

**TESLA, INC.,
Petitioner,
v.
GRAPHITE CHARGING COMPANY LLC,
Patent Owner.**

**IPR2024-00387
U.S. Patent No. 8,103,391**

Patent Owner's Trial Hearing Demonstratives

The Board's Trial Hearing: May 6, 2025

Devlin Law Firm LLC

Topics

- I. Background
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- IV.-IX. Grounds 1 Through 6
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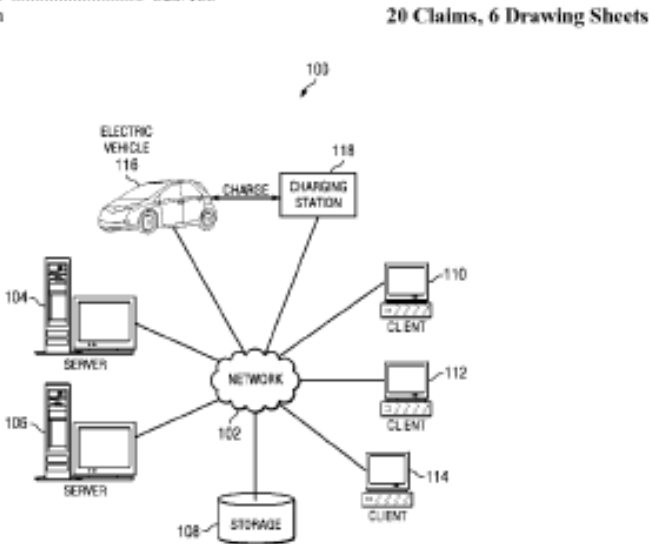
I. Background of U.S. Patent No. 8,103,391 (the '391 Patent)

I. Background of the '391 Patent

- The '391 Patent, entitled “System for Detecting Interrupt Conditions During an Electric Vehicle Charging Process,” relates to a data processing system and method for managing a charging process of an electric vehicle (“EV”). (Ex-1001 at 1:8-11; POR at 10; Ex-2005, ¶82.)
- At the time, EV manufacturers and utility companies only provided infrastructure for the *most rudimentary charging scenarios, such as merely plugging the electric vehicle into a common electric outlet* owned by the EV’s owner and operator. (Ex-1001 at 6:60-65; POR at 10; Ex-2005, ¶84.)



(12) United States Patent Ferro et al.		(10) Patent No.: US 8,103,391 B2
		(45) Date of Patent: Jan. 24, 2012
(54) SYSTEM FOR DETECTING INTERRUPT CONDITIONS DURING AN ELECTRIC VEHICLE CHARGING PROCESS	6,081,205 A 6/2000 Williams 6,234,932 B1 5/2001 Karoda et al. 6,252,380 B1 6/2001 Koenck 6,301,531 B1 10/2001 Pierro et al. 6,307,349 B1 10/2001 Koenck et al. 6,373,380 B1 4/2002 Robertson et al. 6,456,041 B1 9/2002 Terada et al. 6,727,809 B1 4/2004 Smith 6,766,949 B2 7/2004 Terranova et al. 6,789,733 B2 9/2004 Terranova et al. (Continued)	
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(73) Assignee: International Business Machines Corporation, Armonk, NY (US)		
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 667 days.		
(21) Appl. No.: 12/194,325		
(22) Filed: Aug. 19, 2008		
(65) Prior Publication Data US 2010/0049396 A1 Feb. 25, 2010		
(51) Int. Cl. G06F 7/00 (2006.01) G06F 19/00 (2011.01)		
(52) U.S. Cl. 701/1; 701/33; 701/123		
(58) Field of Classification Search 701/1, 33, 701/123 See application file for complete search history.		
(56) References Cited U.S. PATENT DOCUMENTS 3,867,682 A * 2/1975 Yamauchi et al. 320/139 4,389,608 A * 6/1983 Dahl et al. 320/137 4,433,278 A 2/1984 Lowndes et al. 4,532,418 A 7/1985 Meese et al. 5,422,624 A 6/1995 Smith 5,563,491 A 10/1996 Tseng 5,736,833 A * 4/1998 Farris 320/163 6,067,008 A 5/2000 Smith		
		FOREIGN PATENT DOCUMENTS JP 2001359203 A 12/2001 OTHER PUBLICATIONS USPTO office action for U.S. Appl. No. 12/139,575 dated Oct. 8, 2010. (Continued) Primary Examiner — Sarah B McPartlin (74) Attorney, Agent, or Firm — Yee & Associates, P.C.; David A. Mims, Jr.
		(57) ABSTRACT Illustrative embodiments disclose managing a charging process of an electric vehicle. Begin by monitoring a set of operational parameters of the charging process during the flow of electricity for one or more interruptions in response to receiving, from an energy transaction execution engine, a request signaling the start of the charging process. The process then detects the one or more interruptions during the flow of electricity from the set of operational parameters, which conform to a set of predefined interrupt conditions. In one embodiment, the one or more interruptions include at least one of a device capability interruption, a preference interruption, and a data services interruption. The process sends a response to the energy transaction execution engine to terminate the charging transaction in response to detecting the one or more interruptions.



I. Background of the '391 Patent (cont.)

- The inventors recognized that EV charging would frequently be conducted under *much broader and more complex sets of circumstances*, such as might occur when charging an EV at an off-vehicle charging station owned by somebody other than the vehicle owner. (Ex-1001 at 6:65-7:11; POR at 10; Ex-2005, ¶84.)
- Under such circumstances the charging transactions by which EVs obtained electricity from such an off-vehicle charging station “requires *a much more complete, flexible, and interoperable system* governing all aspects of the charging transaction.” (Ex-1001 at 7:12-16; POR at 11; Ex-2005, ¶¶ 84, 94.)
- To provide that *flexibility*, the '391 patent's systems and processes utilize *requests* and *responses* that must be *messages*. (Ex-1021 at 137:12-15, 166:17-167:1; POR at 27; Sur-Reply at 11; Ex-2005, ¶¶92-94.)
 - “[T]he patent writers are focused on these *complex operations*. So that *requires messaging*[.]” (Ex-1021 at 137:12-14; Sur-Reply at 11.)
 - “In a data processing system, a *message is a unit of data or information sent from one device to another that includes a header and a body*.” (Ex-2005, ¶94; POR at 28.)

I. Background of the '391 Patent (cont.)

- “[T]he purpose of the header is to contain meta information about the transmission, including the source location and the target location. Without that, a message isn’t starting anywhere or going to anybody. If I just connect two wires together and send a 0 across a wire or a 1 across a wire, I am sending a unit of data, a single bit of information from one device to another, but I am not doing it with a header and a body.” (Ex-1021 at 166:17-167:1, Sur-Reply at 11.)
- “[The execution engine] takes inputs from various sources and makes a determination.” (Ex-1021 at 116:11-12, Sur-Reply at 12.)

I. Background of the '391 Patent (cont.)

- The *parties* to the charging transaction are:
 - EV's *owner* or *operator* (Ex-1001 at 7:43-49, 12:22-24, 13:24-26; POR at 29; Sur-Reply at 9);
 - a charging station *attendant* (Ex-1001, 12:22-24; Sur-Reply at 9);
 - An *owner* of the charging station (Ex-1001 at 7:43-49; POR at 29; Sur-Reply at 9);
 - A *utility* provider/company providing electricity to an electric power grid associated with the charging station (Ex-1001 at 7:43-49, 13:24-26; POR at 29; Sur-Reply at 9).
- The specification distinguishes *users and parties/participants*, on one hand, from *third parties*, on the other hand. (Ex-1001 at 13:33-36; Sur-Reply at 10; Ex-1021 at 114:22-115:12.)

I. Background of the '391 Patent (cont.)

- The inventors divided the charging transaction into three aspects or phases:
 - the pre-charge phase,
 - the charge phase, and
 - the post-charge phase. (Ex-1001 at 7:17-19; POR at 11; Ex-2005, ¶85.)
- In the pre-charge phase, “*all parties are presented with conditions* governing the charging transaction.” (Ex-1001 at 7:19 -21; POR at 11; Ex-2005, ¶85.)
- In the charge phase,
 - “*[e]lectricity flows* to the EV and payment is made” (Ex-1001 at 7:21-22; POR at 11);
 - one or more operational parameters that conform to predefined interrupt conditions *are monitored* (Ex-2005, ¶85); and
 - if *one or more interrupt conditions* are identified, then the charging process is *terminated* (Ex-1001 at 10:8-12, 14:1-5; POR at 11; Ex-2005, ¶85).
- In the post-charge phase, “an analysis is performed to provide incentives and induce specific behaviors on the part of any party involved in the transaction.” (Ex-1001 at 7:22-25; POR at 11; Ex-2005, ¶86.)

I. Background of the '391 Patent (cont.)

- Interruptions during the **charge phase** (Ex-1001 at 11:12-17) may include:
 - a **device capability** interruption—originates from a component of the electric vehicle energy transaction infrastructure (Ex-1001 at 13:10-20; POR at 11; Ex-2005, ¶86);
 - a **preference** interruption—caused by violation of a user-specified preference (Ex-1001 at 13:21-36; POR at 11-12; Ex-2005, ¶86), or
 - a **data services** interruption—caused by the inability for information to be exchanged with third-party data services sources (Ex-1001 at 13:37-46, 8:38-44; POR at 12; Ex-2005, ¶86).
- Additionally, a user may terminate the charging process by generating **a manual override** interruption, which is an instruction generated by the user with a user interface. (Ex-1001 at 12:24-36; POR at 12; Ex-2005, ¶86.)

I. Background of the '391 Patent (cont.)

- Figure 3 of the '391 Patent shows an embodiment of an EV energy transaction infrastructure for managing all 3 phases of the charging transaction. (POR at 12; Ex-2005, ¶87.)
- Components of the EV infrastructure include
 - the energy transaction execution engine (“*ETEE*”),
 - the energy transaction interrupt monitor (“*ETIM*”), and
 - the integration and service bus (which allows components of the data processing system to communicate and transfer data). (Ex-1001 at 7:34-40, 9:61-64; POR at 12; Ex-2005, ¶87.)

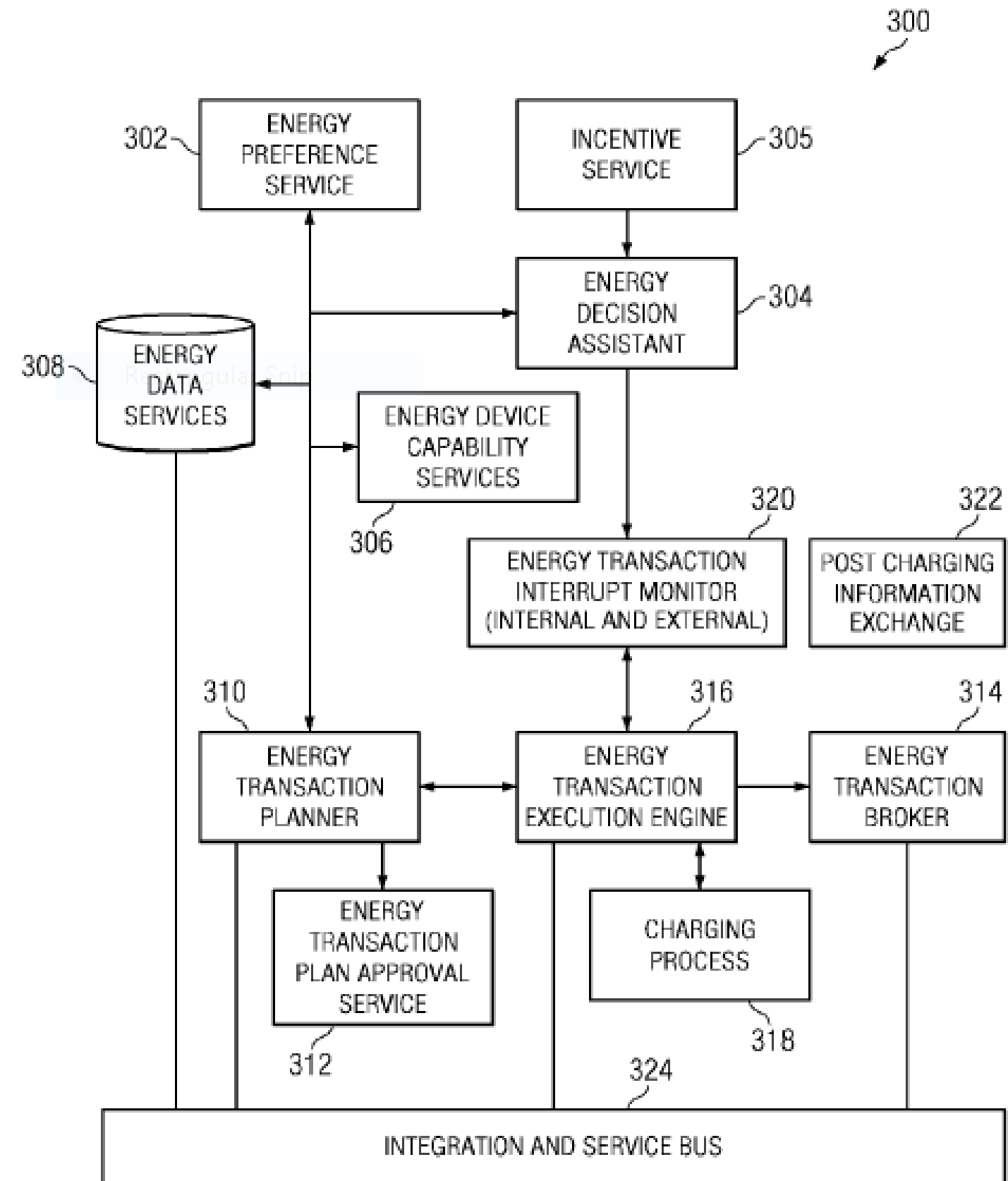


FIG. 3

I. Background of the '391 Patent (cont.)

- Components of an illustrative data processing system are shown in Figure 4 of the '391 Patent. (Ex-1001 at 10:51-54; POR at 14; Ex-2005, ¶89.)
- Data processing system 400 includes, among other things,
 - transaction interrupt monitor 402 that,
 - after receiving a **request** to start monitoring a charging process,
 - monitors a charging process 404 for interruptions 406
 - by identifying the operational parameters from operational parameters 408 that conform to predefined interrupt conditions 412.(Ex-1001 at 10:51-11:9, 11:39-44, 13:52-53; POR at 14; Ex-2005, ¶89.)
- If an interruption is identified, the process sends a **response** to ETEE to terminate the charging process. (Ex-1001 at 14:1-5; POR at 14; Ex-2005, ¶89.)

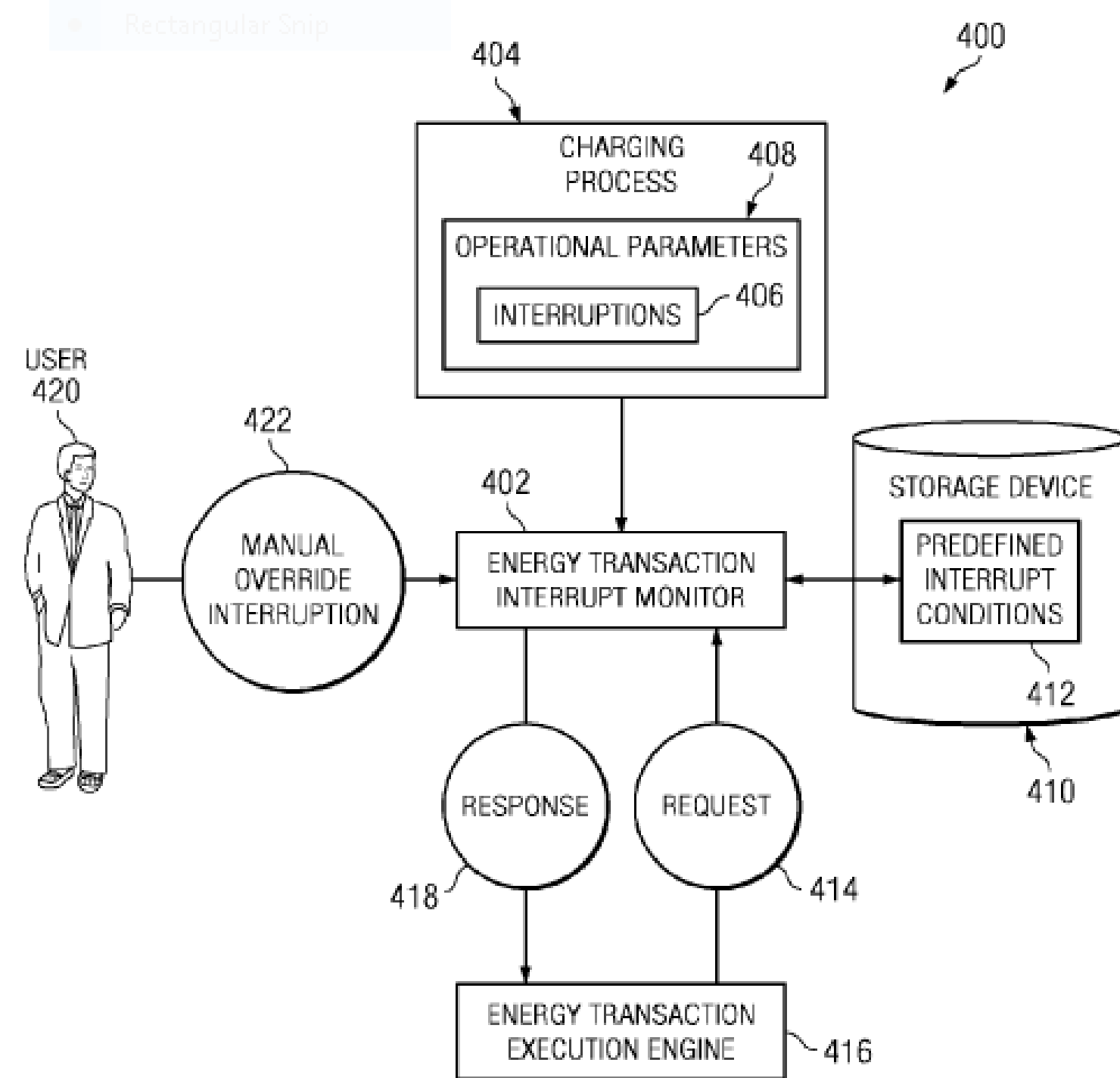


FIG. 4

I. Background of the '391 Patent (cont.)

- Figure 6 is a flowchart showing a process for managing a charging process of an EV according to an illustrative embodiment. (POR at 15; Ex-2005, ¶90.)

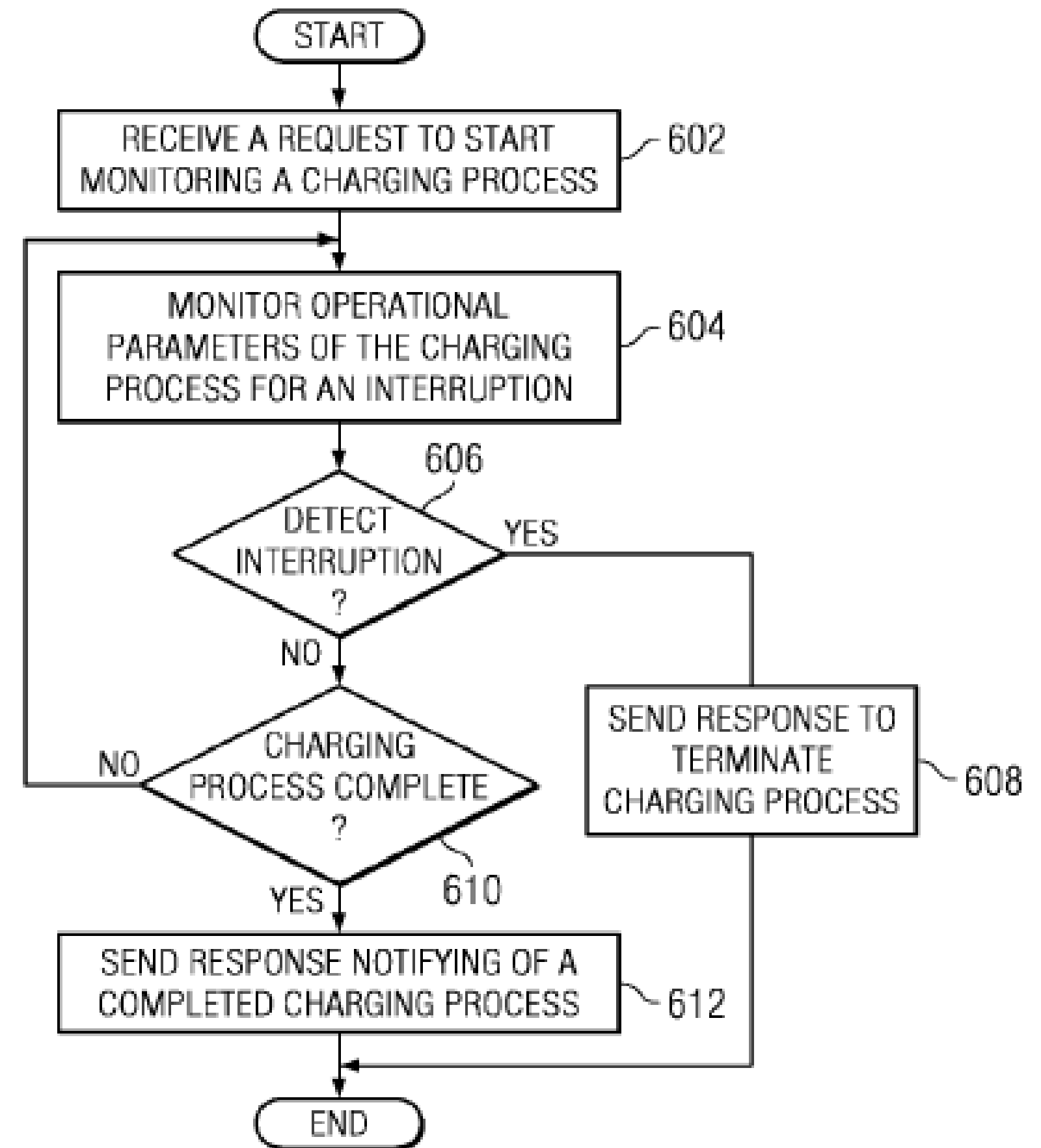


FIG. 6

II. A POSITA's Level of Skill in the Art

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Petitioner's Definition:

- a bachelor's degree in computer science or electrical engineering, along with at least two to three years of *experience working on software and/or hardware used to manage charging processes for electric vehicles*;
- additional advanced educational degrees could substitute for some years of industry experience and vice versa;
- *familiarity with standards and regulations relevant to charging of electric vehicles (including J1772, Ex-1011)*;
- *familiarity with the principles and technologies that the '391 Patent identifies as part of the general knowledge, including: (i) electric vehicles, (ii) vehicle charging stations, and (iii) power grids.* (Pet. at 6.)

PO's Definition:

- a bachelor's degree in computer science or electrical engineering, along with at least two to three years of *experience on data processing systems in the field of energy management*;
- *the experience need not be limited to working on software and/or hardware used to manage charging processes for electric vehicles*;
- additional education could substitute for professional experience and vice versa;
- *knowledge of standards and regulations relevant to charging of electrical vehicles (including J1772, Ex-1011) is not required.* (POR at 17-18; Ex-2005, ¶¶38-41.)

II. A POSITA's Level of Skill (cont.)

- The Board's Preliminary Definition in the ID:

[A POSITA] would have had a bachelor's degree in computer science or electrical engineering, along with at least two to three years of experience working on software and/or hardware used to *manage charging processes* for electric vehicles. Additional advanced educational degrees could substitute for some years of industry experience and vice versa.

(ID at 17.)

- The Board also *declined Petitioner's proposal that a POSITA should be familiar with relevant standards and regulations (including J1772)*. (Id. at 17.)
- Petitioner did not challenge PO's expert's POSITA status. (Sur-Reply at 1, Ex-2005, ¶42; Ex-1021 at 69:1-2, 117:13.)

II. A POSITA's Level of Skill (cont.)

PO's definition is supported by the '391 Patent (POR at 17-18, Ex-2005, ¶¶40-41):

- The '391 Patent is focused on data processing concepts such as *execution engines, interrupt monitors, and data services for managing an energy transaction* (Ex-1001 at Abstract);
- the invention is “related generally to an *improved data processing system*, and in particular, to a method and apparatus for managing electric vehicle *charging transactions*” (Ex-1001 at 1:8-11);
- refers to *data processing environments* in which embodiments may be implemented (Ex-1001 2:38-48 & 3:62-65);
- refers to *a data processing system* in which illustrative embodiments may be implemented (Ex-1001 at 5:16-18);
- invention is *not directed to electric vehicles or charging stations themselves* (see Ex-1001 at 4:24-26, 4:37-39);
- *standards and regulations such as J1772 are not mentioned* anywhere in the '391 Patent (POR at 17-18; Ex-2005, ¶¶40-41).

III. Claim Construction

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- Petitioner’s claim that it “applied plain and ordinary meanings to all terms” (Pet. at 6)—*without specifying what constitutes the plain and ordinary meaning of any term*—is not helpful. (POR at 19.)
- The *Petition ignores the explicit definitions provided in the specification and P&O meaning of certain terms* dispositive of patentability. (POR at 20.)
- PO provided evidence of P&O meaning of the terms “*request*,” “*response*” and evidence that the ’391 patentees *acted as their own lexicographers at least with respect to the terms “data services interruption,” “manual override interruption,” “preference interruption.”* (POR 20, 22, 25, 27-28; Sur-Reply 5, 7 & 9; Ex-2005, ¶¶69, 74, 79, 92-94.)
- Petitioner did not argue invalidity based on PO’s constructions. (E.g., Reply at 15-16, 20.)
- *Dr. Cameron’s construction opinions remain unrebutted* because Petitioner chose not to submit a rebuttal declaration from its expert Dr. MacCarley. (Sur-Reply at 1.)
- If the Board agrees with PO’s constructions, *PO wins on all grounds*. (Sur-Reply at 14.)

III.A. Claim Construction—“Data Services Interruption”

DATA SERVICES INTERRUPTION

- The “*data services interruption*” recited in claims 1, 6, 8, 13, 15, and 20 should be construed as “a set of one or more interruptions caused by the inability for information to be exchanged with a set of one or *more third party* data sources providing information relevant to the energy transaction,” where the term “*third party*” means “an entity or person that is *not a party to* the electric vehicle *charging transaction*.” (Ex-1001 at 7:41-47; POR at 20-22; Sur-Reply at 5-7; Ex-2005, ¶70.)
- Examples of *data sources* include, without limitation, weather information sources, traffic information sources, map and travel information sources, charging station price information sources, or any other third party information sources. (Ex-1001 at 8:40-44; POR at 21; Ex-2005, ¶70.)
- By defining the term “data services interruption” in this way, the inventors *disavowed* claims covering *intra-system communications abnormalities*, such as communication failures between the battery and the charging station. (POR at 21; Ex-2005, ¶71.)

III.A. Claim Construction—“Data Services Interruption” (cont.)

- Support:

[a data services interruption] is a set of one or more interruptions caused by the inability for information to be exchanged with data services sources. Data service sources are sources of data, such as, for example, energy data services 308 in FIG. 3. Data services interruption 506 may be caused by power outages, broken transmission lines, or any other problems preventing a data service from exchanging information with other components of an electric vehicle transaction infrastructure.

(Ex-1001 at 13:38-46, POR at 17-18, Ex-2005, ¶¶69-78.)

Energy data services 308 are a set of one or more third party data sources providing information relevant to the energy transaction. Energy data services 308 *may include, without limitation*, weather information sources, traffic information sources, map and travel information sources, charging station price information sources, or any other third party information sources.

(Ex-1001 at 8:38-44; POR at 17-18, *see also* Ex-2005, ¶¶ 69-73; Ex-1021 at 95:22-96:2, 97:20-98:20, 103:2-14.)

III.A. Claim Construction—“Data Services Interruption” (cont.)

- Petitioner’s counterarguments **fail**:
 - Disavowal occurs “even though the language of the claims, read without reference to the specification, might be considered [broader].” *Thorner v. Sony Comput.*, 669 F.3d 1362, 1366 (Fed. Cir. 2012). (Sur-Reply at 5.)
 - **Local, intra-system** components are not considered data services under the ’391 Patent, and do not even have the word “data” in their names. (Sur-Reply at 5.)
 - Dr. Cameron explained that a POSITA would know that the data services 308 in Figure 3 is a third party as defined because it is depicted differently than the intra-system components. (Ex-1021 at 104:24-105:25; Sur-Reply at 5-6.)

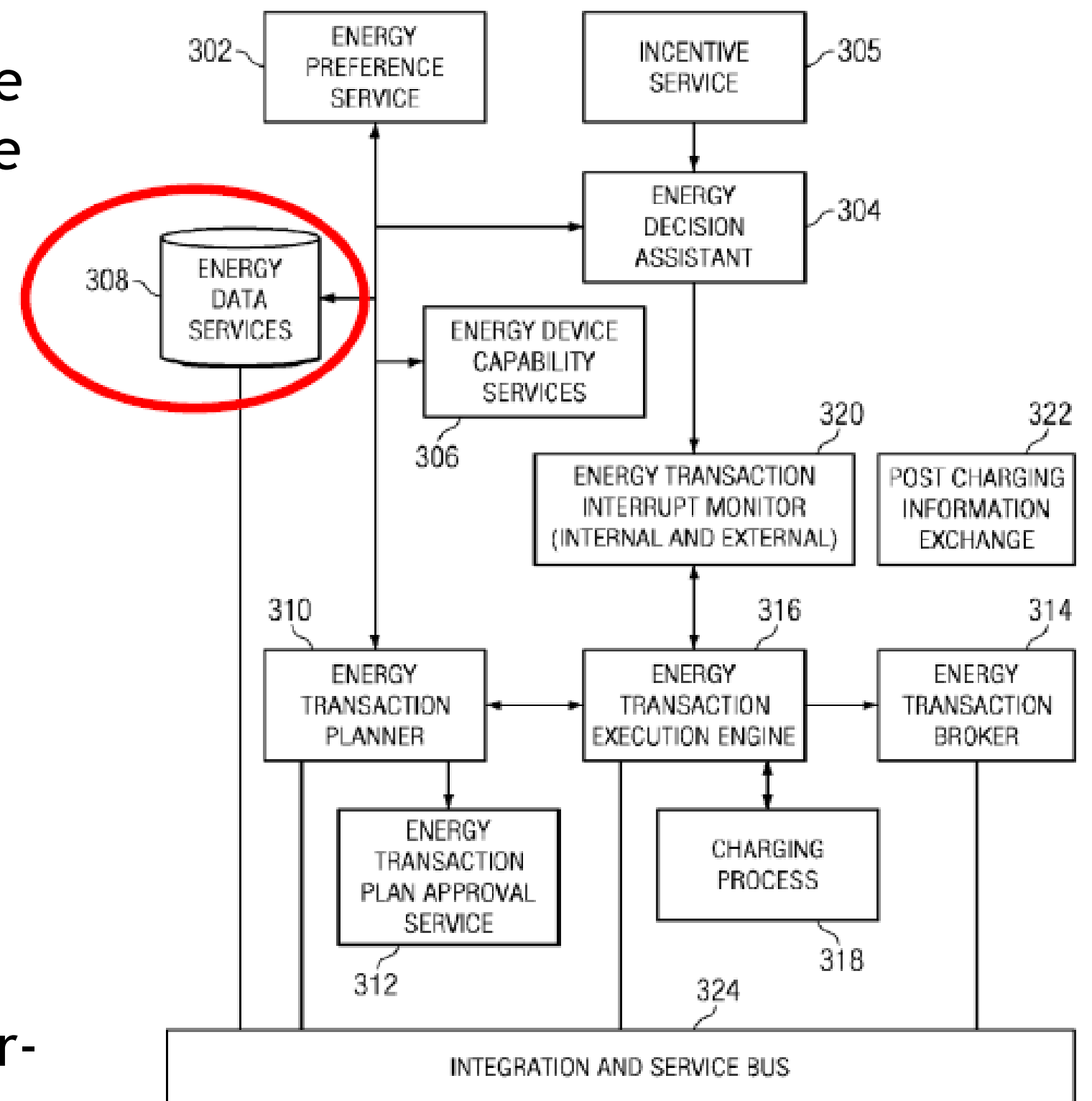


FIG. 3

III.A. Claim Construction—“Data Services Interruption” (cont.)

- Petitioner’s counterarguments *fail* (cont.):
 - PO is not estopped from advancing new arguments before the Board. *3M Innovative Props. v. Avery Dennison Corp.*, 350 F.3d 1365, 1373-74 (Fed. Cir. 2003) (silence in response to examiner’s characterization is not acquiescence if the claim is eventually allowed on grounds unrelated to unrebutted characterization). (Sur-Reply at 6-7.)

III.B. Claim Construction—“Manual Override Interruption”

MANUAL OVERRIDE INTERRUPTION

- The “*manual override interruption*” recited in claims 2, 9, and 16 should be construed as “an *instruction* that causes ETEE to terminate the charging process, which a user may generate during the flow of electricity by interacting with a user interface,” where “*instruction*” means “an encoding of a series of operational steps specifying the details to be executed according to those operational steps.” (Ex-1001 at 12:26-36; POR at 22-25; Sur-Reply at 7; Ex-2005, ¶76.)
- “[E]ach block in the flowchart or block diagrams may represent a module, segment, or portion of code, which comprises one or more *executable instructions* for implementing the specified logical function(s).” (Ex-1001 at 15:13-16; POR at 48, *see also* Ex-2005, ¶75.)
- By defining the term in this way, the ’391 patentees *disavowed* claims covering *mere opening and closing of a switch*. (E.g., Ex-2005, ¶¶ 74-78, 117; Ex-1021 at 133:12-17, 174:8-175:10; POR at 24.)

III.B. Claim Construction—“Manual Override Interruption” (cont.)

- Support:
 - *Manual override interruption* 422 is an *instruction* that causes energy transaction execution engine 416 to terminate charging process 404. *User 420 may generate manual override interruption 422 by interacting with a user interface* located at the charging station or on the electric vehicle. In addition, user 420 may generate manual override interruption 422 at a remote location by implanting a user interface presented on a remote computing device. For example, user 420 may utilize a cell phone or computer for accessing a user interface for generating manual override interruption 422. (Ex-1001 at 12:26-36, POR at 22-23.)
 - PO’s expert Dr. Cameron opined that a *POSITA would understand “instruction”* as that term is used in the ’391 Patent to mean *an encoding of a series of operational steps specifying the details to be executed according to those operational steps*. (Ex-2005, ¶ 75.) “[A]n instruction is a digital operation capable of sending a complex series of signals and goes beyond the simple mechanical operation of pressing a button on a keyboard to complete a circuit.” (*Id.*, POR at 23-24.)

III.B. Claim Construction—“Manual Override Interruption” (cont.)

- Support (cont.):
 - Figure 7 shows that a received manual override notification may be identified as an interruption (steps 72 and 704). (POR at 23; Ex-2005, ¶74.)

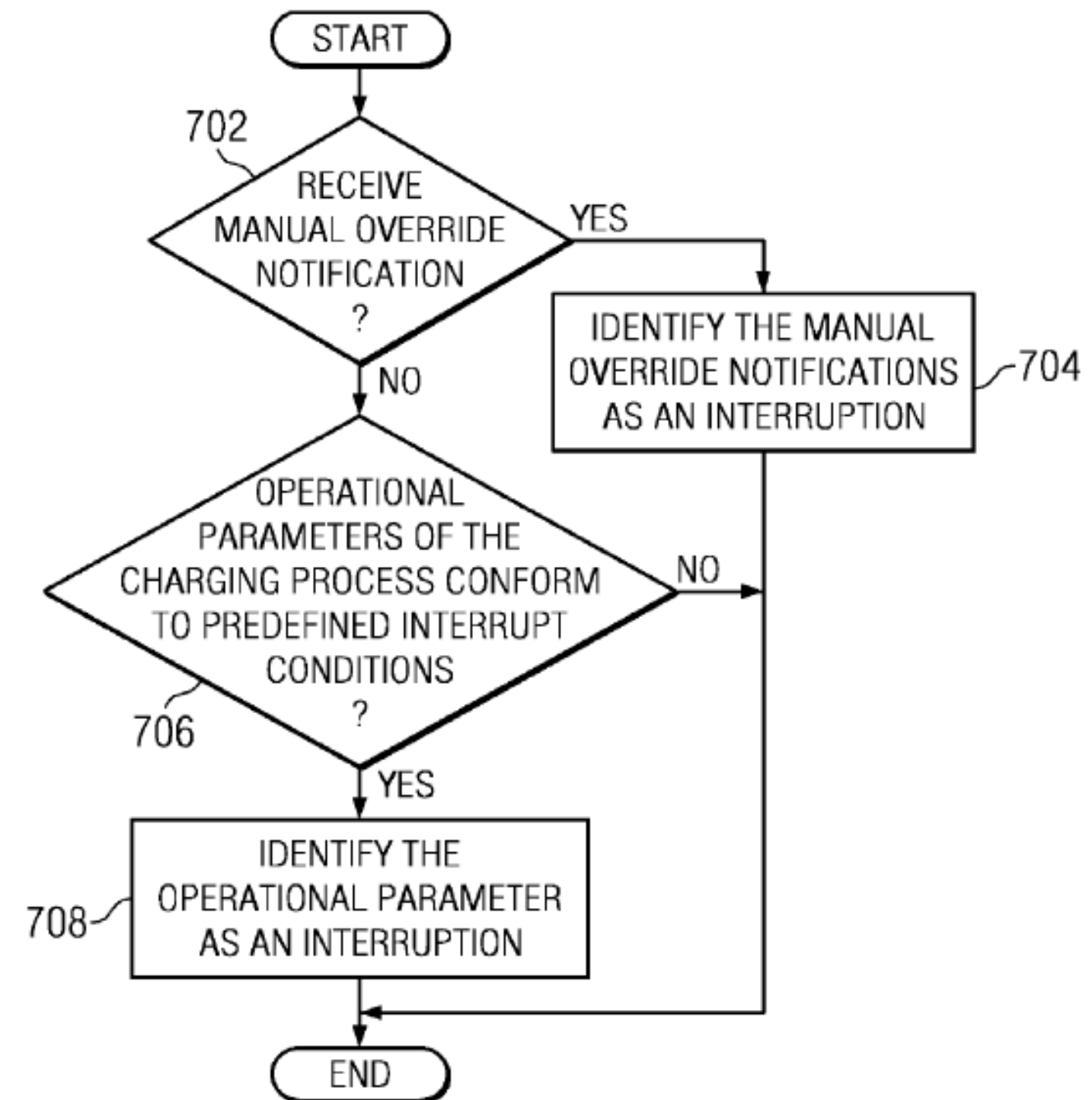


FIG. 7

III.B. Claim Construction—“Manual Override Interruption” (cont.)

- Petitioner’s arguments *fail*:
 - Dr. MacCarley’s opinions that “manual override interruption” should be defined it as “a human being *or some external, decision-making entity* providing an input to the system that would lead to the interruption, the termination, of the charging process” (Ex-2007 at 43:11-16) is inappropriately broad. (POR at 24; Ex-2005, ¶77.)
 - False that the ’391 Patent does not specify who causes the interruption, where it is caused, or that it is a series of operational steps:
 - The specification defines “[m]anual override interruption 422 [as] an *instruction that causes* energy transaction execution engine 416 to terminate charging process 404.” (Ex-1001 at 12:26-28, Sur-Reply at 8.)
 - The specification explains that “*User 420 may generate manual override interruption 422 by interacting with a user interface*” (Ex-1001 at 12:28-36, Sur-Reply at 8.)
 - Claim 2 recites, in relevant part, “responsive *to receiving, from a user, the manual override interruption*” (Ex-1001 at 16:64-65.)
 - Dr. Cameron’s *unrebutted testimony* confirms that a POSITA would understand that an instruction here is a series of operational steps. (Ex-2005, ¶ 75; *see also* Sur-Reply at 1, 8.)

III.B. Claim Construction—“Manual Override Interruption” (cont.)

- Petitioner’s counterarguments *fail* (cont.):
 - Portions of the ’391 Patent’s specification related to Figures 4 and 7 are not merely illustrative (Reply 8-9) because the patentees acted as lexicographers by defining this term and used the term consistently throughout. *See Astrazeneca AB v. Mut. Pharm.*, 384 F.3d 1333 at 1339-40 (Fed. Cir. 2004). (Sur-Reply at 8.)
 - PO is not estopped from advancing new arguments before the Board. *3M Innovative Props. v. Avery Dennison Corp.*, 350 F.3d 1365, 1373-74 (Fed. Cir. 2003) (silence in response to examiner’s characterization is not acquiescence if the claim is eventually allowed on grounds unrelated to unrebutted characterization). (Sur-Reply at 8-9.)

III.C. Claim Construction—“Preference Interruption”

PREFERENCE INTERRUPTION

- The term “*preference interruption*” recited in claims 1, 5, 8, 12, 15, and 20 should be construed as “a set of one or more interruptions that are caused from a violation of a *user-specified* preference.” (Ex-1001 at 13:22-36; POR at 25-27; Sur-Reply at 9-10; Ex-2005, ¶¶79-81.)
- The patentees *disavowed* claims covering, among other things, *factory presets, which are not user-specified*. (See Ex-1001 at 6:62-7:2.) (POR at 25-26; Ex-2005, ¶80.)

III.C. Claim Construction—“Preference Interruption” (cont.)

- Support:
 - Preferences interruption 504 is a set of one or more interruptions that are *caused from a violation of a user-specified preference*. The user-specified preference may be, for example, a preference specified by an owner or operator of an electric vehicle or a utility provider. Thus, *a user may specify a preference* for a threshold cost for charging an electric vehicle. If the cost of charging the electric vehicle during a charging process exceeds the user cost preference, then an energy transaction interrupt monitor identifies the cost as preference interruption 504. Other parties may also specify preferences, the violation of which results in identification of preference interruption 504. Preferences for the user or third parties may be set in an energy transaction plan or stored in a data storage device accessible to the energy transaction interrupt monitor. (Ex-1001 at 13:22-36; POR at 25.)
 - Dr. Cameron’s testimony remains unrebutted. (Sur-Reply at 1, 9; Ex-1021 at 148:6-16, 151:10-18.)

III.C. Claim Construction—“Preference Interruption” (cont.)

- Petitioner’s counterarguments **fail**:
 - Dr. MacCarley failed to consider the specification. (Ex. 2007 at 28:9-16, 33:17-34:3; POR at 26; Ex-2005, ¶80.)
 - PO does not ignore the claim’s plain language—courts depart from the plain and ordinary meaning when, as here, a patentee acts as its own lexicographer or disavows the full scope of the claim term in the specification or during prosecution. *See Hill-Rom Servs. V. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). (Sur-Reply at 9.)
 - Petitioner’s distinction between users and participants is meritless. **“Users” and “parties” (or “participants”)** to the charging process are used **synonymously**. (Ex-1001 at 12:22-24, 13:24-26, 7:43-49; Sur-Reply at 9-10.)
 - **Petitioner concedes** that **“[a] user is not a third party**, as PO’s expert explained.” (Reply at 7; *see also* Sur-Reply at 10.)
 - Petitioner’s reliance on Ex-1024 is misplaced—discusses charging of Tesla EVs not at home but on the road during long-distance travel. (Sur-Reply at 10-11.)

III. Claim Construction (cont.)

OTHER

- PO's position that “*Request*” and “*Response*” are messages including a header and a body is addressed in Ground 1 in connection with claim 1.
- PO's position that *claim 7 requires identifying an operational parameter before each charging transaction* is addressed in Ground 1 in connection with claim 7.

IV. Ground 1: Kimura Does Not Render Claims 1, 4-8, 11-15, and 18-20 Obvious

IV. Ground 1: Kimura Does Not Render Obvious

- **Claim 1** recites:

A computer implemented method of managing a charging process of an electric vehicle, the computer implemented method comprising:

responsive to receiving, from an energy transaction execution engine, *a request signaling a start of the charging process*, monitoring a set of operational parameters of the charging process during the flow of electricity for one or more interruptions; 1[a]

detecting the one or more interruptions during the flow of electricity from the set of operational parameters which conform to a set of predefined interrupt conditions,

wherein the one or more interruptions comprise at least one of a device capabilities interruption, a preference interruption, and a data services interruption; and

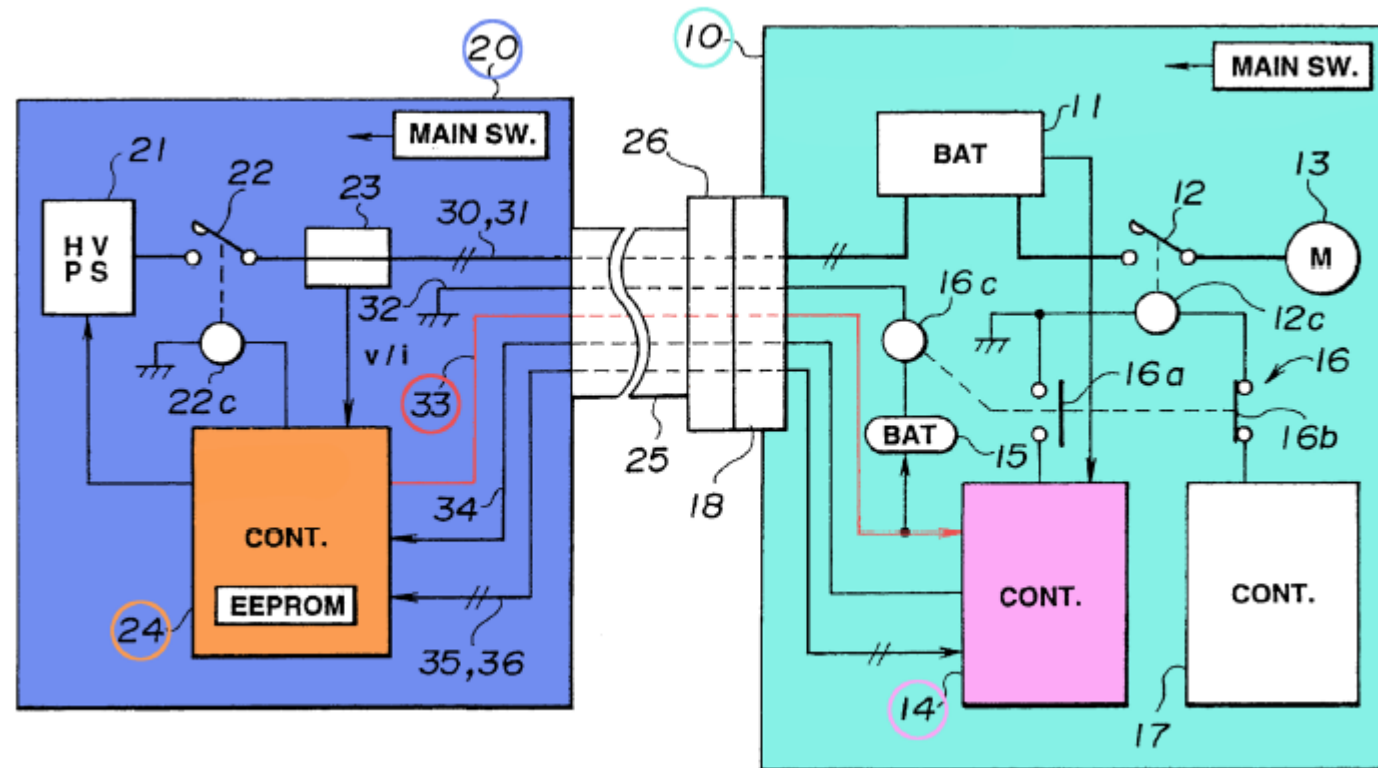
responsive to detecting the one or more interruptions, *sending a response to the energy transaction execution engine to terminate the charging process*. 1[d]

IV. Ground 1: Kimura Does Not Render Obvious (cont.)

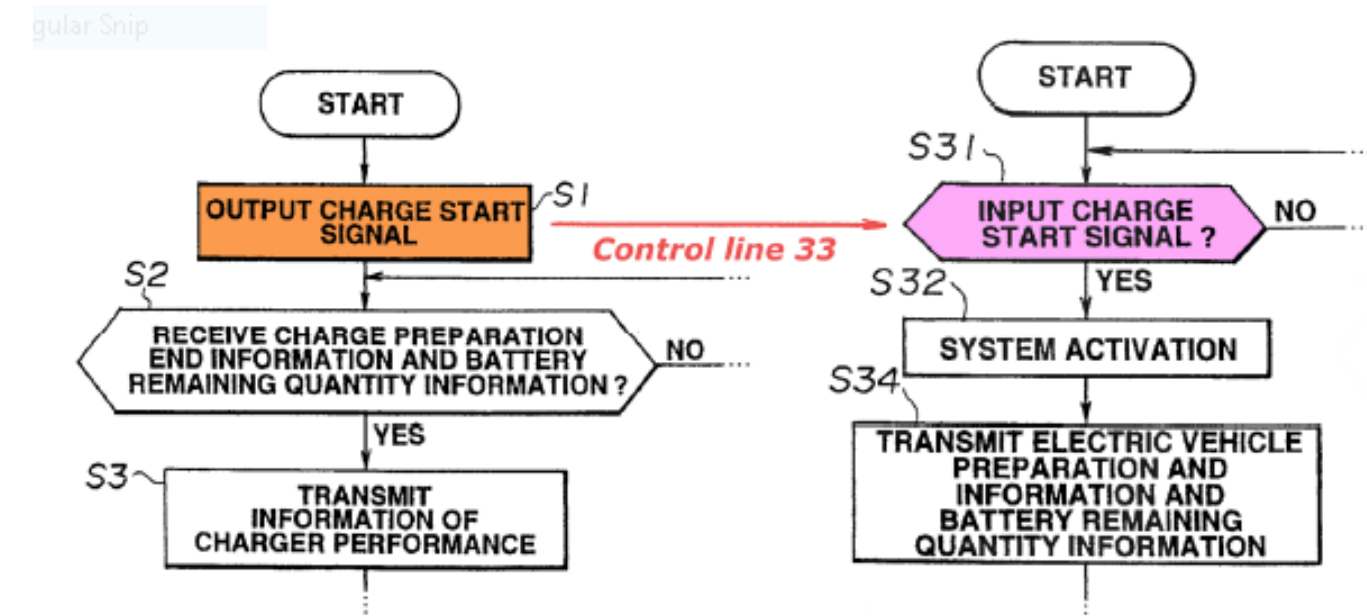
- A POSITA would understand that both the “request signaling a start” and “response . . . to terminate” recited in claim 1 *must be messages* with a header and a body. (Ex-2005, ¶93; POR at 27-28; Sur-Reply at 11-12.)
- The specification explains, among other things, that
 - “*Request* 414 is a *message signaling the start* of charging process 404.” (Ex-1001 at 12:3-4; Sur-Reply at 11.)
 - “*Request 414 informs* energy transaction interrupt monitor 402 that charging process 404 has begun.” (Ex-1001 at 12:48-49 ; Sur-Reply at 11.)
 - “*Response* 418 is a *message that may instruct* energy transaction execution engine 416 to terminate charging process 404.” (Ex-1001 at 12:12-14 ; Sur-Reply at 11.)
- In a data processing system, a *message* is a *unit of data or information sent from one device to another that includes a header and a body*. (POR at 28; Sur-Reply at 11; Ex-2005, ¶94.)
- *Use of signals is characteristic of rudimentary* energy *transactions* which are *disparaged in the '391 Patent* (e.g., Ex-1001 at 6:65-7:2) and is not suitable for more complex, flexible, and interoperable systems and methods disclosed in the '391 Patent. (POR at 28; Sur-Reply at 11; Ex-2005, ¶94.)

IV. Ground 1: Kimura Does Not Render Obvious (cont.)

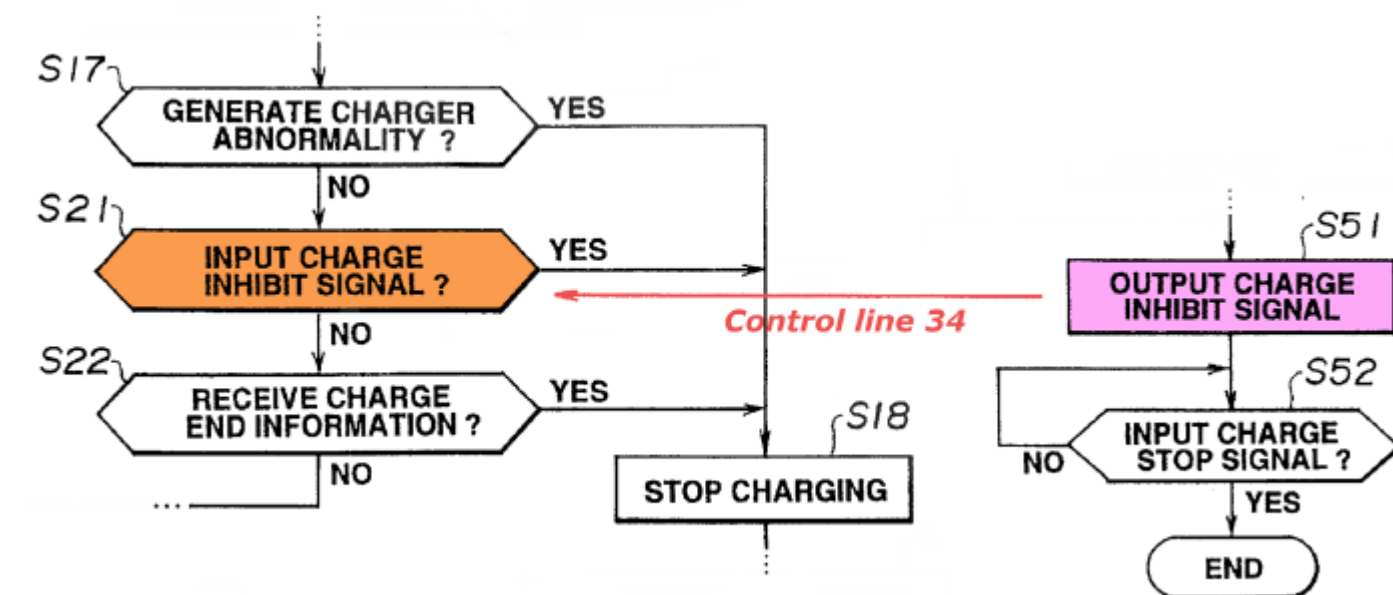
- Kimura discloses use of output **start charge signals/input start charge signals** and **output charge inhibit signal** (Pet. at 12-13, 32)—not **messages**. (POR at 27-28; Sur-Reply at 14; Ex-2005, ¶94.)



(Pet. at 12 (Ex-1002 fig.1).)



(Pet. at 13 (Ex-1002 figs.10A & 12 (excerpted)).)



(Pet. at 34 (Ex-1002 figs. 10B & 13 (excerpted)).)

IV. Ground 1: Kimura Does Not Render Obvious (cont.)

- Dr. Cameron's testimony remains **unrebutted**:
 - Signals are not messages (Ex-2005, ¶¶93-94, Sur-Reply at 1);
 - message must include a header and body (Ex-1021 at 166:17-167:1; Sur-Reply at 11-12);
 - complex systems require messaging (Ex-1021 at 137:2-15; *see also id.* at 135:1-4, 135:11-17, 136:11-17; Sur-Reply at 11-12),
 - no incentive to use messages in simpler systems (*id.* at 159:6-160:19, 161:10-21; Sur-Reply at 11).
- **Petitioner's extrinsic evidence is not sufficient to rebut PO's intrinsic and extrinsic evidence.** (Sur-Reply at 11-12.)
 - Only the **third, least prevalent definition of "response"** in Petitioner's Ex-1022 as much as mentions the word "signals." That definition is specific to response from a responder (in its first meaning) used in radars and satellite communications where **signals are emitted automatically. Not ETEE making decisions.** (Sur-Reply at 12.)

IV. Ground 1: Kimura Does Not Render Obvious (cont.)

- *Petitioner's extrinsic evidence is not sufficient to rebut PO's intrinsic and extrinsic evidence* (cont.):
 - *Petitioner's dictionaries* likewise *support PO's definition of "request"*:
 - *A message* sent from one object (the sender) to another object (the receiver), directing the receiver to fulfill one of its responsibilities. Specifically, a request may be for the value of an attribute, for the value of a participant property, for the application of an operation, or for the truth of a constraint. Request also encompasses sentences of such requests. Logical sentences about the property values and constraints of objects are used for queries, pre-conditions, post-conditions, and responsibility realizations. *See also: message*. (Ex-1023 at 3; Sur-Reply at 12.)
 - *"request message"* is a *"message that generates one or more response messages"* when processed." (Ex-1023 at 4; Sur-Reply at 12.)

IV. Ground 1: Kimura Does Not Render Obvious (cont.)

- Independent claims 8, 15, and 20 also recite a request and a response requiring messages and therefore are patentable over Kimura for the same reasons as claim 1.
- Claims 4-7 depend from claim 1, claims 11-14 depend from claim 8; and claims 18-19 depend from claim 15. Therefore, they are patentable over Kimura for the same reasons as those independent claims.
- Dependent claims 5 and 12 are patentable over Kimura for the following additional reasons:
 - Claim 5 recites, in relevant part “wherein the one or more interruptions is the *preference interruption*, and the preference interruption is detected from a *violation of a preference selected by a participant to the charging process*.”
 - Under the '391 Patent, the parties *must agree to conditions* relevant to their role in the transaction prior to the charge commencing, “[d]uring the *pre-charge phase*.” (Ex-1001 at 7:49-53 & 7:39; POR at 29.)
 - Kimura’s disclosure of voltage reaching a predetermined target value does not teach or suggest claim 5’s limitations because it’s a factory preset and that the user would not be able to change during the pre-charge stage. (Ex-1002 at 5:24-34; POR at 30; Ex-2005, ¶97.)

IV. Ground 1: Kimura Does Not Render Obvious (cont.)

- Dependent claims 6 and 13 are not obvious for additional reasons:
 - Claim 6 recites: “The computer implemented method of claim 1, wherein the one or more interruptions is the *data services interruption*, and the data services interruption originates from a failure in data transmission.”
 - “Data services interruption” should be construed to mean an interruption caused by the inability for information to be exchanged with a set of *one or more third party* data sources. (Ex-1001 at 7:41-47; POR at 20-22; Sur-Reply at 5-7; Ex-2005, ¶70.)
 - Kimura’s *charger controller* and battery controller *are not part of third-party* structures / services—Kimura explains that the “charger controller 24” and the “battery controller 14” are *part of “a preferred embodiment of a charging apparatus* for an electric vehicle” depicted in Kimura’s Figure 1. (Ex-1002 at 3:6-7; *see also id.* at 3:7-48; POR at 31-32; Ex-2005, ¶99.)
 - Kimura’s charger controller and battery controller *are directly connected via a physical cable, with each control line transmitting a different signal*. (Ex-1002 at 3:30-33, 3:9-11; POR at 32; Ex-2005, ¶99.)

IV. Ground 1: Kimura Does Not Render Obvious (cont.)

- Dependent claims 7, 14, and 19 are not obvious over Kimura for these additional reasons:
 - Claim 7 recites, in relevant part, “wherein the one or more interruptions are detected by *identifying an operational parameter from the set of operational parameters* that conform to the set of predefined interrupt conditions.”
 - The '391 Patent teaches more flexible and interoperable systems and methods, divided into three phases: pre-charge, charge, and post-charge. (Ex-1001 at 7:17-19; POR at 11; Ex-2005, ¶85.)
 - Dr. Cameron explained that a POSITA would understand claim 7 to mean that an operational parameter from the set of operational parameters that conform to the set of predefined interrupt conditions is identified before each new charging transaction. (Ex-2005, ¶102; POR at 33.)
 - In the pre-charge phase of a new charging transaction, a user may change an interrupt condition involving one or more operational parameters. (Ex-1001 at 7:12-25; POR at 33; Ex-2005, ¶102.)

IV. Ground 1: Kimura Does Not Render Obvious (cont.)

- Petitioner's arguments **fail** because Kimura does not teach or suggest identifying an operational parameter from a set of operational parameters:
 - Petitioner argues that Kimura discloses that “the battery controller 14 detects that the voltage of the battery 11 (operational parameter) conforms to a predetermined voltage threshold (predefined interrupt).” (Pet. at 42.) However, the **Petition does not explain how Kimura's battery controller “detect[s] by identifying” voltage** as an operational parameter. (POR at 33-35; Ex-2005, ¶¶103-104.)
 - a predetermined voltage threshold is **a factory preset** that cannot be changed in the pre-charge phase of a charging transaction. (POR at 35; Ex-2005, ¶105.)
 - Petitioner's Reply quotes to the specification list only **changeable parameters**, including prices of electricity and available incentives. (Sur-Reply at 13.)
 - The operational parameters do not include **battery or vehicle type**. Petitioner's prosecution history argument fails because under Pellegrino the battery and vehicle type are stored to verify the user and the vehicle, and to **determine**, inter alia, **if the user's account is blocked** or if there is an **outstanding stolen property report** on record. (Sur-Reply at 13-14.)

V. Ground 2: Kimura-Hotta Does Not Render Claims 2, 5, 9, 12, and 16 Obvious

V. Ground 2: Kimura-Hotta Does Not Render Obvious

- Claims 2 and 5 depend from claim 1, claims 9 and 12 from claim 8, and claim 16 from claim 15. Kimura does not render them obvious for the same reasons as with independent claims under Ground 1.
- Claim 2 is not obvious for the following additional reasons:
- Claim 2 recites:

The computer implemented method of claim 1, wherein the one or more interruptions is a manual override interruption, and wherein the computer implemented method further comprises:

responsive to receiving, from a user, the *manual override interruption*, terminating the charging process.

(Ex-1001 at 16:60-65.)

- The term “manual override interruption” should be construed as “an *instruction* that causes [ETEE] to terminate charging process, *which a user may generate by interacting with a user interface*.” (Ex-1001 at 12:26-36; POR at 22-25; Sur-Reply at 7; Ex-2005, ¶76.)

V. Ground 2: Kimura-Hotta Does Not Render Obvious (cont.)

- Petitioner's arguments *fail* because neither Kimura nor Hotta teach manual override interruption:
 - Hotta teaches manually pressing the charging stop command key: "The storage battery starts being charged when the charging start command key is manually pressed, and the charging of the storage battery is stopped when the charging stop command key is manually pressed." (Ex-1003 at 1:22-26.) *No evidence that pressing the key equates to an instruction as claimed.* (POR at 39-40; Sur-Reply at 15; Ex-2005, ¶117.)
 - Hotta's Figures 11-12 and 15-16 show *two-stage charging subroutines* different from both the '391 Patent and Kimura. No combinability with Kimura. (POR at 40; Sur-Reply at 15; Ex-2005, ¶118.)
 - Not obvious to try because Dr. Cameron explained that there would be *no motivation to make more complex* (and more expensive) systems (Ex-1021 at 161:5-21), and it would *not be simple* because Hotta uses two-stage charging subroutines (Ex-2005, ¶118; Sur-Reply at 16.)

V. Ground 2: Kimura-Hotta Does Not Render Obvious (cont.)

- Petitioner's arguments *fail* because neither Kimura nor Hotta teach manual override interruption (cont.):
 - two-stage charging subroutines are not immaterial because the use of command keys in Hotta is tied to them. (See, e.g., Ex-1003 figs.8-10; Sur-Reply at 16.)
 - Dr. MacCarley's opinion that some "*external, decision-making entity* providing an input to the system that would lead to the interruption, the termination, of the charging process[]" (Ex-2007 at 43:11-16) *contradicts* the express language of claim 2 reciting, in relevant part, "*receiving, from a user*, the manual override interruption." (POR at 40; Ex-2005, ¶119.)

V. Ground 2: Kimura-Hotta Does Not Render Obvious (cont.)

- Claim 5 is not obvious for the following additional reasons:
 - Hotta does not teach or suggest claim 5's additional limitations because it does not teach an interruption due to a violation of the user's preference:
 - Hotta's charging process is not interrupted if the battery cannot be fully charged by the boarding time. Instead, a message conveying that is displayed, and the charging continues. (Ex-1003 at 8:23-38; Sur-Reply at 17.)
 - Hotta teaches *meeting the boarding time "preference"* or continuing charging if it cannot be met, which is the opposite of terminating the charging process under the '391 Patent. (Ex-1001 at 16:57-59; POR at 42; Sur-Reply at 18; Ex-2005, ¶123.)
 - In Hotta, the scheduled time for boarding and using the vehicle are input before the charging begins, *i.e.*, *not during the flow of electricity*. (Ex. 1003 at 2:10-21; POR at 41; Sur-Reply at 17; Ex-2005, ¶122.)

V. Ground 2: Kimura-Hotta Does Not Render Obvious (cont.)

- Claims 9 and 16 are additionally not obvious for the same reasons as claim 2 under this Ground (Ground 2).
- Claim 12 is additionally not obvious for the same reasons as claim 5 under this ground (Ground 2).

VI. Ground 3: Kimura-King Does Not Render Claims 3, 10, and 17 Obvious

VI. Ground 3: Kimura-King Does Not Render Obvious

- **Claims 3, 10, and 17** are patentable for the same reasons as independent claims from which they depend (claims 1, 8, and 15, respectively) because King does not remedy deficiencies of Kimura.
- **Claim 3** recites:

The computer implemented method of claim 1, further comprising:
storing the set of operational parameters in a storage device.
- **Claim 10** recites:

The computer program product of claim 8, further comprising:
fifth program instructions to store the set of operational parameters in a storage device.
- **Claim 17** recites:

The apparatus of claim 15, wherein the processing unit further executes the computer usable program code to store the set of operational parameters in a storage device.

VI. Ground 3: Kimura-King Does Not Render Obvious (cont.)

- For **claims 3, 10, and 17**, Petitioner argues that Kimura-King teaches “storing the set of operational parameters in a storage device” because King discloses storing parameters, such as battery temperature profile, ampere-hours of charge, battery charge profile, and charger status. (Pet. at 61-63.)
- King’s parameters *have nothing to do with monitoring for and detecting interruptions*—they are *used to calculate the amount of recharge* the battery requires. (Ex-1004 at 5:49-54; POR at 44.)
- *Petitioner does not dispute that Kimura and King have different purposes* and that King aims to prevent overcharging of old batteries, as Dr. Cameron explained. Thus, there was no motivation to combine. (Ex-2005, ¶ 128; POR at 44-45.)

VII. Ground 4: Keith Does Not Anticipate Claims 1, 2, 4-9, 11-16, and 18-20

VII. Ground 4: Keith Does Not Anticipate

- Keith does not anticipate claim 1 (as well as claims 2, 4-9, 11-16, and 18-20):
 - “*request*” and “*response*” in elements 1[a] and 1[d] are *messages* and *not merely signals*, that are characteristic of rudimentary charging transactions that the ’391 Patent disparages. (Ex-1001 at 6:65-7:2; *id.* at 7:12-16; POR 45-46.)
 - Keith discloses use of *signals (keys) instead* of a “*request*” as Petitioner admits (Pet. at 65-66):

The charge station computer (FIG. 13) then reaches a step 387 *which sends a five second warning to the vehicle charge computer, key h*, which causes the vehicle program (FIG. 14) to advance from test 386 to a pair of steps 388 where the display informs the operator that the communication phase is ending and the charge phase is going to begin, and then sends a confirming break, key j, in a step 389, and then goes into a one second wait at a step 390.

(Ex-1005 at 20:15-23; *see also* POR at 45; Sur-Reply at 19; Ex-2005, ¶ 129-130.)

VII. Ground 4: Keith Does Not Anticipate (cont.)

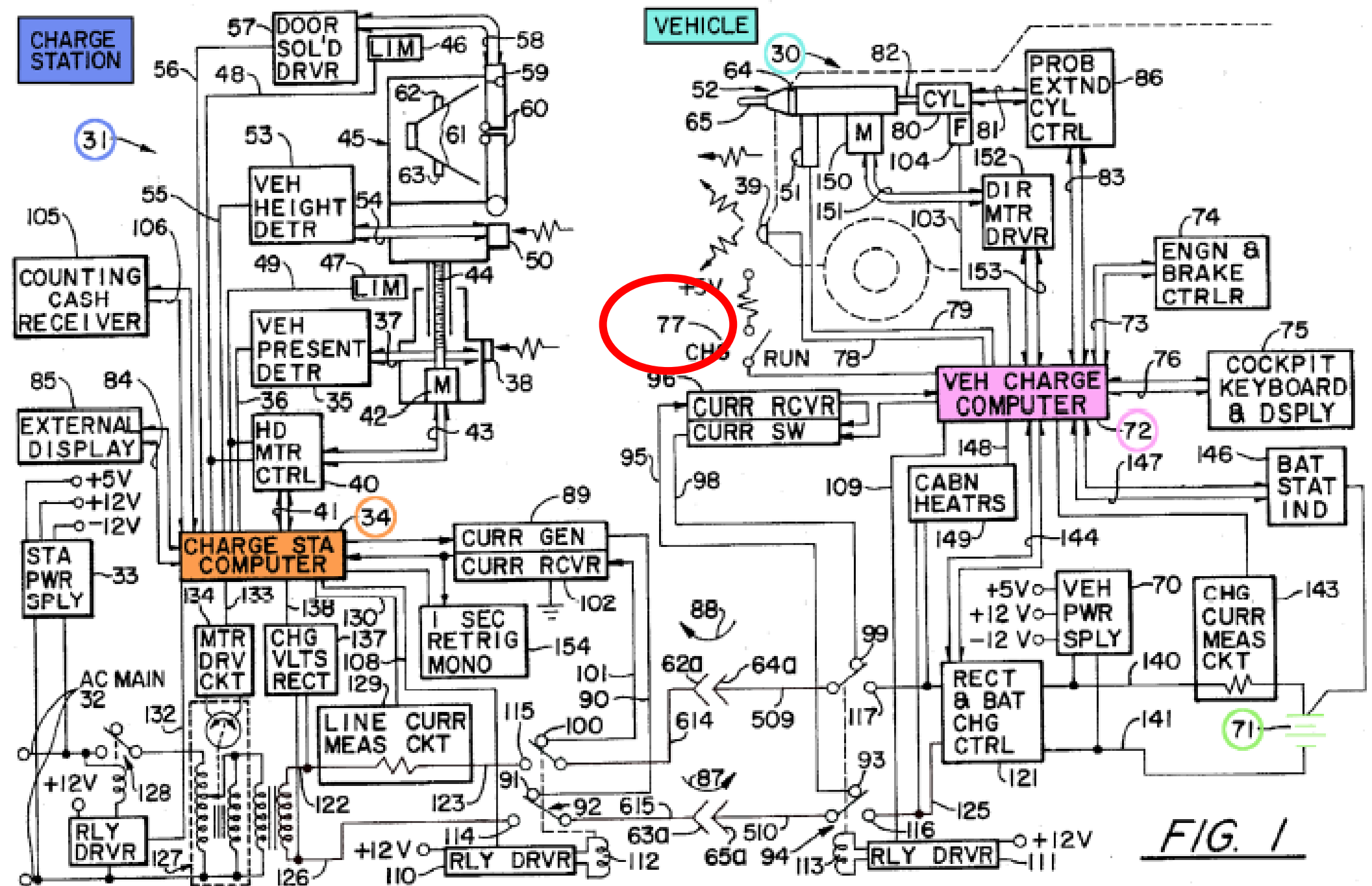
- Keith's disclosure of *mechanical de-energizing the vehicle contact relay* (Pet. at 78) is *not a "response"* because it is not a message (in a data processing system, a message is a unit of data or information sent from one device to another that includes a header and a body). (POR at 45-46; Ex-2005, ¶131.)
- Dr. Cameron's testimony remains unrebutted. (POR 45-46; Sur-Reply 1, 19; Ex-2005, ¶¶ 129-131.)

VII. Ground 4: Keith Does Not Anticipate (cont.)

- Keith does not anticipate dependent claims 2, 9, and 16 for the following additional reasons:
 - *Moving Keith's discrete (on/off) charge/run switch into an open position* (Ex-1005 at 6:3-7) is different from *generating instructions* (POR at 46-49; Ex-2005, ¶¶ 132-136).
 - Keith's *keyboard input* is not an instruction—because the keyboard/display in Keith may be used *as a discrete switch*, a POSITA would understand that any input from the keyboard would be interpreted as that of a discrete switch sending discrete signals. (POR at 46-48; Ex-2005, ¶137.)
 - In the '391 Patent, an instruction is sent to *ETEE* to terminate (Ex-1001 at 16:57-59), which is different from Keith where the *operator* moves the charge/run switch, as Petitioner admits (Petition at 80). (Ex-1005 at 6:3-7; POR at 46-48; Ex-2005, ¶¶ 134, 138.)

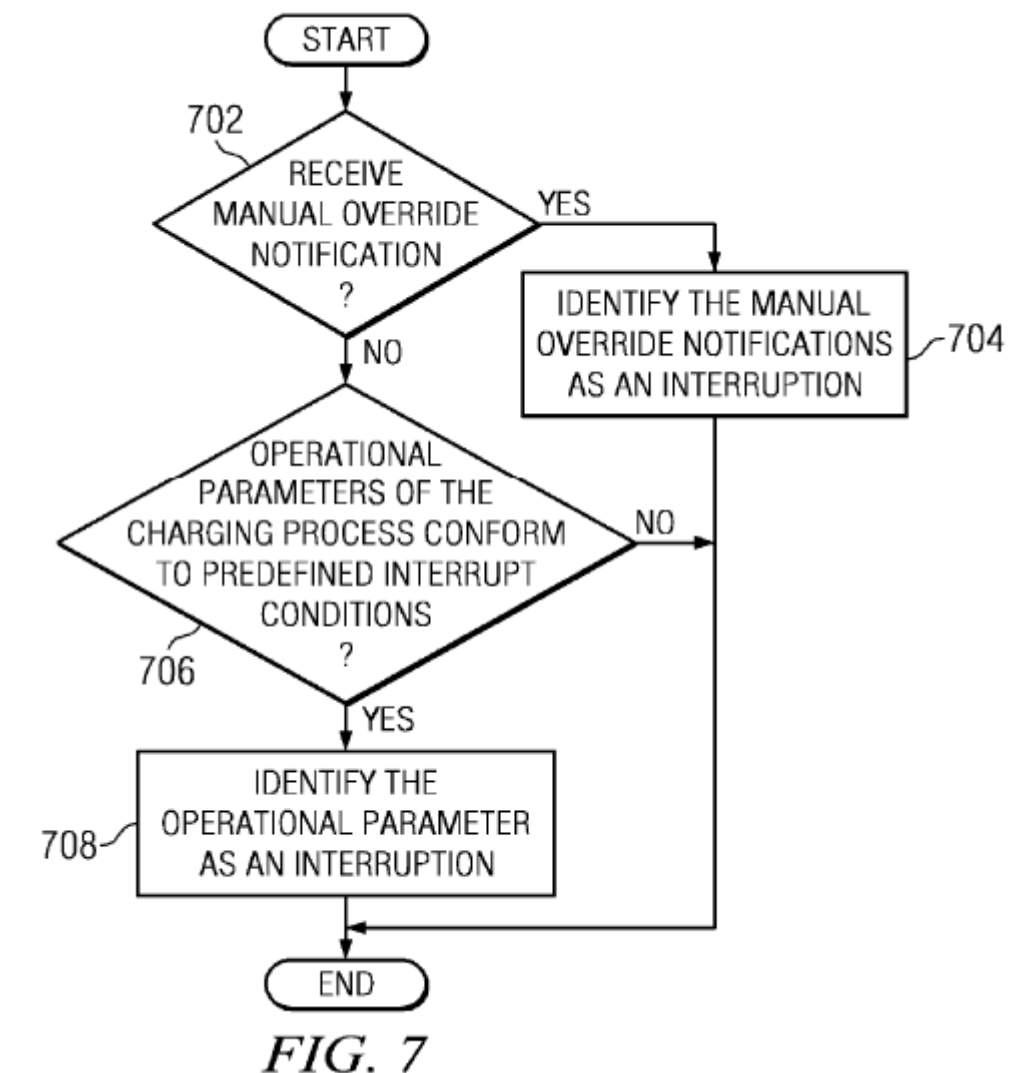
VII. Ground 4: Keith Does Not Anticipate (cont.)

- If Petitioner takes the position that moving the charge/run switch causes a computer to terminate the charging process, that computer *cannot be* the *ETEE*, either, because the *charge/run switch 77 in Keith is coupled with the vehicle charge computer 72*, which serves as the *ETIM*. (Ex-1005 fig.1.) The *station charge computer 34 is not coupled with/connected to the charge/run switch*. (Id.; POR at 49-50; Ex-2005, ¶139.)



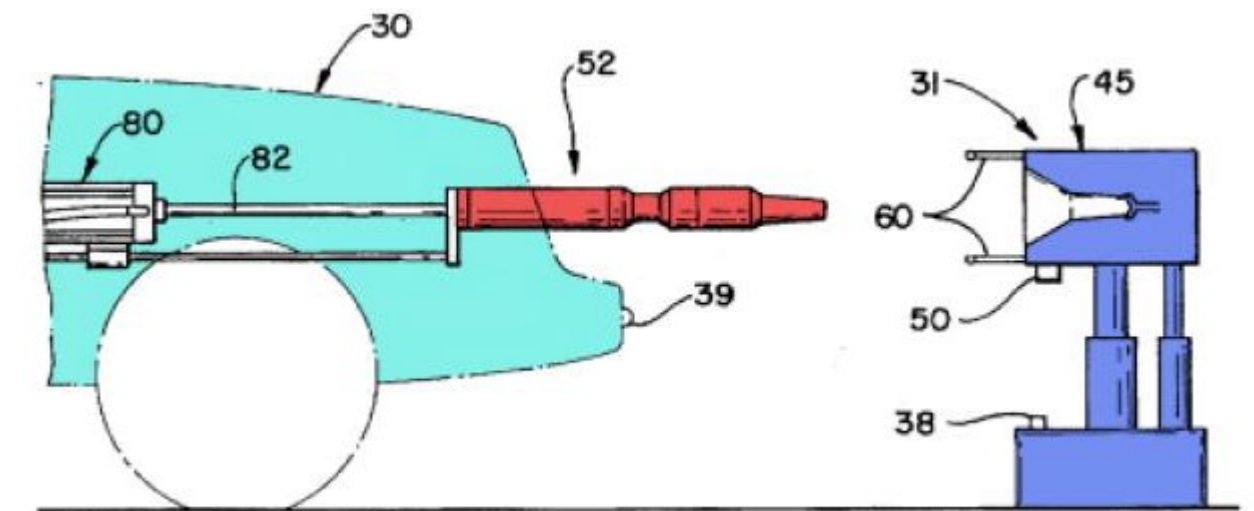
VII. Ground 4: Keith Does Not Anticipate (cont.)

- Moving Keith's switch **cannot** cause the station charge computer (**purported ETEE**) to terminate the charging process because the switch is coupled to Keith's vehicle charge computer (purported ETIM) and follow-up actions occur vehicle-side. (POR at 49-50.) For instance, the **displays and reenabling the vehicle** that Petitioner cites (Reply 22) **take place vehicle-side** (Ex-1005 at 8:32-34; Sur-Reply at 20-21.)
- Keith discloses a **different process** because steps of monitoring and detecting are recited in claim 1 of the '391 Patent from which claim 2 depends are absent from Keith.
- identifying the manual override notification as an interruption and comparing it against predefined interrupt conditions (steps 702 and 704) in the '391 patent's Figure 7. (POR at 50-51; Ex-2005, ¶140.)



VII. Ground 4: Keith Does Not Anticipate (cont.)

- Keith's Figure 16 shows what is happening vehicle-side. (Ex-1005, 23:9-11.) Especially untenable is Petitioner's argument that steps 449 of Keith's Figure 16 take place at the station charge computer (Reply 22-23) because **steps 449** include, for example, the **vehicle retracting its charging probe and unlocking of the brakes** to remove the vehicle from the charging station (Ex-1005 at 23:35-39). (Sur-Reply at 21.)
- Keith's charging process cannot continue (and therefore cannot terminate) after the vehicle physically detached from the station, as Keith's Figure 19 shows. (Sur-Reply at 22.)
- Petitioner's charging station attendant example shows that users are humans. (Sur-Reply at 22.)
- Dr. Cameron's testimony remains unrebutted.



(Ex-1005 fig. 19.)

VII. Ground 4: Keith Does Not Anticipate (cont.)

- Keith does not anticipate **dependent claims 5 and 12** for the following **additional reasons**:
- Dependent **claim 5** recites, in relevant part, “wherein the one or more interruptions is the preference interruption, and the *preference interruption is detected from a violation of a preference selected by a participant* to the charging process.”
- Stopping the charging process when the cash deposit is exhausted, as Keith discloses, meets that preference instead of violating it. (POR at 53-54; Ex-2005, ¶¶146-147.)
- Petitioner’s position leads to absurd results—a violation of the preference to charge the battery until the deposit is exhausted may mean that the charging process would stop prematurely, costing a pecuniary loss to the user “because the machine won’t give a refund.” (Ex-1005 at 17:64.) But the only remedy for stopping the charging process prematurely would be terminating the charging process. (POR at 54; Ex-2005, ¶¶146-147.)
- Keith cannot prevent “overpayment,” which may only occur before the “battery routine” takes place, when the cash is deposited. (Ex-1005 at 17:58-18:47.) To avoid overpayment, a maximum charge sum is calculated at that point, and charging continues until it is exhausted. (*Id.* at 17:58-64.) This has nothing to do with a preference interruption. (Sur-Reply at 22-23.)

VII. Ground 4: Keith Does Not Anticipate (cont.)

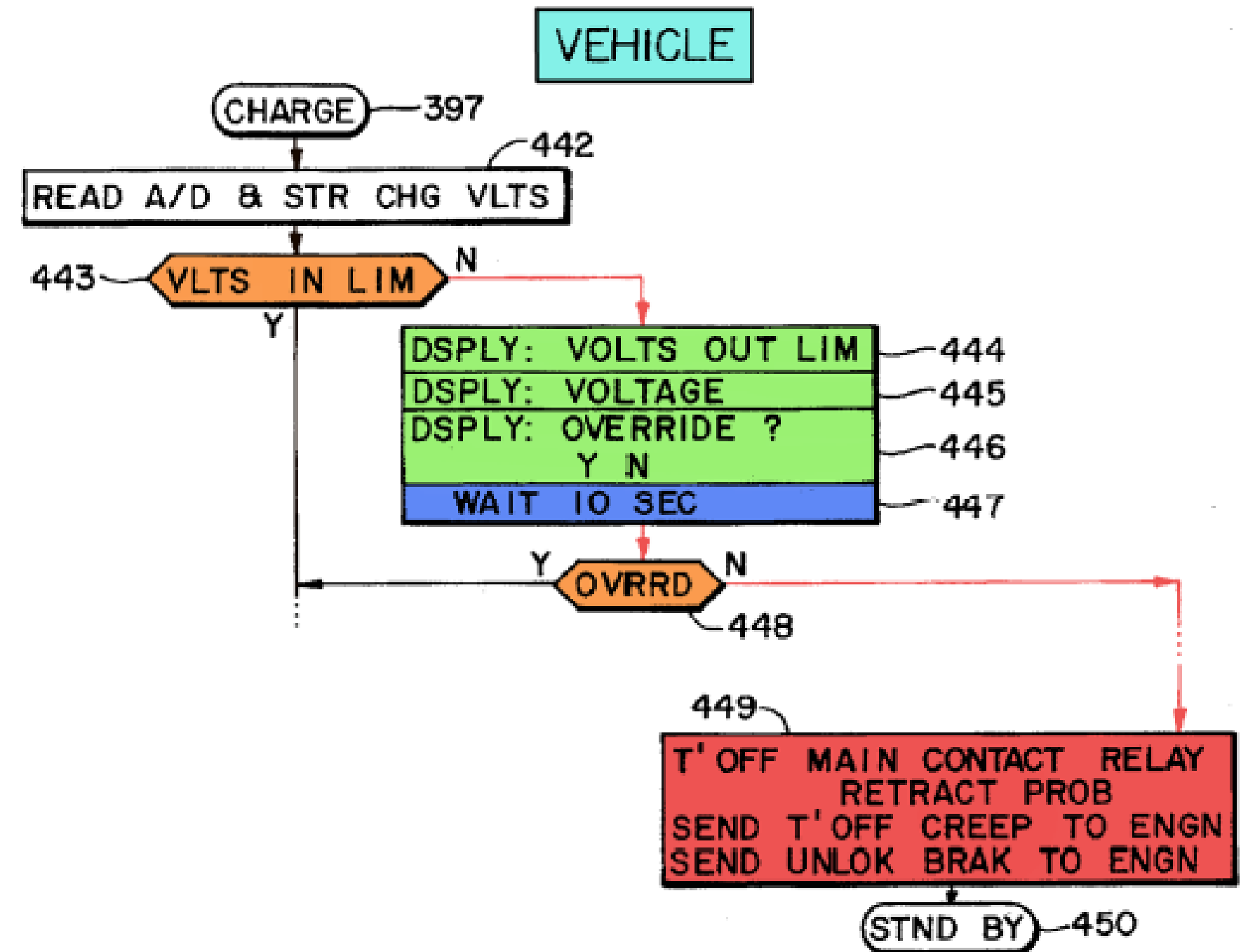
- Keith cannot anticipate **dependent claims 6 or 13** for the following **additional reasons**:
 - The term “***data services interruption***” in claim 6 should be construed to mean, among other things, an ***interruption caused*** by the inability for information to be exchanged with a set of one or more ***third party data sources***. (Ex-1001 at 7:41-47; POR at 20-22; Sur-Reply at 5-7; Ex-2005, ¶70.)
 - The Petition only argued that Keith meets claim 6’s limitations because it discloses that over-the-limit voltage may be detected,

followed by a sequence of display steps 444-446 (green) at the vehicle leading to a request for data from a user (i.e., whether or not to override) and a response-waiting period of 10 seconds at step 447 (blue). Ex-1005, 23:16-39. If no response is received after 10 seconds (***an interruption in data services from the user failing to respond in time***), then the logic proceeds to 449 (red) and the charging process is terminated.

(Pet. at 85; POR at 54-55; Ex-2005, ¶¶148-149.)

VII. Ground 4: Keith Does Not Anticipate (cont.)

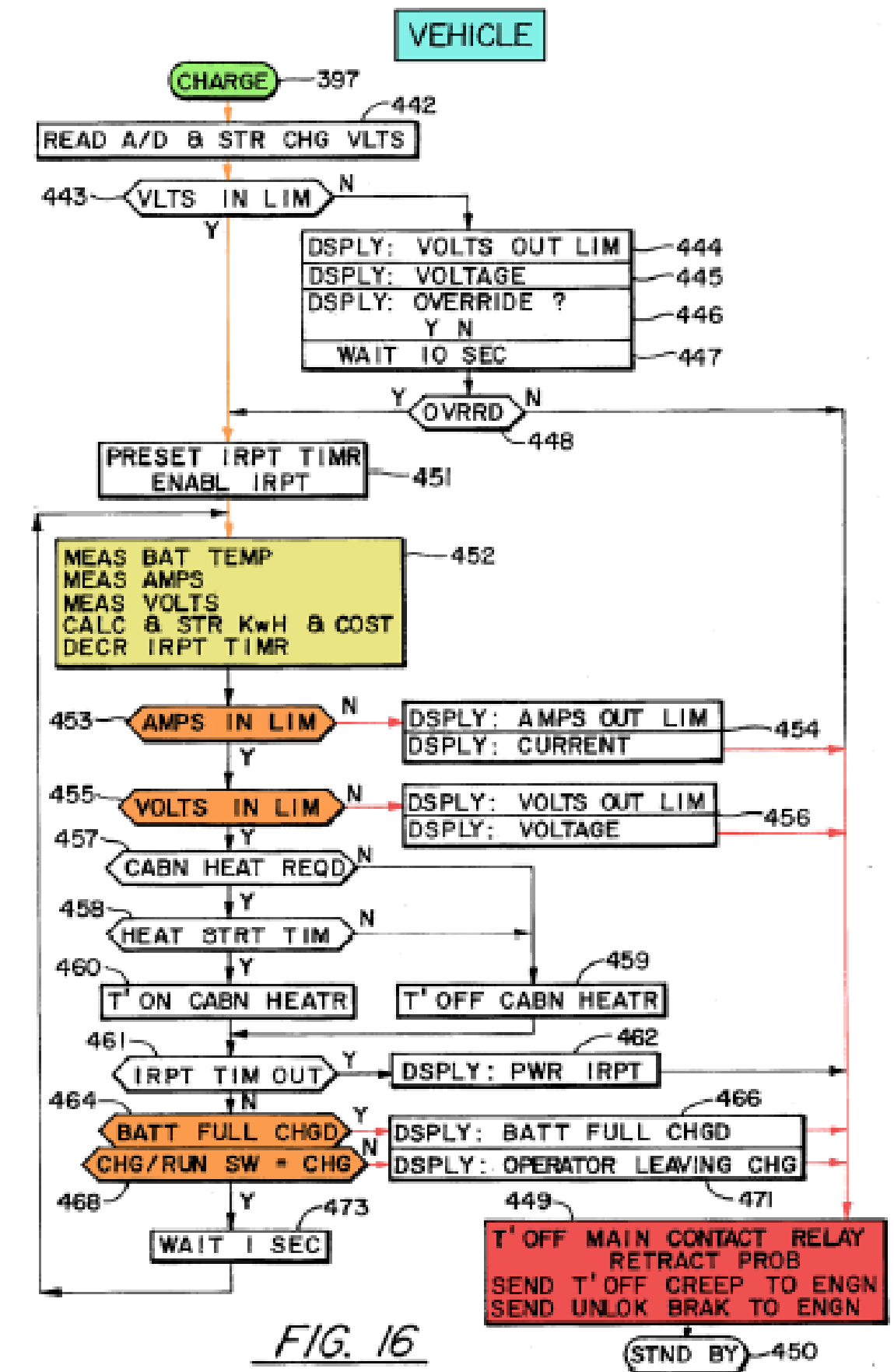
- Keith cannot anticipate **dependent claims 6 or 13** for the following additional reasons (cont.):
 - But *Keith's user is not a third-party data source*, which under the '391 Patent include, for example, weather information sources, traffic information sources, map and travel information sources, charging station price information sources, or any other third party information sources. (Ex-1001 at 8: 38-44.) (POR at 55; Ex-2005, ¶149.)



Ex-1005 fig. 16

VII. Ground 4: Keith Does Not Anticipate (cont.)

- In Keith, the wrong element terminates—
 - under element 1[d] of the '391 Patent, an interruption results in the ETIM sending a response to the ETEE, and then the ETEE terminates the charging process. (E.g., Ex-1001 at 12:56-59.)
 - In Keith, after displaying the override question and receiving no response, the vehicle charge computer—corresponding to the ETIM and not ETEE—deenergizes the vehicle main contact relay 94. (Ex-1005 at 23:30-31; *id.* fig. 16.) (POR at 55-56; Ex-2005, ¶150.)



VII. Ground 4: Keith Does Not Anticipate (cont.)

- Keith does not anticipate dependent claims 7, 14, and 19 for the following additional reasons:
 - Claim 7 recites, in relevant part, “wherein the one or more interruptions are detected by *identifying an operational parameter from the set of operational parameters that conform to the set of predefined interrupt conditions.*”
 - a POSITA would understand claim 7 to mean that an operational parameter from the set of operational parameters that conform to the set of predefined interrupt conditions is identified *before each new charging transaction, during the pre-charge phase.* (Ex-1001 at 7:12-25; POR at 57; Ex-2005, ¶153.)
 - The conditions governing each transaction include predefined interrupt conditions, which include rules involving operational parameters. The operational parameters in the predefined interrupt conditions are the set of operational parameters from which the claimed invention identifies operational parameters to monitor. (POR at 57; Ex-2005, ¶153.)

VII. Ground 4: Keith Does Not Anticipate (cont.)

- Keith does not anticipate dependent claims 7, 14, and 19 for the following additional reasons (con't):
 - Petitioner argues only that Keith anticipates claim 7 because it discloses “determin[ing] if the current provided by the line current measuring circuit 129 ... exceeds a current limit which is established by manufacturer’s data.” (Pet. at 87.) (POR at 57; Ex-2005, ¶154.)
 - Petitioner does not explain whether the current limit is an operational parameter identified from a set of operational parameters that conform to a set of predefined interrupt conditions. (POR at 57-58; Ex-2005, ¶154.)
 - A current limit preestablished by manufacturer’s data cannot be changed in the pre-charge phase of a charging transaction, as required in the ’391 Patent. (Ex-1001 at 7:41-49; Ex-2005, ¶¶ 152-154.) (POR at 58; Ex-2005, ¶154.)

VIII. Ground 5: Keith Does Not Render Claims 3 and 8-19 Obvious

VIII. Ground 5: Keith Does Not Render Obvious

- Petitioner has *failed* to show a *motivation to combine*:
 - Petitioner failed to provide evidence of a motivation to combine and likelihood of success. (POR at 62; Sur-Reply at 25-26; Ex-2005, ¶166.)
 - Dr. MacCarley conceded at his deposition that he did not provide a separate obviousness analysis (which should have included a POSITA's motivation to combine and likelihood of success) because he did not think he was required to do so. (Ex-2007 at 71:23-72:19.) (POR at 62; Sur-Reply at 25; Ex-2005, ¶166.)
 - This is *not a single-embodiment situation* as Petitioner admits when it explains that under Keith the stored “kilowatt hours” and “cost” are not used for interruption detection. (Pet. at 96; Reply at 26.) (Sur-Reply at 26.)

VIII. Ground 5: Keith Does Not Render Obvious (cont.)

- Keith does not render **dependent claim 3** obvious.
- Claim 3 *recites “storing”* a set of operational parameters.
- Operational parameters *must* be used *for interruption decisions*. (Sur-Reply at 24-25.)
- Claim 3 depends from claim 1, which recites, in relevant part,
 - “monitoring a set of operational parameters of the charging process during the flow of electricity *for one or more interruptions* . . .”;
 - “*detecting the one or more interruptions* during the flow of electricity from the set of operational parameters . . .”;
 - “*responsive to detecting the one or more interruptions*, sending a response to the energy transaction execution engine to terminate the charging process.” (Ex-1001 at 16:46-59.)

VIII. Ground 5: Keith Does Not Render Obvious (cont.)

- Petitioner’s arguments regarding **claim 3** *fail*:
 - Kilowatt hours and cost under Keith are not operational parameters, and Petitioner admits as much—“Keith does not appear to disclose using these two parameters at the vehicle charge computer 72 for interruption detection” (Pet. at 96.) (POR at 63; Sur-Reply at 24; Ex-2005, ¶168.)
 - Storing kilowatt hours and cost in Keith have nothing to do with monitoring for and detecting interruptions. Rather, they are calculated and stored to prevent overpayment by the customer:

The calculation of kilowatt hours employs straightforward sampling of volts and amps on a cyclic basis, and utilizing a constant related to cycle time to multiply into volt-amp-hours. The cost is simple multiplication of rate; either absolute or selected by real time from a table. Then, a test 435 *determines if the amount of cash which has been deposited is exhausted*.

(Ex-1005 at 22:22-28; *see also id.* at 17:61-64 (“calculate a maximum fee that the operator should insert in order *to avoid overpaying*. This is to prevent paying for more power than the vehicle can use: *the machine won’t give a refund*.”).) (POR at 63; Sur-Reply at 24; Ex-2005, ¶169.)

VIII. Ground 5: Keith Does Not Render Obvious (cont.)

- Dr. Cameron's testimony corroborating the above remains unrebutted. (Sur-Reply at 1, 24-25; Ex-2005, ¶¶ 167-170.)
- Keith discusses displaying current and voltage, but it is false that a POSITA would understand that a display requires storage of those parameters. (Pet. at 96-97.) (POR at 63-64; Ex-2005, ¶170.)
 - Keith expressly and consistently indicates when a measurement is stored or merely displayed.
 - Regarding kilowatt hours and cost, calculating, storing, and displaying is disclosed. (See, e.g., Ex-1005 at 23:60-61, 22:25-29.)
 - No similar disclosure with current or voltage—only display. (See Ex-1005 at 21:58-63, 22:5-8.)
- Doesn't matter whether the claims require where the operational parameters are stored, when Keith does not teach or suggest their storing at all. (Sur-Reply at 25.)

VIII. Ground 5: Keith Does Not Render Obvious (cont.)

- Independent claims 8 and 15 recite elements substantially similar to elements 1[a] and 1[d], and Petitioner's challenge of these fails for the same reasons as with claim 1 in Ground 4. (Pet. at 97.)
- Claims 9-14 and 16-19 depend from claims 8 and 15, respectively. Petitioner's challenge of these claims fails for the same reasons as with claims from which they depend.

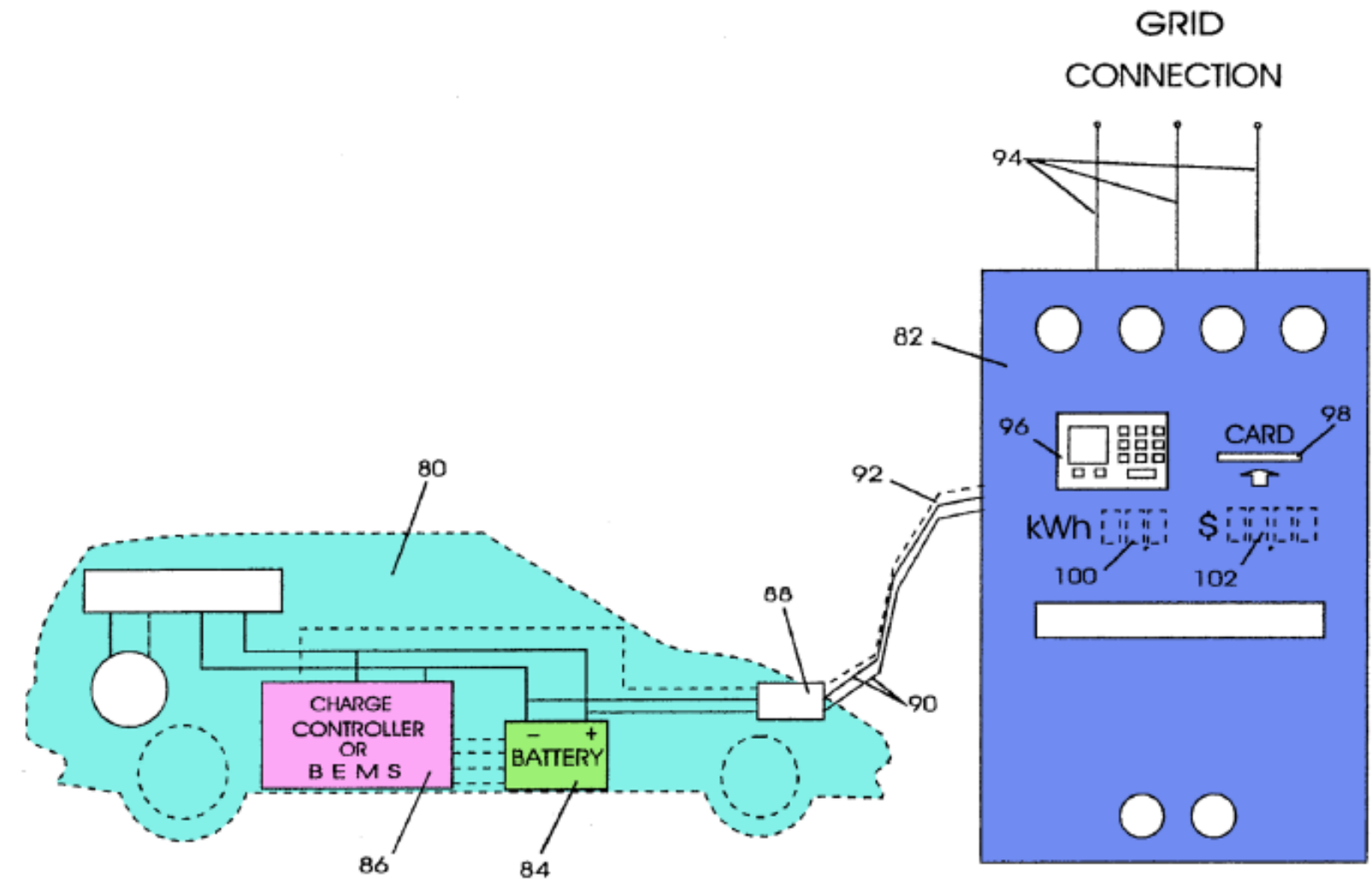
IX. Ground 6: Keith-Nor Does Not Render Claims 6 and 13 Obvious

IX. Ground 6: Keith-Nor Does Not Render Claim 6 Obvious

- The term “*data services interruption*” recited in **claim 6** should be construed to mean an interruption caused by the inability for information to be exchanged with a set of one or more *third party data sources*. (Ex-1001 at 7:41-47; POR at 20-22; Sur-Reply at 5-7; Ex-2005, ¶70.)
- A Keith-Nor combination cannot render claim 6 obvious because *neither reference teaches or suggests* a data services interruption caused by the inability of information exchange with *third party* data sources. (POR at 68-70; Ex-2005, ¶¶184-185.)
- For claim 6, Petitioner relied solely on Nor for this limitation and argues that Nor discloses “a data services interruption occurs when the battery charge controller 86 (pink) of the electric vehicle 80 (turquoise) fails to communicate with the charging station 82 (purple).” (Pet. at 101.)

IX. Ground 6: Keith-Nor Does Not Render Claim 6 Obvious (cont.)

- But Nor concerns communications between the **vehicle side and the charging station** and speaks only of “communication means that are capable of transferring data concerning the state of charge of the battery being charged between the battery and the charging station[,],” **i.e., without involvement of third parties**. (See Ex-1006 at 2:53-55 & fig.2.)
(POR at 68-69.)



IX. Ground 6: Keith-Nor Does Not Render Claim 13 Obvious

- Claim 13 is not obvious for the same reasons as claim 6. (POR 70; Ex-2005, ¶186.)
 - Dr. Cameron's testimony remains unrebutted. (Sur-Reply at 1, 26.)
 - Petitioner made an *attorney argument* that Keith-Nor renders claim 13 because it is similar to claim 6 and because Keith anticipates claim 8 (Pet. at 103) and failed to develop its argument in Reply. (POR at 70; Sur-Reply at 26; Ex-2005, ¶186.)

X. Dr. MacCarley's Testimony Should Be Accorded Little Weight Because of His Connections with Petitioner Tesla

X. Dr. MacCarley Is Biased in Petitioner Tesla's Favor

- Dr. MacCarley admitted that he received material support for his academic activities and other benefits because of his long-standing relationship with Tesla. (POR at 70-71.)
- For example, he admitted that (POR at 70-71):
 - his connection with Tesla has lasted a decade (Ex-2007 at 78:21-22);
 - he received *Tesla's batteries, different types of charges, and charge ports* (*id.* at 78:23-79:1, 79:14-80:1);
 - on several occasions, he and his students were allowed access to Tesla's facilities (*id.* at 79:14-80:1, 80:13-15);
 - he and his students were shown how Tesla “build their vehicles and chargers and—and [received] some of their innovative marketing too[]” (*id.* at 80:17-20);
 - *he was “instrumental”* in forwarding his best students to Tesla's recruiters, resulting in *at least thirty of his students* accepting job offers from Tesla (*id.* at 81:2-12);
 - a *Tesla recruiter* is his former student (*id.* at 81:9-12); and
 - he considers *Tesla jobs to be one of the most prestigious opportunities for his students* (*id.* at 81:13-18).

X. Dr. MacCarley Is Biased in Petitioner Tesla's Favor (cont.)

- Neither Petitioner, nor Dr. MacCarley disclosed this in the Petition or his Declaration. It came to light only during Dr. MacCarley's deposition. (POR at 71.)
- The benefits Dr. MacCarley received because of his long-standing relationship with Petitioner Tesla make him biased. *See Varian Med. Sys. v. William Beaumont Hospital*, IPR2016-00169, Paper 79 at 30 (PTAB May 4, 2017) ("A financial interest is certainly a factor in deciding how much weight to give [an expert's] testimony."). (POR at 70.)
- Dr. MacCarley would not want to alienate Petitioner Tesla with opinions unfavorable to it. (POR at 70.)

X. Dr. MacCarley Is Biased in Petitioner Tesla's Favor (cont.): Petitioner's Arguments Are Unavailing

- Petitioner makes 3 counterarguments in its Reply:
 - (1) Dr. MacCarley's interest in his students' success is not bias;
 - (2) Dr. MacCarley swore to his disinterest; and
 - (3) Dr. MacCarley did not receive money from Tesla, and “[n]othing more is required.” (Reply at 16 n.6.)
- Receiving money from Petitioner is not required to show bias because student placements with Tesla elevate his academic standing and position at the university, and he received gifts-in-kind, against which his own university warns (see next slide). Those students also may become a future source of funding. (Sur-Reply at 27.)
- As Dr. Cameron put it, Tesla was part of Dr. MacCarley's “critical path.” (Ex-2021 at 138:17-24; Sur-Reply at 27.)

X. Dr. MacCarley Is Biased in Petitioner Tesla's Favor (cont.): Gifts-in-Kind Are Personal Benefits

- Under the policy of Dr. MacCarley's California Polytechnic (CSU), a gift is "any payment that confers a **personal benefit** on the recipient to the extent that consideration of equal or greater value is not received and includes a rebate or discount . . . unless the rebate or discount is made in the regular course of business to members of the public without regard to official status."
- Gifts-in-kind must be reported on the employee's annual Form 700.
- Gifts are considered received by the university and not the employee only under the following limited circumstances:
 - if used by one or more CSU employees to conduct CSU business **with no control by the donor as to who receives the gift**;
 - tickets or passes to an entertainment or sporting event given to the CSU by an outside source and provided to a CSU employee **to achieve a stated public purpose**; and
 - when a donor **hosts** an employee as a guest (*i.e.*, the **cost of meals**) at a university **fundraising event**.
- The employee still needs to report these on either Form 801 or Form 802.

<https://calstate.policystat.com/policy/17168998/latest/> (Sur-Reply at 27.)

X. Dr. MacCarley Is Biased in Petitioner Tesla's Favor (cont.): Petitioner's Cases Are Distinguishable

- Petitioner's cases are distinguishable (Sur-Reply at 27-28):
 - *Offshore Tech. v. Innovative Pressure*, IPR2020-00923, Paper 43 (PTAB Oct. 28, 2021)—the Board found that the expert was unbiased because he had **general** “business interests related to the industry as a whole.” *Id.* at 17.
 - *Trans Ova v. XY*, IPR2018-00250, Paper 35 (PTAB June 26, 2019)—is inapplicable because, unlike Dr. MacCarley, the witness there was not an expert and provided background information non-critical to patentability issues. *Id.* at *10 n.9.

XI. PO's Motion to Exclude

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- **Ex-1011**—in its entirety
 - **Unauthenticated:**
 - Petitioner provided **no supplemental evidence** proving authenticity.
 - Petitioner **did not** even **refer** to Dr. MacCarley's Supplemental Declaration (Ex-1015) for support.
 - Dr. MacCarley's testimony (Ex-1009, ¶¶ 19, 56, 68, 146, 154, 269, 270) cannot authenticates—discusses the purported teachings of J1772.
 - **Not an ancient document** under Fed. R. Evid. 901(8).
 - **footers** on each page of Ex-1011 **don't indicate** where it is available for download—state that this document was “[l]icensed to Morgan Lewis & Bockius LLP user[,]” along with the order number and prohibition on copying and networking.
 - **footers contradict testimony from Dr. MacCarley's** Supplemental Declaration that “[he] obtained the Standard [J1772] and provided it to Petitioner's Counsel.” (Ex-1015, ¶ 2.)
 - **Hearsay:**
 - Dr. MacCarley extensively discussed the contents of J1772 (purportedly attached as Ex-1011) and offered the teachings of J1772 **as proof of the truth** of what it asserts (see, e.g., Ex-1009, ¶ 56).

XI. PO's Motion to Exclude (cont.)

- **Hearsay** (cont.):
 - **not admissible** under Fed. R. Evid. 803(17)—there is a dispute regarding whether a POSITA would be familiar with J1772. (POR at 17-19.)
 - Fed. R. Evid. 803(17) concerns “**Market Reports and Similar Commercial Publications**,” and Petitioner admits that J1772 is an industry standard. (MTE Opp. at 4.)
- **Irrelevant**:
 - Dr. Cameron never admitted relevance—his position is diametrically opposite. (Ex-2005, ¶¶39-42.)
 - intrinsic evidence at best shows that J1772 is **relevant for examples of suitable receptacles and cables**. (Ex-1025, ¶44.)
 - **irrelevant to the issue of motivation to combine Keith and Nor** (Paper 33 at 6) because the discussion of data and communication pathways in J1772 appear only in Dr. MacCarley's Declaration and not in the Petition (incorporation by reference). (Ex-1009, ¶¶269-270; Paper 2 at 101.) (MTE at 1-3; MTE Reply at 1-2.)

XI. PO's Motion to Exclude (cont.)

- Ex-1020 (Cameron *et al.*)—in its entirety:
 - Dr. Cameron did not authenticate Ex-1020—**relied on Petitioner** to get it from “a reputable source.” (Ex-1021 at 129:15-16.)
 - **Hearsay**—the “truth of matter asserted” is that Dr. Cameron and his co-inventors chose to include the definition section, complete with the word “definitions” there. (Ex-1020 at 129:25-132:13.)
 - **Irrelevant**—nothing requires that a patentee include or not to include a definition section in the specification.
 - **untimely/unauthorized** as will be explained in PO's motion to strike. (MTE at 3-4; MTE Reply at 3.)
- Ex-1009 (Dr. MacCarley's Declaration), ¶¶ 19, 56, 68, 146, 154, 269, 270 & 44-95:
 - **PO timely alerted** Petitioner of its position that certain portions of Ex-1009 were improperly incorporated by reference. (POPR at 8, 18, 19, 21-22; POR at 41; Sur-Reply at 16-17.)
 - Petitioner fails to explain **how Ex-1011's probative value “substantially outweighs” its prejudicial effect**, as required by Fed. R. Evid. 703.

XI. PO's Motion to Exclude (cont.)

- *disputed* whether a *POSITA* “*would reasonably rely on*” *Ex-1011* in forming an opinion under Fed. R. Evid. 703. (POR at 17-19.)
- *paragraphs 44-95* of Dr. MacCarley's Declaration are *improperly incorporated by reference* (prohibited under 37 C.F.R. § 42.65(a)(3))—Petitioner's conclusory argument that J1772 purportedly confirms claim 1's invalidity is based solely on a cite to fifty-two paragraphs (§§44-95) of Dr. MacCarley's Declaration. (Pet. at 36.) (MTE at 4-5; MTE Reply at 3-5.)
- Certain Portions of **Ex-1021** (Transcript of Dr. Cameron's Deposition):
 - Ex-1021 at 51:11-53:6, 53:22-55:6—line of questioning re: Ex-1011 (J1772).
 - Ex-1021 at 83:5-86:11, 132:10-11, 128:3-132:13—line of questioning re: Ex-2020.
 - PO has *not* “*exercised*” “the opportunity to clarify the record” during Dr. Cameron's deposition. PO objected to the introduction of Ex-1020 during Dr. Cameron's deposition. (Ex-1021 at 128:11-17; id. at 83:21-84:4.). (MTE at 5-6; MTE at 5.)

XI. PO's Motion to Exclude (cont.)

- Two lines of Ex-1026 (Errata Sheet of Dr. Cameron's Deposition):
 - Correcting the spelling of J1772 in the rough draft.
 - If the Board excludes J1772 and references to it from Ex-1020, no reason to leave those two lines in the errata sheet.
- Certain Portions of the Petition (Paper 2):
 - Pet. at 6—a general statement that a POSITA would have familiarity with Ex-1011 (J1772);
 - Pet. at 36—citing Ex-1009 ¶¶ 44-95 as “also discussing confirmation from J1772”;
 - Pet. at 18, 53, 57, 101—citing to portions of Dr. MacCarley's declaration that referenced J1772. (MTE at 6-7; MTE Reply at 5.)
- Certain Portions of the Reply (Paper 26):
 - Reply at 17-18—the last full paragraph in Part IV.A of the Reply discussing Ex-1011 (J1772) and what it purportedly discloses; and
 - Reply at 3 n.2—discussing Ex-1020 and counsel for Petitioner's line of questioning regarding Ex-1020 during the deposition of Dr. Cameron (Ex-1021). (MTE at 7-8; MTE Reply at 5.)

XII. PO's Motion to Strike

XII. PO's Motion to Strike

- New arguments and evidence (MTS at 1):
 - “A reply may only respond to arguments raised in the corresponding opposition, patent owner preliminary response, patent owner response, or decision on institution.” 37 C.F.R. § 42.23(b).
 - “Once the Board identifies new issues presented for the first time in reply, neither this court nor the Board must parse the reply brief to determine which, if any, parts of that brief are responsive, and which are improper.” *Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016).
- Belated submission without authorization (MTS at 2):
 - A party seeking to introduce evidence beyond that expressly permitted by the PTAB's rules must contact the Board to seek authorization before filing the new evidence, as counseled by the CTPG. 37 C.F.R. § 42.123; 37 C.F.R. § 42.223.
 - *Lenovo Hold. Co. v. DoDots Licensing Solutions LLC*, IPR2019-01278, Paper 25 at 6-7 (PTAB Sept. 9, 2020).

XII. PO's Motion to Strike (cont.)

- **Ex-1020** (U.S. Patent No. 8,918,657 to Cameron et al.) should be stricken in its entirety:
 - **belatedly** filed as an exhibit to Petitioner's Reply without authorization in violation of the Board's procedure.
 - Petitioner relied on it in its Reply **to erroneously suggest** that a patent's **specification must contain a definitions section** to indicate that it contains definitions. (See Reply at 3 n.2.)
 - Petitioner also relied on Ex-1020 in an **impermissible line of questioning** based on this belatedly submitted evidence. (Ex-1021 at 83:5-86:11, 132:10-11, 128:3-132:13; MTS at 2-3.)
- **Ex-1022** (Excerpt from Wiley Electrical and Electronics Engineering Dictionary) should be stricken in its entirety:
 - **belatedly** filed as an exhibit to Petitioner's Reply without the Board's authorization.
 - Petitioner relied on it in its Reply to **belatedly construe** the term "**request**" (Paper 26 at 13), despite previously asserting that no construction was necessary because all terms should be given their plain and ordinary meaning (Pet. at 6).
 - new argument that **could have been submitted in the Petition** and in fact **contradicts the Petition** (Pet. at 6), **and Dr. MacCarley's testimony** (Ex-1009, ¶ 34).
 - **PO will be prejudiced** because it was first presented after PO deposed Petitioner's expert. (MTS at 3-4.)

XII. PO's Motion to Strike (cont.)

- **Ex-1023** (Excerpt from The Authoritative Dictionary of IEEE) should be stricken in its entirety:
 - *belatedly* filed as an exhibit to Petitioner's Reply without the Board's authorization.
 - Petitioner relied on Ex-1023 in its Reply to *belatedly construe the term "response"* (Reply at 13), despite previously asserting that no construction was necessary because all terms should be given their plain and ordinary meaning (Pet. at 6).
 - a *new argument* that *could have been submitted* in the Petition and in fact *contradicts the Petition* (Pet. at 6), *and Dr. MacCarley's testimony* (Ex-1009, ¶ 34).
 - PO will be *prejudiced* because it was first presented after PO deposed Petitioner's expert. (MTS at 4.)
- **Ex-1024** (Exhibit 14 in District Court Case No. DCA-3-24-cv-02717)—in its entirety:
 - *belatedly* filed as an exhibit to Petitioner's Reply without the Board's authorization.
 - Petitioner relied on Ex-1024 in its Reply to *belatedly argue that dynamic load management configurations are not user specified* (usage of electricity *at home* is adjusted) (Reply at 11.)
 - However, Ex-1024 concerns Tesla's Superchargers *used during long-distance travel* and not electrical usage at home. (Sur-Reply at 10-11 (citing Ex-1024, 3).)

XII. PO's Motion to Strike (cont.)

- **Ex-1024** (Exhibit 14 in District Court Case No. DCA-3-24-cv-02717)—(cont.):
 - *Petitioner had an opportunity* to present Ex-1024 *earlier* because Petitioner admits that Ex-1024 was “cited in Patent Owner’s Complaint in District Court Case No. DCA-3-24-cv-02717.” (Reply at ii.)
 - Petitioner *was aware* of the complaint or Ex-1024 when it filed its Petition. (See Ex-1014; Pet. at 104.)
 - PO will be *prejudiced*. (MTS at 4-5.)
- **Ex-1025** (U.S. Published Patent Application No. 2009/017780 to Lowenthal “Lowenthal”)—in its entirety:
 - *belatedly filed* without the Board’s authorization.
 - Petitioner relied on Ex-1025 in its Reply, in support of its argument that “the intrinsic record includes a reference to J1772 (Ex-1025 ¶0036)[.]” (Paper 26 at 18.)
 - Petitioner also alluded to Ex-1025 during the deposition of Dr. Cameron. (Ex-1021 at 52:8-53:6.)
 - The IDS listing Ex-1025 was included in the prosecution history that Petitioner filed alongside the Petition (Ex-1007 at 75; Paper 2 at 6).
 - Petitioner could have *introduced* this evidence *earlier*.
 - PO will be *prejudiced*. (MTS at 5-6.)

XII. PO's Motion to Strike (cont.)

- Certain Portions of the Reply (Paper 26):
 - The first full paragraph on page 11 of Petitioner's Reply (starting with the word "Third" and ending with "invalidity.")
 - based on Petitioner's *mischaracterization* of *belatedly introduced and unauthorized* Ex-1024. (See Reply at 11.)
 - should be stricken in its entirety for the same reasons as explained in conn. w/ Ex-1024 and in PO's Sur-Reply (Sur-Reply at 10-11).
 - The first two full paragraphs on page 13 of Petitioner's Reply (starting with the word "Extrinsic" and ending with "it.")
 - based on Petitioner's *belated construction* of the terms "*request*" and "*response*" based on *belatedly introduced and unauthorized* Ex-1022 and Ex-1023. (See Reply at 13.)
 - should be stricken in their entirety for the same reasons as explained in conn. w/ Ex-1022 and Ex-1023. (MTS at 6.)

Thank You