

IPR2024-00857

Patent Owner's Preliminary Response

**UNITED STATES PATENT AND TRADEMARK OFFICE**

**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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VUSIONGROUP SA,

Petitioner

v.

HANSHOW TECHNOLOGY CO., LTD.,

Patent Owner

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Case No.: IPR2024-00857

Patent No. 11,540,216

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**PATENT OWNER'S PRELIMINARY RESPONSE**

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**Claim List<sup>1</sup>**

| <b>Claim 1</b>    |                                                                                                                                                                                          |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                              |
| [1.0]             | An interactive electronic tag device communication system, comprising:                                                                                                                   |
| [1.1]             | a background server, a base station, an electronic tag device and an external device;                                                                                                    |
| [1.2]             | wherein the electronic tag device comprises two communication paths: a first communication path and a second communication path;                                                         |
| [1.2.1]           | the first communication path supports two monitoring modes: a normal monitoring mode and a fast monitoring mode;                                                                         |
| [1.2.2]           | and the base station comprises two wake-up modes: a normal wake-up mode and a fast wake-up mode;                                                                                         |
| [1.3]             | the external device is configured to transmit first data to the electronic tag device through the second communication path;                                                             |
| [1.4]             | the electronic tag device is configured to receive the first data, transmit the first data to the base station through the first communication path, and enter the fast monitoring mode; |

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<sup>1</sup> For convenience purposes only, Patent Owner adopt for this Preliminary Response the numbering of claim limitations advanced by Petitioner in the Petition (Paper 2). Patent Owner does not concede the appropriateness of such grouping and numbering of claim limitations.

|       |                                                                                                                                                                                                                                                                                                                                 |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [1.5] | the base station is configured to receive the first data and transmit the first data to the background server;                                                                                                                                                                                                                  |
| [1.6] | the background server is configured to generate a control instruction and second data according to the first data, and transmit the control instruction and the second data to the base station;                                                                                                                                |
| [1.7] | the base station is further configured to receive the control instruction and the second data, communicate with the electronic tag device in the fast wake-up mode, and transmit a fast wake-up instruction, the control instruction and the second data to the electronic tag device through the first communication path; and |
| [1.8] | the electronic tag device is further configured to receive the fast wake-up instruction, the control instruction and the second data, and switch to the normal monitoring mode after completing the communication.                                                                                                              |

### Claim 2

| Limitation | Text                                                                                                                                                                                                                                                  |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [2]        | The interactive electronic tag device communication system according to claim 1, wherein the electronic tag device is configured to attach an ID of the electronic tag device to the first data when transmitting the first data to the base station. |

### Claim 3

| Limitation | Text                                                                                                                                                                                                                                                                                                                                                                 |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [3.0]      | The interactive electronic tag device communication system according to claim 1, wherein when the first data is received by a plurality of base stations, the plurality of base stations are configured to attach respective energy value information of the plurality of base stations to the first data when transmitting the first data to the background server; |

|                   |                                                                                                                                                                                                                                                                                                                               |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [3.1]             | the background server is configured to determine an optimal base station among the plurality of base stations according to the respective energy value information of the plurality of base stations, and transmit the control instruction and the second data to the electronic tag device through the optimal base station. |
| <b>Claim 4</b>    |                                                                                                                                                                                                                                                                                                                               |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                   |
| [4]               | The interactive electronic tag device communication system according to claim 3, wherein the background server is further configured to perform deduplication processing on the first data uploaded by the plurality of base stations.                                                                                        |
| <b>Claim 5</b>    |                                                                                                                                                                                                                                                                                                                               |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                   |
| [5]               | The interactive electronic tag device communication system according to claim 1, wherein the electronic tag device is further configured to switch to the normal monitoring mode when the fast wake-up instruction transmitted by the base station is not received within a preset time range.                                |
| <b>Claim 6</b>    |                                                                                                                                                                                                                                                                                                                               |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                   |
| [6]               | The interactive electronic tag device communication system according to claim 1, wherein the electronic tag device is further configured to switch to the normal monitoring mode when the fast wake-up instruction is received but the control instruction and the second data are not received within a preset time range.   |
| <b>Claim 7</b>    |                                                                                                                                                                                                                                                                                                                               |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                   |

|                   |                                                                                                                                                                                                                                                                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [7.0]             | An interactive electronic tag device communication method, comprising;                                                                                                                                                                                                                                                                                       |
| [7.1]             | transmitting, by an external device, first data to an electronic tag device through a second communication path in the electronic tag device;                                                                                                                                                                                                                |
| [7.2]             | receiving, by the electronic tag device, the first data, transmitting the first data to a base station through a first communication path in the electronic tag device, and entering a fast monitoring mode;                                                                                                                                                 |
| [7.3]             | receiving, by the base station, the first data and transmitting the first data to a background server;                                                                                                                                                                                                                                                       |
| [7.4]             | generating, by the background server, a control instruction and second data according to the first data, and transmitting the control instruction and the second data to the base station;                                                                                                                                                                   |
| [7.5]             | receiving, by the base station, the control instruction and the second data, communicating with the electronic tag device in a fast wake-up mode, and transmitting a fast wake-up instruction, the control instruction and the second data to the electronic tag device through the first communication path; and                                            |
| [7.6]             | receiving, by the electronic tag device, the fast wake-up instruction, the control instruction and the second data, and switching to a normal monitoring mode after completing the communication;                                                                                                                                                            |
| [7.7]             | wherein the electronic tag device comprises two communication paths: the first communication path and the second communication path, the first communication path supports two monitoring modes: the normal monitoring mode and the fast monitoring mode, and the base station comprises two wake-up modes: a normal wake-up mode and the fast wake-up mode. |
| <b>Claim 8</b>    |                                                                                                                                                                                                                                                                                                                                                              |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                  |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [8.0]             | The interactive electronic tag device communication method according to claim 7, wherein transmitting, by the electronic tag device, the first data to the base station comprises:                                                                                                                                                                                                                                                                                                                                                                       |
| [8.1]             | attaching an ID of the electronic tag device to the first data, and transmitting the ID of the electronic tag device and the first data to the base station.                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Claim 9</b>    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| [9]               | The interactive electronic tag device communication method according to claim 7, wherein receiving, by the base station, the first data and transmitting the first data to a background server comprises: attaching, by a plurality of base stations, respective energy value information of the plurality of base stations to the first data when receiving the first data, and transmitting, by the plurality of base stations, the first data and the respective energy value information of the plurality of base stations to the background server. |
| <b>Claim 10</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| [10]              | The interactive electronic tag device communication method according to claim 9, further comprising: performing, by the background server, deduplication processing on the first data uploaded by the plurality of base stations.                                                                                                                                                                                                                                                                                                                        |
| <b>Claim 11</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| [11]              | The interactive electronic tag device communication method according to claim 7, further comprising: switching, by the electronic tag device, to a normal monitoring mode when the fast                                                                                                                                                                                                                                                                                                                                                                  |

|                   |                                                                                                                                                                                                                                                                                                                        |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | wake-up instruction transmitted by the base station is not received within a preset time range.                                                                                                                                                                                                                        |
| <b>Claim 12</b>   |                                                                                                                                                                                                                                                                                                                        |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                            |
| [12]              | The interactive electronic tag device communication method according to claim 7, further comprising: switching, by the electronic tag device, to the normal monitoring mode when the fast wake-up instruction is received but the control instruction and the second data are not received within a preset time range. |
| <b>Claim 13</b>   |                                                                                                                                                                                                                                                                                                                        |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                            |
| [13]              | A computer device comprising a memory, a processor and a computer program stored on the memory and executable by the processor, wherein the processor implements, when executing the computer program, the method according to claim 7.                                                                                |
| <b>Claim 14</b>   |                                                                                                                                                                                                                                                                                                                        |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                            |
| [14.0]            | A non-transitory computer-readable storage medium storing therein a computer program for executing an interactive electronic tag device communication method comprising:                                                                                                                                               |
| [14.1]            | transmitting, by an external device, first data to an electronic tag device through a second communication path in the electronic tag device;                                                                                                                                                                          |
| [14.2]            | receiving, by the electronic tag device, the first data, transmitting the first data to a base station through a first communication path in the electronic tag device, and entering a fast monitoring mode;                                                                                                           |

|                   |                                                                                                                                                                                                                                                                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [14.3]            | receiving, by the base station, the first data and transmitting the first data to a background server;                                                                                                                                                                                                                                                       |
| [14.4]            | generating, by the background server, a control instruction and second data according to the first data, and transmitting the control instruction and the second data to the base station;                                                                                                                                                                   |
| [14.5]            | receiving, by the base station, the control instruction and the second data, communicating with the electronic tag device in a fast wake-up mode, and transmitting a fast wake-up instruction, the control instruction and the second data to the electronic tag device through the first communication path; and                                            |
| [14.6]            | receiving, by the electronic tag device, the fast wake-up instruction, the control instruction and the second data, and switching to a normal monitoring mode after completing the communication;                                                                                                                                                            |
| [14.7]            | wherein the electronic tag device comprises two communication paths: the first communication path and the second communication path, the first communication path supports two monitoring modes: the normal monitoring mode and the fast monitoring mode, and the base station comprises two wake-up modes: a normal wake-up mode and the fast wake-up mode. |
| <b>Claim 15</b>   |                                                                                                                                                                                                                                                                                                                                                              |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                  |
| [15.0]            | The non-transitory computer-readable storage medium according to claim 14, wherein transmitting, by the electronic tag device, the first data to the base station comprises:                                                                                                                                                                                 |
| [15.1]            | attaching an ID of the electronic tag device to the first data, and transmitting the ID of the electronic tag device and the first data to the base station.                                                                                                                                                                                                 |
| <b>Claim 16</b>   |                                                                                                                                                                                                                                                                                                                                                              |

| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [16]              | The non-transitory computer-readable storage medium according to claim 14, wherein receiving, by the base station, the first data and transmitting the first data to a background server comprises:<br>attaching, by a plurality of base stations, respective energy value information of the plurality of base stations to the first data when receiving the first data, and transmitting, by the plurality of base stations, the first data and the respective energy value information of the plurality of base stations to the background server. |
| <b>Claim 17</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| [17]              | The non-transitory computer-readable storage medium according to claim 16, wherein the computer program further executes the act of:<br>performing, by the background server, deduplication processing on the first data uploaded by the plurality of base stations.                                                                                                                                                                                                                                                                                  |
| <b>Claim 18</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| [18]              | The non-transitory computer-readable storage medium according to claim 14, wherein the computer program further executes the act of:<br>switching, by the electronic tag device, to a normal monitoring mode when the fast wake-up instruction transmitted by the base station is not received within a preset time range.                                                                                                                                                                                                                            |
| <b>Claim 19</b>   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Limitation</b> | <b>Text</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| [19]              | The non-transitory computer-readable storage medium according to claim 14, wherein the computer program further executes the act of:<br>switching, by the electronic tag device, to the normal monitoring mode when the fast wake-up instruction is received but the control                                                                                                                                                                                                                                                                          |

|  |                                                                              |
|--|------------------------------------------------------------------------------|
|  | instruction and the second data are not received within a preset time range. |
|--|------------------------------------------------------------------------------|

## **I. INTRODUCTION**

Petitioner VusionGroup SA (“Petitioner” or “Vusiongroup”) challenges the patentability of claims 1-19 (of which claims 1, 7 and 14 are independent) of U.S. Patent No. 11,540,216 (Ex. 1001, “the ’216 Patent”). Petitioner argues that prior arts Nagata (Ex. 1005), Hashiguchi (Ex. 1006) and Thubert (Ex. 1007) in various combinations render claims 1-19 obvious. In particular, Petitioner argues that Nagata, by itself or in combination with Hashiguchi, renders independent claims 1, 7 and 14 obvious. Petitioner did not use Thubert for any of its arguments related to independent claims 1, 7 and 14.

However, Petitioner fails to establish a reasonable likelihood that any claim of the ’216 Patent is unpatentable. In particular, Petitioner fails to show that Nagata, by itself or in combination with Hashiguchi, discloses or renders obvious the recited “fast wake-up instruction” required by all challenged claims (e.g. [1.7], [1.8], [7.5], [7.6], [14.5], [14.6]), or the recited “switch to the/a normal monitoring mode after completing the communication” required by all challenged claims (e.g. [1.8], [7.6], [14.6]). Because of this failure by Petitioner to meet the statutory threshold, the Board should deny institution. 35 U.S.C. § 314(a).

## II. BACKGROUND

### A. Overview of the Technology

Electronic price tags need to receive communications from remote components for various reasons, such as receiving updates for the information displayed upon the tags, or receiving responses after relaying user interactions to a central server for processing. It is a common practice to have electronic price tags wake up every other time period to monitor whether there is a communication request. Ex. 1001, [1:23-29]. After a tag wakes up, it needs to stay waked up for a period so as to receive instructions and data. *Id.*, [1:32-42]. If a tag is set up to wake up frequently, its power consumption will necessarily increase, and its battery life will necessarily decrease. *Id.*, [1:42-47]. Therefore, a balancing between communication speed and battery life usually calls for a low wake up frequency. *Id.*, [1:47-50].

However, in actual usage scenarios where an operator operates in front of the tag, it is desirable that the tag wake up more frequently so as to quickly receive feedback from the central server and provide the feedback to the operator. *Id.*, [1:51-57]. If the tag is set to always employ a high wake up frequency as required by such usage scenario, the power consumption will necessarily increase. *Id.*, [1:61-1:67]. This will shorten the battery life, cause more frequent replacements, and increase labor costs. *Id.*, [1:67-2:3].

Therefore, there is an industry need for an electronic tag system that normally utilizes a low wake up frequency, to achieve low power consumption, long battery life, less frequent replacements, and low labor costs, while capable of utilizing a high wake up frequency when needs arise, to achieve high responsive speed and good user experience.

### **B. Overview of the '216 Patent**

The '216 Patent discloses an interactive electronic tag device communication system and method. *Id.*, [Abstract]. In this system, it only needs to set a normal monitoring mode and a fast monitoring mode in an electronic tag device, and set a normal wake-up mode and a fast wake-up mode in a base station, then the customer experience requirements can be met without shortening the monitoring periods of all electronic tag devices, without increasing battery power consumption, and without increasing labor costs. *Id.*, [2:9-15].

FIG. 1 of the '216 Patent shows an embodiment of the claimed interactive electronic tag device communication system, in which an electronic tag device receives communications on channel 2 from an external device, then engages in communications on channel 1 through a base station with a background server.

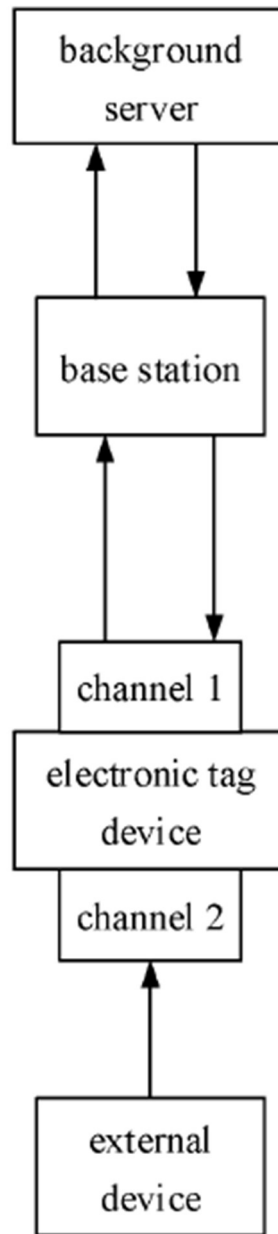


FIG. 1

'216 Patent, FIG. 1.

In a usage scenario of an embodiment of the claimed interactive electronic tag device communication system, an external device transmits a first data to an electronic tag device through a second communication path in the electronic tag

device; the electronic tag device receives the first data and transmits the first data to a base station through a first communication path in the electronic tag device, and enters a fast monitoring mode; the base station receives the first data and transmits the first data to a background server; the background server generates a control instruction and second data according to the first data, and transmits the control instruction and the second data to the base station; the base station receives the control instruction and the second data, communicates with the electronic tag device in a fast wake-up mode, and transmits a fast wake-up instruction, the control instruction and the second data to the electronic tag device through the first communication path; the electronic tag device receives the fast wake-up instruction, the control instruction and the second data, and switches to a normal monitoring mode after completing the communication. *Id.*, [5:34-56].

FIG. 2 of the '216 Patent provides a flow chart of this usage scenario.

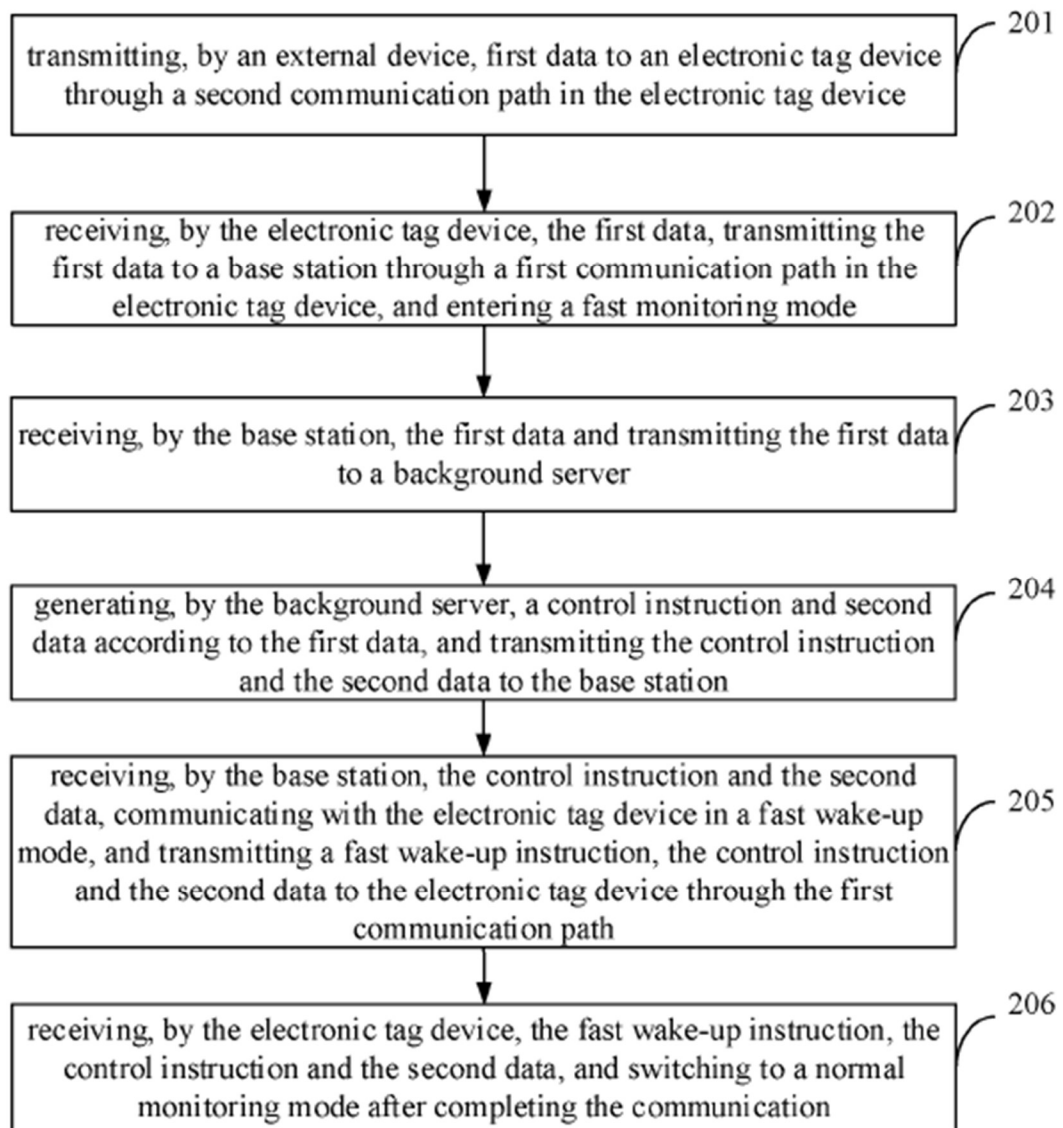


FIG. 2

'216 Patent. FIG. 2.

In certain embodiments of the claimed interactive electronic tag device communication system, the first data may be received by a plurality of base stations, and the background server selects an optimal base station according to a plurality of

energy values forwarded by the plurality of base stations to the background server.

*Id.*, [5:67-6:24]. FIG. 3 of the '216 Patent depicts this process.

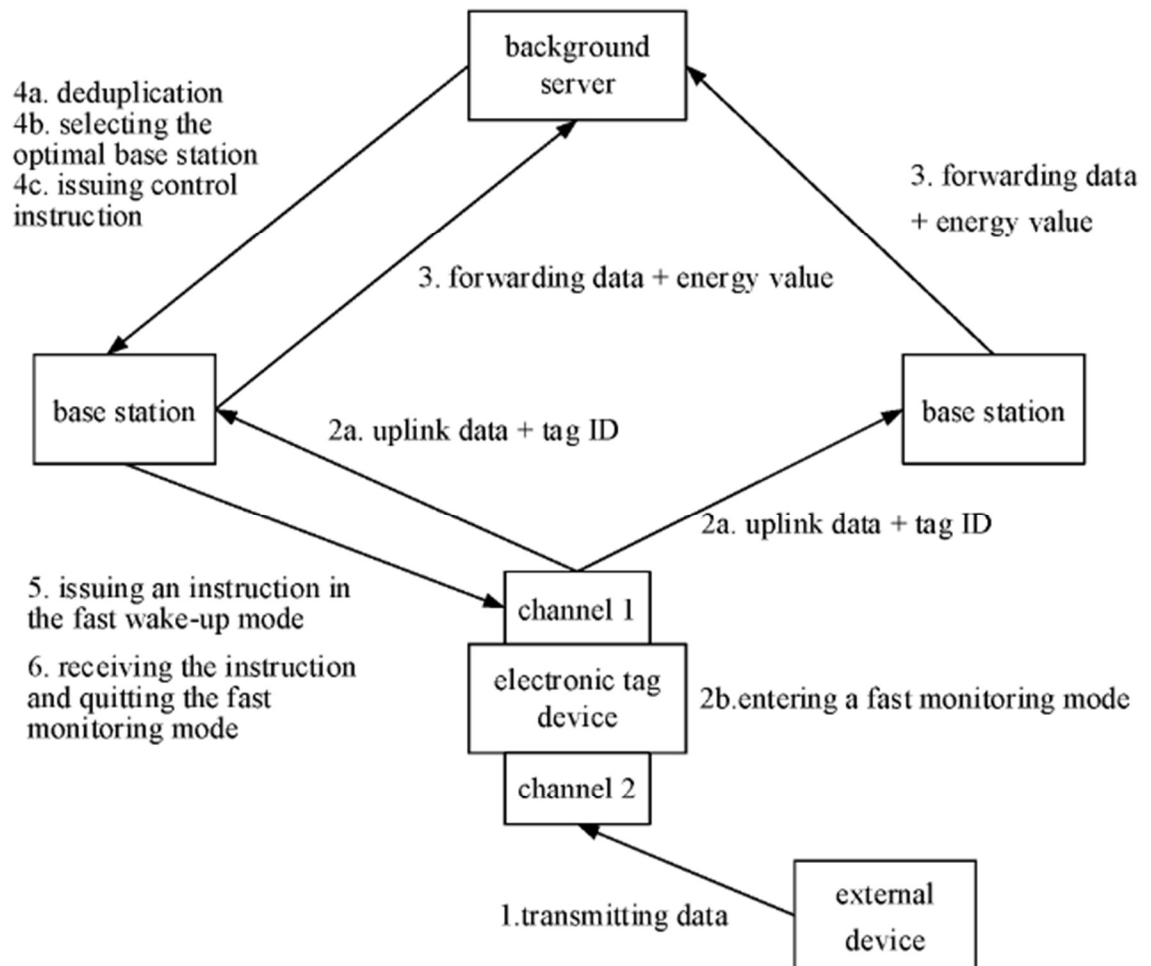


FIG. 3

'216 Patent, FIG. 3.

### III. LEVEL OF ORDINARY SKILL

For the purposes of this Preliminary Response only, Patent Owner agrees with Petitioner that a person of ordinary skill in the art (“POSITA”) as of the priority date of the '216 Patent (July 2018) would have had a Bachelor’s Degree in electrical or

computer engineering, computer science, or a similar field with two or more years of work experience with low-power connected devices, and additional education in a relevant field or relevant industry experience may compensate for a deficit in one of the other aspects of the requirements stated above. *See* Paper 2, at 6. Patent Owner reserves all rights to raise a different level of ordinary skill in subsequent filings (if any) in this proceeding, as well as in other forums.

#### **IV. CLAIM CONSTRUCTION**

For the purposes of this Preliminary Response only, Patent Owner agrees with Petitioner that no claim constructions are necessary and the claims should be given their plain and ordinary meanings. *See* Paper 2, at 7. Patent Owner reserves all rights to raise claim construction arguments in subsequent filings (if any) in this proceeding, as well as in other forums.

#### **V. INSTITUTION SHOULD BE DENIED ON ALL GROUNDS BECAUSE NO GROUND RENDERS CLAIM 1 OBVIOUS**

The Board should deny institution under 35 U.S.C. § 314(a) because the Petition does not demonstrate a reasonable likelihood that any challenged claim is unpatentable. In particular, no ground renders independent claim 1 obvious. Because the Petition does not advance separate obviousness arguments against independent claims 7 and 14, but relies on the obviousness arguments against claim 1 for arguing that these two claims are unpatentable (*see* Paper 2, at 41-43, 68-69), no ground renders independent claims 7 and 14 obvious either. Because no ground renders any

of the independent claims obvious, *a fortiori* no ground renders any of the dependent claims obvious. *See In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (“Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.”).

**A. Ground 1 Does not Render Claim 1 Obvious**

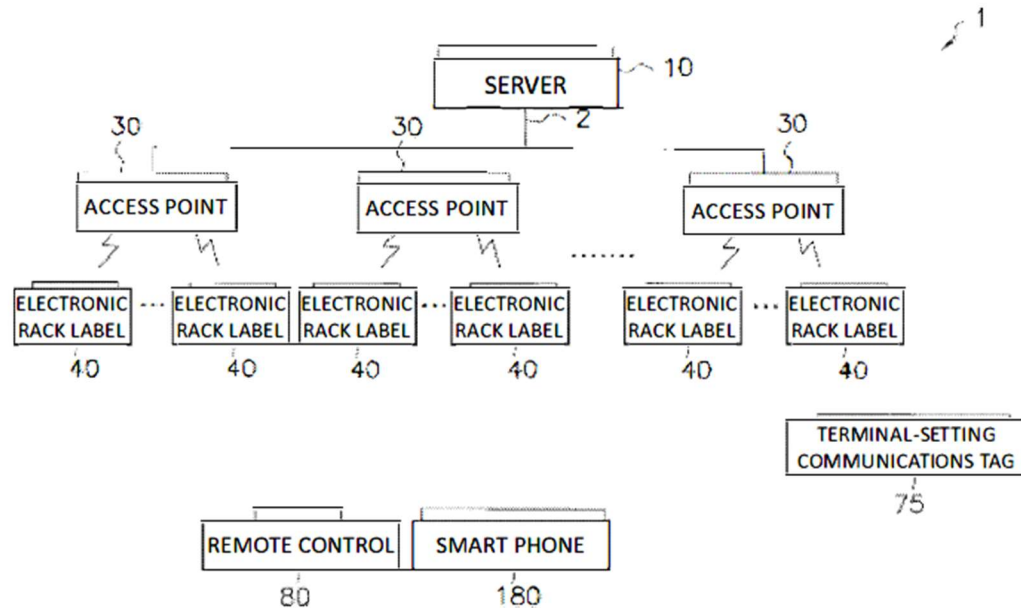
First, Ground 1 does not render Claim 1 obvious because Petitioner fails to show that Nagata discloses or renders obvious the claimed “fast wake-up mode” and “normal wake-up mode” (*e.g.* limitation [1.2.2]). Petitioner further fails to show that Nagata discloses or renders obvious the claimed “fast wake-up instruction” (*e.g.* limitation [1.7]) and “switch to the normal monitoring mode after completing the communication” (*e.g.* limitation [1.8]).

Petitioner argues that “Nagata’s labels have a second communications part that operates in at least a normal and fast monitoring mode. . . . The access points communicate information to the labels from the server (and vice versa) while the labels are in those monitoring modes but cannot communicate with the labels unless the labels are in an awake state.” Paper 2, at 24-25. Petitioner cites [0005], [0029] and [0031] of Nagata as supporting this argument. *Id.* at 25. Petitioner then argues that “POSITAs would have understood the access points necessarily operate in a coordinated mode with the labels because the access points can only communicate with the labels when the labels are awake in those modes.” *Id.* However, Petitioner

fails to point to a single disclosure in Nagata that tends to support this argument, or that tends to show the existence of “modes” in Nagata’s access points.

Petitioner could not make such showing because Nagata’s access points have no “modes”, not to say “coordinated mode[s]” with the labels. Nagata’s access points 30 are intermediate relay points in the communications between Nagata’s server 10 and Nagata’s electronic rack labels 40. Ex. 1005, [0030] and FIG. 1.

FIG. 1



“To report to the each of the electronic rack labels 40 the presence or absence of information transmission, each of the access points transmits at a prescribed-time interval a signal called beacon timed to when the operation state of the second communications part 42 of the electronic rack labels 40 becomes the awake state.” *Id.*, [0033]. A natural reading of this disclosure is that the access points 30 have one pre-set behavior – to transmit *at a prescribed-time interval* beacon signals to the

electronic rack labels 40. There is no disclosure in Nagata that the access points 30 would change this pre-set behavior. In fact, Nagata is quite clear that such pre-set behavior, synchronized to a prescribed-time interval, is necessary for the system to work, because otherwise the electronic rack labels may not be able to receive the beacon. *Id.*, [0033], [0083]. Thus, instead of disclosing *two* modes as Petitioner argues, Nagata is disclosing a *single* mode for access points 30 – to transmit *at a prescribed-time interval* beacon signals to the electronic rack labels 40.

In fact, Petitioner has mapped state-switches with *different* time intervals in Nagata's electronic rack labels 40 to the claimed "normal monitoring mode" and "fast monitoring mode." Paper 2, at 23. Under this mapping, the difference between the two modes is in the time interval between state switches, not in the absolute state (sleep or awake) of the labels. *Id.* Yet Petitioner now points to *one* pre-set behavior with a *prescribed* time interval in access points 30 and declare that this discloses *two modes* of the access points, indeed *two coordinated modes* to the two modes (that is, two time intervals) of the electronic rack labels. Such internal inconsistency is but one of the many reasons why Petitioner's chosen mapping must fail.

Petitioner sought to paper over its defects in reasoning by declaring *ipso facto* that "POSITAs would have recognized Nagata's label-server communications through the access points require system-wide timing that causes the access points to switch into an active state ('wake up') at different rates of communication

(‘normal’ and ‘fast’) according to the rate of communications of the labels to avoid wasted power and transmissions” (Paper 2, at 27) and “Nagata discloses or suggests each access point operates in both a short awake state at prescribed time-delay intervals (‘normal wake-up mode’) and longer, awake state (‘fast wake-up mode’) when communicating with the label” (Paper 2, at 28-29). However, Petitioner provided no foundation in Nagata for such conclusory statements. Instead, Petitioner and its expert point to disclosures of Nagata that *have nothing to do with* any purported change in the system-wide timing, or to excerpts from unrelated patents that are not used in this ground. Ex. 1003, ¶111. Neither Petitioner or its expert explained how a POSITA should be able to envision *two different system-wide time intervals* from an explicit disclosure of “a prescribed-time interval” (Nagata, [0033]). If Petitioner or its expert had some logic behind their conclusions, they kept it hidden and left Patent Owner and the Board to guess as to their reasoning.

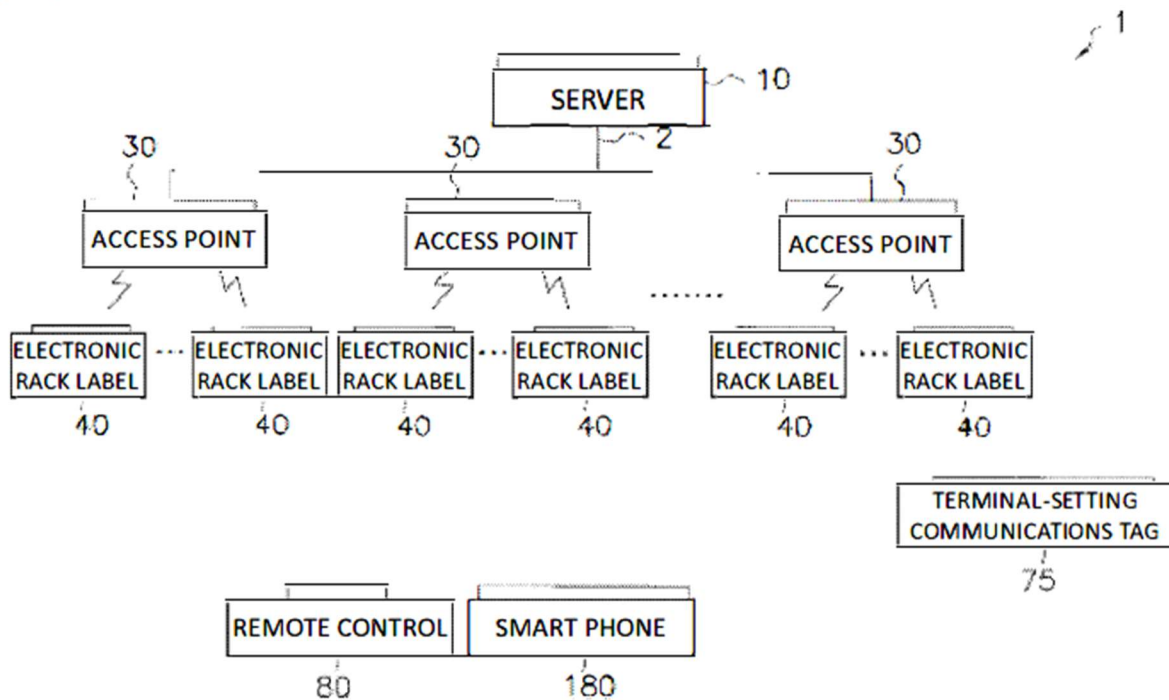
Indeed, a POSITA would understand there is a reason for Nagata to adopt a fixed and prescribed system-wide timing interval, instead of two intervals as Petitioner and its expert argued, not to say two intervals that are “coordinated” with mode changes in any particular electronic rack label. As shown below, access point 30 in Nagata serves more than one electronic rack labels 40. Nagata, FIG. 1. Assuming *arguendo* that Petitioner’s mapping of “normal monitoring mode” and

“fast monitoring mode” for Nagata’s electronic rack labels is correct<sup>2</sup>, at any moment, these labels can be in different monitoring modes – in fact, if they were to act like the electronic tag devices of the ’216 Patent, the ones that just received operator interactions would be in the fast monitoring mode and the ones that did not receive operator interactions would be in the normal monitoring mode. In this case, there cannot be any particular “system-wide timing” (as summarized by Petitioner itself, *see* Paper 2, at 27) that achieves “coordinated mode” with each and every one of these labels. Thus, either the access points do not act upon a system-wide timing, or there is no possible variation in such system-wide timing that can create Petitioner’s “coordinated mode.” Petitioner cannot have its cake (choosing the system-wide timing as representing a mode in the access points) and eat it too (arguing that the access points have coordinated modes with the labels).

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<sup>2</sup> Patent Owner does not concede that this mapping is correct and reserves all rights to rebut this mapping in any subsequent filing (if any) in this proceeding, as well as in other forums.

FIG. 1



Ex. 1005, FIG. 1.

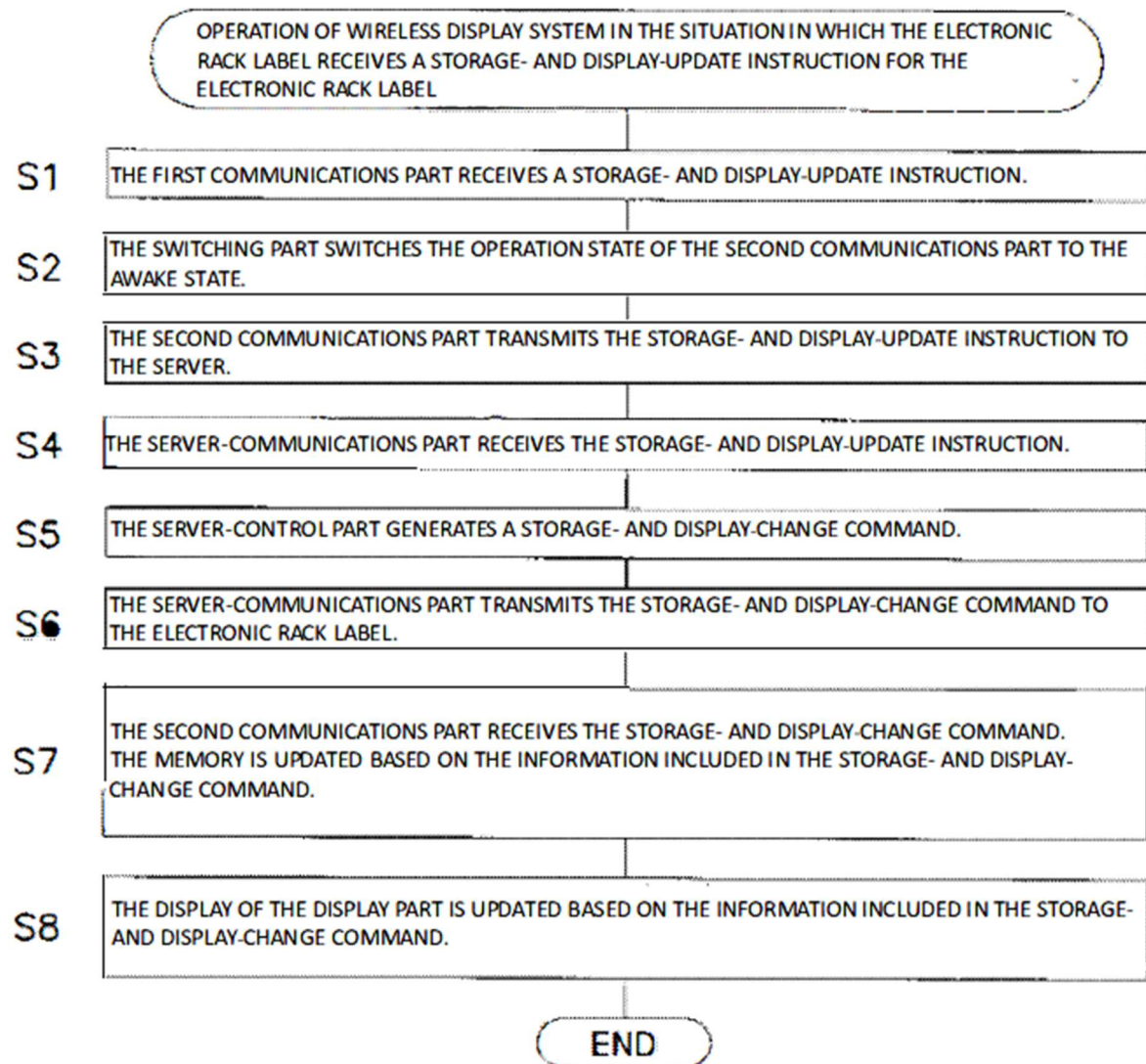
Therefore, Petitioner's mapping for the claimed "fast wake-up mode" and "normal wake-up mode" fail, and Petitioner cannot demonstrate a reasonable likelihood that Ground 1 renders claim 1 obvious. For reasons discussed at the beginning of this Section V, this means Petitioner cannot demonstrate a reasonable likelihood that Ground 1 renders any claim obvious.

Further, Petitioner fails to show that Nagata discloses or renders obvious the claimed "fast wake-up instruction" and "switch to the normal monitoring mode after completing the communication," and this is a separate reason why Petitioner cannot demonstrate a reasonable likelihood that Ground 1 renders any claim obvious.

Petitioner argues that “Nagata’s access point precedes every information transmission to the electronic rack label with a timed beacon that indicates either the ‘presence or absence of information transmission’ following the beacon.” Paper 2, at 38. Petitioner then argues that “[r]egardless of whether the label initiated the command or the server itself initiated a command, POSITAs would have understood the access point would have transmitted a beacon preceding the server-generated command including image data before transmitting the command to ensure the label remains in the active transmission state to ensure reception of the server command.” *Id.* at 38-39. Petitioner then concluded that “[b]ecause the beacon is sent to maintain the label in the fast-monitoring mode, POSITAs would have understood the beacon teaches a ‘fast wake-up instruction.’” *Id.* at 39.

Petitioner’s reasoning is flawed. When Petitioner refers to “the server-generated command,” it is referring to the “storage- and display-change command generated by the server-communications part 11” which is “transmitted to the electronic rack label 40 via the corresponding access point 30.” *Id.* at 36-37; Ex. 1005, [0121]. Yet, for this embodiment, Nagata does not describe transmission from the access point 30 to the electronic rack label 40 of *any* separate message. Ex. 1005, [0114]-[0124], FIG. 8. That is, Nagata does not disclose a separate “fast wake-up instruction” as an integral part of the communication sequence. This is readily visible from FIG. 8 of Nagata, reproduced below.

FIG. 8



Ex. 1005, FIG. 8.

In order to repair this evident lacuna, Petitioner points to Nagata's disclosure of a beacon signal ([0033]) as disclosure for the "fast wake-up instruction." Paper 2, at 39. But this argument fails for two reasons. First, Nagata discloses that the beacon signals are transmitted *at a prescribed-time interval*. Ex. 1005, [0033]. Therefore, the beacon signals are not tied to any particular message from the server-

communications part, they are sent whether there are other messages or not (and indeed this is how the beacon signals are designed to work, because their function is “[t]o report to the each of the electronic rack labels 40 the presence or absence of information transmission”). *Id.* Because of this prescribed-time-interval nature of the beacon signals, a POSITA would understand that, if, as Petitioner argues, the beacon signal disclosed in [0033] is the mechanism of the embodiment of [0114]-[0124] to notify the electronic rack label 40 of the storage- and display-change command generated by the server-communications part 11, then the access point would *not* immediately forward the command to the electronic rack label 40, but will always wait until the next prescribed time for beacon signals, send a beacon to indicate the presence of the command, and then forward the command. Thus, a POSITA would understand that, if, as Petitioner argues, the beacon signal is the mechanism of the embodiment of [0114]-[0124] to notify the electronic rack label 40 of the command, then the response time would possibly be artificially lengthened (while the access point 30 waits until the next prescribed time for beacon), and the label would stay in an awake mode and wait for the command (the label will stay awake for either a relatively long time period such as 30 seconds, or until the command is received, *see* Ex. 1005, [0116]), without providing any response to the operator. This is completely against the purpose of the '216 Patent to meet the customer experience requirements of fast response time without increasing battery

power consumption. Ex. 1001, 1:53-55, 2:12-15. This is also against the purpose of Nagata itself, as such artificial delay negates the advantages of rapidly sending user instructions to the host server. Ex. 1005, [0004]. Furthermore, this is against Nagata's rationale in using a beacon signal, which is to curtail the consumption of the battery 45. Ex. 1005, [0034]. Therefore, the beacon signal cannot be the contemplated mechanism by Nagata in transmitting the command to the electronic rack label 40.

Second, Nagata explicitly discloses that, as a part of the communication sequence for the embodiment described in [0114]-[0124], the second communications part 42 of the electronic rack label 40 is maintained in the awake state either for a relatively long time period such as 30 seconds, or until the second communications part 42 receives a storage- and display-change command generated by the server 10. Ex. 1005, [0116], [0119]. The beacon signal is designed to make sure that the electronic rack label 40 learns of the presence of information transmission and thus stays in the awake state for receiving the transmission. Ex. 1005, [0033]. A POSITA would therefore understand that, because in the communication sequence described in [0114]-[0124], the access point 30, upon receiving the command from the server, can be certain that the electronic rack label 40 is in the awake state and ready for receiving the transmission, thus there is no need for the access point 30 to send any beacon signal to the electronic rack label 40,

instead, the access point 30 can directly transmit the command to the electronic rack label 40. Indeed, this is how Nagata describes the transmission sequence, without leaving any space for the beacon signal. (“[0121] Next, in step S6, the server-control part 15 of the server 10 controls the server-communications part 11 so that the storage-and display-change command generated by the server-communications part 11 is transmitted to the electronic rack label 40 via the corresponding access point 30. [0122] Next, in step S7, the second communications part 42 of the electronic rack label 40 receives the storage-and display-change command.”). Therefore, a POSITA would understand that Nagata’s access point 30 will send the command to the electronic rack label 40 *without* preceding or succeeding it with a beacon signal. Thus, Petitioner’s argument that the beacon signal is the claimed “fast wake-up instruction” cannot stand.

In addition, Nagata teaches that, because of the beacon mechanism, “the second communications part 42 does not have to be set to the awake state for a long time with respect to the electronic rack labels 40 other than those that are the target of the updating of the storage content of the memory 60 and/or the display content of the display part 41. Consequently, wear of the battery 45 of the electronic rack label 40 can be curtailed.” Ex. 1005, [0124]. That is, Nagata contemplates that the second communications part 42 of the electronic rack labels that *are* the target of the updating would stay in the awake state for a long time. This is the opposite of the

method of the '216 Patent, which aims at shortening the monitoring time of electronic shelf tags and achieving immediate feedback. *See* Ex. 1001, [1:54-57]. Therefore, a POSITA would find that the beacon mechanism of Nagata is incompatible with the objectives of the '216 Patent.

Petitioner alternatively argues that, because “Nagata’s access point sends a beacon indicating the ‘absence of information’ when no command from the server is sent,” a POSITA “would have recognized that receiving the ‘absence’-indicating beacon enables the label to exit the fast monitoring mode and return to its lower power monitoring mode to conserve battery power.” Paper 2, at 39. Accordingly, Petitioner alternatively argues that a POSITA would understand that the “absence”-indicating beacon signal is the claimed “fast wake-up instruction.”

This alternative argument fails for the same reasons as the first one: there is no disclosure of the utilization of a beacon signal, whether “presence”-indicating or “absence”-indicating, in Nagata’s description of the communication sequence ([0114]-[0124]); further, if an “absence”-indicating beacon signal is the mechanism to notify the electronic rack label of something (this time not the presence of the command, but presumably the completion of the command), the communication sequence will, with a high probability, be artificially lengthened in time, with attending waste of energy consumption; and finally, in Nagata’s communication

sequence, there is no need for the electronic rack label 40 to receive any “absence”-indicating beacon signal, it can go back to sleep mode on its own (Ex. 1005, [0116]).

This alternative argument further fails because it requires the POSITA to mentally rearrange the order of the messages. An “absence”-indicating beacon signal necessarily *follows* the command, not precedes it. But Petitioner would have a POSITA, based on this “absence”-indicating beacon signal (that has no place in the description of the communication sequence of Nagata), envision a transmission of “a fast wake-up instruction, the control instruction and the second data” ([1.7] of claim 1). Petitioner never explained how such conceptual juggling would be “obvious.”

Petitioner's failure with regards to the “fast wake-up instruction” also dooms its arguments related to “switch to the normal monitoring mode after completing the communication,” since the “communication” includes the “fast wake-up instruction”, which Petitioner fails to match, and therefore there is no “completing the “communication” under Petitioner's mapping. Furthermore, Petitioner argues that “POSITAs would have understood the second communications part in Nagata's label would revert back to its normal state, which is a one-second periodic awake state, after the command is received or after the awake time elapsed.” Paper 2, at 41. However, under one of Nagata's disclosed alternatives, the label reverts back after a prescribed time length such as 30 seconds (Ex. 1005, [0116]), which is not tied to

the completion of any communication, so a POSITA would not come to the understanding as described by Petitioner. While the second alternative (where the label reverts back after receiving the server-generated command) may provide more support to such understanding, this alternative, as discussed above, completely negates the presence of (and the need for) the “fast wake-up instruction.”

Therefore, Petitioner further cannot demonstrate a reasonable likelihood that Ground 1 renders any claim obvious, because Petitioner fails to show that Ground 1 discloses or renders obvious the claimed “fast wake-up instruction” or “switch to the normal monitoring mode after completing the communication.”

**B. Ground 2 Does not Render Claim 1 Obvious**

Second, Ground 2 does not render Claim 1 obvious because Petitioner fails to show that Nagata, by itself or in combination with Hashiguchi, discloses or renders obvious the claimed “fast wake-up instruction” (*e.g.* limitation [1.7]) and “switch to the normal monitoring mode after completing the communication” (*e.g.* limitation [1.8]).

As discussed above in Section V.A, Petitioner fails to show that Nagata, by itself, discloses or renders obvious the claimed “fast wake-up instruction” and “switch to the normal monitoring mode after completing the communication.” Petitioner's attempt to use Hashiguchi to cure this defect is not availing.

In fact, Petitioner uses the *completely analogous* disclosure in Hashiguchi (as compared to the disclosure in Nagata) of beacon signals to match the “fast wake-up instruction.” Paper 2, at 65-68. The beacon signals of Hashiguchi are, like those of Nagata, sent at *synchronized and prescribed time intervals*. Ex. 1006, [0031], [0068], [0071], [0128]. Petitioner does not use *any* other disclosure from Hashiguchi to match the other steps of the communication sequence, instead relying on its earlier mapping for Ground 1 (which employs Nagata disclosures only). Paper 2, at 65 (not providing any additional mapping for [1.5] and [1.6] of claim 1). As discussed above in Section V.A, Nagata’s disclosure of the communication sequence is incompatible with any mapping of Nagata’s fixed-interval beacon signal to “fast wake-up instruction”, whether the beacon signal is “presence”-indicating or “absence”-indicating. The exact same logic<sup>3</sup> applies to Petitioner’s use of Hashiguchi’s beacon

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<sup>3</sup> Hashiguchi discloses that the beacon signals may be sent on a prescribed time interval of 4 seconds. Ex. 1006, [0031], [0071], [0128]. While this might look like a short enough period to mitigate the delay and energy consumption concerns discussed in Section V.8, a POSITA would still find that an artificial wait on the access point’s side for the next beacon time, accompanied with the corresponding energy consumption on the label side, is not an obvious solution to the problem that

signals, which, as discussed above, are indistinguishable from Nagata's beacon signals for Petitioner's purposes.

Since Hashiguchi does not cure the defect with regards to "fast wake-up instruction", and since Petitioner does not point to any additional disclosure of Hashiguchi for the purposes of "switch to the normal monitoring mode after completing the communication" (*see* Paper 2, at 68), Hashiguchi does not cure the defect with regards to this claim language either.

Therefore, Petitioner's mapping for the claimed "fast wake-up instruction" and "switch to the normal monitoring mode after completing the communication" fail, and Petitioner cannot demonstrate a reasonable likelihood that Ground 2 renders claim 1 obvious. For reasons discussed at the beginning of this Section V, this means Petitioner cannot demonstrate a reasonable likelihood that Ground 2 renders any claim obvious.

### **C. Ground 3 Does not Render Claim 1 Obvious**

Third and finally, Petitioner never argued that Ground 3 renders claim 1 obvious. Paper 2, at 74. Thus, for reasons discussed at the beginning of this Section

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the '216 Patent seeks to solve. Ex. 1001, 1:53-55, 2:12-15. Therefore, this additional disclosure of the length of the time interval does not change the reasoning.

V, this means Petitioner cannot demonstrate a reasonable likelihood that Ground 3 renders any claim obvious.

## **VI. THERE IS NO GOOD CAUSE FOR A PRE-INSTITUTION REPLY**

In view of the deficiencies in the Petition discussed above, Petitioner might seek to file a pre-institution reply. But there would be no good cause for a pre-institution reply. Petitioner fully discussed the grounds already, but did not demonstrate a reasonable likelihood that any challenged claim is unpatentable. Therefore, Petitioner has no good cause to seek a second chance of discussing them (and bypassing the character count limits imposed upon the Petition) through a pre-institution reply. *See e.g., Ontel Prods. Corp. v. Guy A. Shaked Invs. Ltd.*, IPR2020-01703, Paper 10 at 2 (Feb. 4, 2021) (denying reply for “subjects that Petitioner should have developed in its Petition”).

## **VII. CONCLUSION**

For at least the above reasons, Patent Owner respectfully requests the Board deny institution.

Date: August 30, 2024

Respectfully submitted,

/Hao Tan/

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**CERTIFICATE OF WORD COUNT**

I hereby certify that the foregoing PATENT OWNER'S PRELIMINARY RESPONSE includes 4,535 words (as calculated by Microsoft Word), excluding those in the table of contents, table of authorities, list of exhibits, list of claims, mandatory notices, signatures, certificate of word count, and certificate of service. Accordingly, this Preliminary Response is under the word count limit of 14,000 words.

Date: August 30, 2024

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. § 42.6(e), I hereby certify that, on August 30, 2024, a set of true and correct copies of PATENT OWNER'S PRELIMINARY RESPONSE has been served via e-mail to the Petitioner by serving the below-listed attorneys of record for Petitioner in the concurrent proceeding:

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