Positions
26. The system of claim 2 wherein said communication management unit applies heuristics to analyze data collected from said one or more sensor devices (a) to determine if an actual failure exists and (b) to predict potential or imminent failures based on a statistical analysis of said collected data.	This limitation is absent from the Hum Boomerang System. The Hum Gateway does not apply heuristics to analyze data collected from one or more sensor units to determine if an actual failure exists and to predict potential or imminent failures based on a statistical analysis of said collected data. [redacted]

Claim 27	Counter-Infringement (Non-Infringement) Positions
27. The system of claim 2 further comprising a second temperature sensor located on said railcar for measuring ambient air temperature, wherein said system uses information obtained from said second temperature sensor about the ambient temperature to calibrate the temperature data received from said first	This limitation is absent from the Hum Boomerang System. The Hum Gateway does not use information obtained from a second temperature sensor about the ambient temperature to calibrate the temperature data received from a Hum Boomerang.

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Claim 27	Counter-Infringement (Non-Infringement) Positions
sensor regarding the item of the railcar being monitored.	

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EXHIBIT B – COUNTER-INFRINGEMENT (NON-INFRINGEMENT) CHART FOR THE '673 PATENT

Defendants provide the chart below to further demonstrate that the "Accused Instrumentalities" do not practice all limitations of a valid and enforceable asserted claim of U.S. Patent No. 9,981,673 (the "'673 patent). As to elements that are identified as present in the Accused Instrumentalities, Defendants do not concede that Amsted has identified the correct components that relate to the corresponding claim limitation and do not concede that Amsted's PICs satisfy its burden to demonstrate infringement. For example, to the extent Amsted's PICs identify certain components on the circuit board of a Hum Boomerang or Hum Gateway, Defendants take no position as to whether the component identified by Amsted is the same component underlying Defendants' basis for contending that a particular claim limitation is present in the Accused Instrumentalities.

Additionally, Defendants object to Amsted's use of the term "Hum Boomerang System" to the extent Amsted has relied upon documents and allegations that represent an amalgamation of different versions of the Hum Boomerang and Hum Gateway without consideration as to whether such versions were implemented together in the same "Hum Boomerang System." As used herein, the term "Hum Boomerang System" will refer to the system including the most recent versions of the Hum Boomerang and Hum Gateway devices, which to date have yet to be sold to a customer in the United States. Defendants contend that all prior versions of the Hum Boomerang System do not infringe any valid and enforceable asserted claim of the '673 patent for at least the same reasons set forth below in connection with the most recent version of the Hum Boomerang System.

Claim 1	Counter-Infringement (Non-Infringement) Positions
1. A method of monitoring operational characteristics of a railcar comprising the steps of:	Defendants deny that Amsted has satisfied its burden to demonstrate that Defendants have committed acts constituting infringement of Claim 1 (or any asserted dependent claims) or that would otherwise render Defendants liable as an infringer of Claim 1 (or any asserted dependent claims) under 35 U.S.C. § 271. Without conceding that the preamble necessarily constitutes a limitation, the Hum Boomerang System is capable of monitoring operational characteristics of a railcar.
a. receiving data or processed information regarding said operational characteristic from one or more sensing units on said railcar, said sensing units monitoring an operational characteristic of said railcar;	The Hum Boomerang System is capable of receiving data or processed information regarding operational characteristics of a railcar from one or more sensing units on a railcar, and the sensing units are capable of monitoring an operational characteristic of the railcar.

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Claim 1	Counter-Infringement (Non-Infringement) Positions
b. applying a heuristic to said received data to determine deviations from nominal operating conditions;	The Hum Boomerang System is capable of applying a heuristic to data received from a sensing unit to determine deviations from nominal operating conditions.
c. assigning a severity level to said deviations from nominal operating conditions; and	The Hum Boomerang System is capable of assigning a severity level to the deviations from nominal operating conditions.
d. determining an alarm condition based on said assigned severity level.	The Hum Boomerang System is capable of determining an alarm condition based on the assigned severity level.

Claim 2	Counter-Infringement (Non-Infringement) Positions
2. The method of claim 1 further comprising the initial step of establishing wireless communication with said one or more remote sensing units.	The Hum Boomerang System is capable of establishing wireless communications with one or more sensing units.

Claim 4	Counter-Infringement (Non-Infringement) Positions
4. The method of claim 2 wherein steps a-d are executed by a processing unit located on said railcar.	This limitation is absent from the Hum Boomerang System. [[[[redacted]]]] [[[redacted]]]]

Claim 6	Counter-Infringement (Non-Infringement) Positions
6. The method of claim 2 further comprising the step of transmitting said alarm condition to a location remote from said rail car.	The Hum Boomerang System is capable of transmitting an alarm condition to a location remote from said railcar.

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Claim 7	Counter-Infringement (Non-Infringement) Positions
7. The method of claim 2 further comprising the step of transmitting said data received from said one or more sensing units to a location remote from said railcar.	The Hum Boomerang System is capable of transmitting the data received from one or more sensing units to a location remote from a railcar.

Claim 14	Counter-Infringement (Non-Infringement) Positions
14. A method for monitoring the operation of a railcar performed by a communication management unit disposed on said railcar comprising the steps of:	Defendants deny infringement of Claim 14 of the '673 patent. Accordingly, Defendants also deny infringement of the asserted claims depending from Claim 14. Additionally, Defendants deny that Amsted has satisfied its burden to demonstrate that Defendants have committed acts constituting infringement of Claim 14 (or any asserted dependent claims) or that would otherwise render Defendants liable as an infringer of Claim 14 (or any asserted dependent claims) under 35 U.S.C. § 271. Without conceding that the preamble necessarily constitutes a limitation, the Hum Boomerang System does not monitor the operation of a railcar by a communication unit disposed on the railcar by performing each of the steps recited in Claim 14. [[[[redacted]]]]
a. wirelessly receiving data from one or more sensing units which periodically collect readings from one or more sensors disposed on said railcar;	The Hum Boomerang System is capable of wirelessly receiving data from one or more sensing units which periodically collect readings from one or more sensors capable of being disposed on a railcar.
b. heuristically analyzing said received data to determine if an actual failure exists on said railcar or to predict potential or imminent	This limitation is absent from the Hum Boomerang System.

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Claim 14	Counter-Infringement (Non-Infringement) Positions
failures based on a statistical analysis of said received data; and	[[[ ]]]
c. communicating the results of said analysis to an off-railcar location.	This limitation is absent from the Hum Boomerang System. [[ ]]]

Claim 15	Counter-Infringement (Non-Infringement) Positions
15. The method of claim 14 wherein each of said sensing units can make a determination of an alarm condition based on data collected by the sensing unit, said method further comprising the step of:	This limitation is absent from the Hum Boomerang System. [[ ]]]
a. wirelessly receiving notice of said alarm condition from said sensing unit; and	This limitation is absent from the Hum Boomerang System. [[ ]]]
b. communicating said alarm condition to an off-railcar location.	This limitation is absent from the Hum Boomerang System. The Hum Boomerang System does not perform each of the two previous limitations, and thus does not communicate the "alarm condition" required by Claim 15 to an off-railcar location.

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Claim 16	Counter-Infringement (Non-Infringement) Positions
16. The method of claim 14 further comprising the steps of: a. making a determination of an alarm condition based on data received from two or more of said sensing units; and	This limitation is absent from the Hum Boomerang System. [[ ]]]
b. communicating said alarm condition to an off-railcar location.	This limitation is absent from the Hum Boomerang System. [[ ]]]

Claim 20	Counter-Infringement (Non-Infringement) Positions
20. The system of claim 14 further comprising the steps of: a. saving data received from said one or more sensing units in memory; and	The Hum Boomerang System is capable of saving data received from one or more sensing units in memory.
b. comparing data received with said saved data to identify trends or deviations from normal readings of said data stored in memory.	This limitation is absent from the Hum Boomerang System. [[ ]]]

Claim 21	Counter-Infringement (Non-Infringement) Positions
21. A method for monitoring the operation of a railcar comprising:	Defendants deny infringement of Claim 21 of the '673 patent. Accordingly, Defendants also deny infringement of the asserted claims depending from Claim 21. Additionally, Defendants deny that Amsted has satisfied its burden to demonstrate that Defendants have committed acts constituting infringement of Claim 21 (or any asserted dependent

Claim 21	Counter-Infringement (Non-Infringement) Positions
	claims) or that would otherwise render Defendants liable as an infringer of Claim 21 (or any asserted dependent claims) under 35 U.S.C. § 271. Without conceding that the preamble necessarily constitutes a limitation, the Hum Boomerang System is capable of monitoring the operation of a railcar.
a. collecting data at periodic intervals about one or more operating parameters of said railcar using one or more sensor units provided on said railcar;	The Hum Boomerang System is capable of collecting data at periodic intervals about one or more operating parameters of a railcar using one or more sensing units capable of being mounted on a railcar.
b. communicating said collected data to a communication management unit;	The Hum Boomerang System is capable of communicating the collected data to a communication management unit.
c. analyzing said collected data by applying heuristics thereto to (i) determine if an actual failure exists and (ii) to predict potential or imminent failures based on a statistical analysis of said collected data.	This limitation is absent from the Hum Boomerang System. [[[[redacted]]]]

Claim 22	Counter-Infringement (Non-Infringement) Positions
22. The method of claim 21 further comprising the steps of: assessing the collected data to determine if an alarm condition exists; and wirelessly communicating said alarm condition to an off railcar location.	This limitation is absent from the Hum Boomerang System. [[[redacted]]]

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EXHIBIT C – COUNTER-INFRINGEMENT (NON-INFRINGEMENT) CHART FOR THE '915 PATENT

Defendants provide the chart below to further demonstrate that the "Accused Instrumentalities" do not practice all limitations of a valid and enforceable asserted claim of U.S. Patent No. 10,137,915 (the "'915 patent). As to elements that are identified as present in the Accused Instrumentalities, Defendants do not concede that Amsted has identified the correct components that relate to the corresponding claim limitation and do not concede that Amsted's PICs satisfy its burden to demonstrate infringement. For example, to the extent Amsted's PICs identify certain components on the circuit board of a Hum Boomerang or Hum Gateway, Defendants take no position as to whether the component identified by Amsted is the same component underlying Defendants' basis for contending that a particular claim limitation is present in the Accused Instrumentalities.

Additionally, Defendants object to Amsted's use of the term "Hum Boomerang System" to the extent Amsted has relied upon documents and allegations that represent an amalgamation of different versions of the Hum Boomerang and Hum Gateway without consideration as to whether such versions were implemented together in the same "Hum Boomerang System." As used herein, the term "Hum Boomerang System" will refer to the system including the most recent versions of the Hum Boomerang and Hum Gateway devices, which to date have yet to be sold to a customer in the United States. Defendants contend that all prior versions of the Hum Boomerang System do not infringe any valid and enforceable asserted claim of the '915 patent for at least the same reasons set forth below in connection with the most recent version of the Hum Boomerang System.

Claim 1	Counter-Infringement (Non-Infringement) Positions
1. A system for detecting operational anomalies on a train consist or railcar comprising:	Defendants deny infringement of Claim 1 of the '915 patent. Accordingly, Defendants also deny infringement of the asserted claims depending from Claim 1. Additionally, Defendants deny that Amsted has satisfied its burden to demonstrate that Defendants have committed acts constituting infringement of Claim 1 (or any asserted dependent claims) or that would otherwise render Defendants liable as an infringer of Claim 1 (or any asserted dependent claims) under 35 U.S.C. § 271. Without conceding that the preamble necessarily constitutes a limitation, the Hum Boomerang System is capable of detecting operational anomalies on a train consist or railcar.
(a) one or more communication management units mounted on one or more railcars;.	The Hum Boomerang System includes one or more communication management units capable of being mounted on a railcar.
(b) one or more sensors located on said one or more railcars configured to sense an	The Hum Boomerang System includes one or more sensors capable of being located on a railcar which are configured to sense an operational parameter of a railcar, and the

Claim 1	Counter-Infringement (Non-Infringement) Positions
operational parameter of said one or more railcars, said sensors being in communication with said one or more communication management units, wherein the one or more sensors comprise one or more sensors configured to measure accelerations of the railcar; and	sensors are capable of being in communication with a communication management unit, wherein the one or more sensors are capable of measuring accelerations of a railcar.
(c) one or more filters configured to filter at least a portion of the accelerations,	The Hum Boomerang System includes one or more filters configured to filter at least a portion of accelerations measured by a sensor.
wherein said communication management units perform the functions of:	This limitation is absent from the Hum Boomerang System. [[[ ]]] [[[ ]]]
(i) collecting data regarding said one or more railcar operational parameters;	The Hum Boomerang System includes a communication management unit that is capable of collecting data regarding one or more railcar operational parameters.
(ii) analyzing said collected data for trends or events indicative of an anomalous operational condition; and	This limitation is absent from the Hum Boomerang System. [[[ ]]]
(iii) communicating a message to a remote receiver when said trend or event is detected.	This limitation is absent from the Hum Boomerang System. [[[ ]]]

Claim 21	Counter-Infringement (Non-Infringement) Positions
21. The system of claim 1 wherein at least one of said communication management units includes at least one of said sensors.	The Hum Boomerang System includes a communication management unit that includes at least one sensor.

Claim 23	Counter-Infringement (Non-Infringement) Positions
23. The system of claim 1, wherein the one or more filters comprise one or more mechanical filters that include a resilient material configured to filter out undesirable accelerations from the accelerations, wherein the one or more mechanical filters are disposed to remove the undesirable accelerations before the undesirable accelerations reach the one or more sensors that are configured to measure accelerations.	This limitation is absent from the Hum Boomerang System. [[[[redacted]]]]

Claim 25	Counter-Infringement (Non-Infringement) Positions
25. The system of claim 1, further comprising one or more wireless sensor nodes in communication with at least one of the communication management units, wherein the one or more sensors form part of the one or more wireless sensor nodes, wherein one or more of the wireless sensor nodes comprises a microprocessor configured to execute firmware to control operation of the one or more of the wireless sensor nodes, wherein the firmware comprises one or more software filters configured to isolate one or more types of accelerations.	The limitation is absent from the Hum Boomerang System. [[[[redacted]]]]

Claim 28	Counter-Infringement (Non-Infringement) Positions
28. The system of claim 1, wherein the one or more filters comprise one or more digital filters.	This limitation is absent from the Hum Boomerang System. [[[ ]]]

Claim 29	Counter-Infringement (Non-Infringement) Positions
29. The system of claim 1 wherein said remote receiver is located off-train.	The Hum Boomerang System is capable of deployment with a remote receiver that is located off-train.

Claim 30	Counter-Infringement (Non-Infringement) Positions
30. A method for detecting operational anomalies on a train consist or railcar comprising the steps of:	Defendants deny infringement of Claim 30 of the '915 patent. Additionally, Defendants deny that Amsted has satisfied its burden to demonstrate that Defendants have committed acts constituting infringement of Claim 30 or that would otherwise render Defendants liable as an infringer of Claim 30 under 35 U.S.C. § 271. Without conceding that the preamble necessarily constitutes a limitation, the Hum Boomerang System is capable of detecting operational anomalies on a train consist or railcar.
sensing, by one or more sensors located on one or more railcars, one or more operational parameters of the one or more railcars, wherein the one or more operational parameters comprise one or more accelerations of the one or more railcars;	The Hum Boomerang System is capable of sensing, by one or more sensors capable of being located on a railcar, one or more operational parameters of a railcar, wherein the one or more operational parameters comprise one or more accelerations of the railcar.
filtering, by one or more filters, at least a portion of the accelerations; and	The Hum Boomerang System is capable of filtering, by one or more filters, at least a portion of the accelerations.
by one or more communication management units associated with the one or more railcars:	This limitation is absent from the Hum Boomerang System. [[[ ]]]

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*Designated material is identified as surrounded by bolded red brackets

Claim 30	Counter-Infringement (Non-Infringement) Positions
	[[[[redacted]]]]
collecting data regarding said one or more railcar operational parameters;	The Hum Boomerang System includes a communication management unit capable of collecting data regarding one or more railcar operational parameters.
analyzing said collected data for trends or events indicative of an anomalous operational condition; and	This limitation is absent from the Hum Boomerang System. [[[[redacted]]]]
communicating a message to a remote receiver when said trend or event is detected.	This limitation is absent from the Hum Boomerang System. [[[[redacted]]]]