

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

HEADWATER RESEARCH LLC,
Patent Owner.

IPR2023-01337
Patent 9,521,578

PATENT OWNER'S PRELIMINARY RESPONSE

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PATENT OWNER'S EXHIBIT LIST

No.	Description
Ex. 2001	International Publication No. WO 2006/012610 to Rao et al. ("Rao-2")
Ex. 2002	Redline of the text of Rao (Ex. 1007) and Rao-2 (Ex. 2001)
Ex. 2003	U.S. Patent No. 8,825,109 to Montemurro et al. ("Montemurro Patent")
Ex. 2004	Redline of the text of Montemurro (Ex. 1009) and the Montemurro Patent (Ex. 2003)
Ex. 2005	U.S. Patent Application Publication No. 2006/0291419 to McConnell et al. ("McConnell")

I. INTRODUCTION

The Board should deny institution of *inter partes* review (“IPR”) of U.S. Patent No. 9,521,578 (“the ’578 Patent”) for two independent reasons.

First, the Petition should be denied on the merits. The sole ground in the Petition relies on the Rao, Oestvall, and Montemurro references, but none of these references teaches limitations that the Examiner found to be missing from the prior art (including from the disclosures of Rao and Montemurro). The Petition stitches together a patchwork combination of disclosures in an effort to meet those limitations.

But the Petition does not demonstrate that its combination would allow an application to access to a WWAN modem *only* when that application is interacting with a user in the foreground, as is required by claim limitation [1d] and all challenged claims. Indeed, Rao discloses queuing and communicating all network packets generated by applications subject to its prioritization scheme, whether or not an application is interacting with a user in the foreground. The Petition does not allege otherwise. And Oestvall (the only other reference that the Petition relies upon for this limitation) does not cure Rao’s deficiencies.

Moreover, the Petition’s combination suffers from another fatal deficiency that applies to all challenged claims. The combination fails to provide or render obvious an API that permits an application to access information about a

“differential traffic control policy” that is applicable to it, as required by claim limitation [1e]. Although the Petition purports to point to API-related disclosures from each of Rao, Oestvall, and Montemurro, none of those references discloses or suggests an API that permits a given application to access any information about any policy that applies to that application.

Second, the Board should exercise its discretion and deny institution under 35 U.S.C. § 325(d) because the USPTO has already considered the same or substantially the same prior art as that presented in the Petition, and the Petition has failed to show that the Examiner materially erred during prosecution.

As noted above, the sole ground in the Petition relies on Rao, Oestvall, and Montemurro. As the Petition admits, a family member with nearly identical disclosures as Rao was before the Examiner during original prosecution. Montemurro’s disclosure was likewise before the Examiner during prosecution. And the disclosures from Oestvall on which the Petition relies are substantially the same as disclosures from Rao or Montemurro, or as disclosures from references that the Examiner considered to be “closest prior art.”

The Board should deny institution of the Petition.

II. BACKGROUND

A. Overview of the ’578 Patent

At a high level, the ’578 Patent is generally directed to, a device that “store[s]

a differential traffic control policy applicable to data communicated ... using [a] WWAN modem ..., but not applicable to data communicated for Internet service activities using [a] WLAN modem,” has “a user interface to allow a user to ... select ... applications that are only allowed to utilize the at least one WWAN ... when those applications are classified as interacting with a user in the device user interface foreground,” and has “one or more processors configured to implement an [API] that allows a particular application to access one or more aspects of the differential traffic control policy applicable to that application.” *See* Ex. 1001 at claim 1. More specifically, the only independent claim (claim 1) recites in full:

[1pre] A wireless end-user device, comprising:

[1a] a wireless wide area network (WWAN) modem to communicate data for Internet service activities between the device and at least one WWAN, when configured for and connected to the at least one WWAN;

[1b] a wireless local area network (WLAN) modem to communicate data for Internet service activities between the device and at least one WLAN, when configured for and connected to the at least one WLAN;

[1c] a non-transitory memory to store a differential traffic control policy applicable to data communicated for Internet service activities using the WWAN modem and the at least one WWAN, but not applicable to data communicated for Internet service

activities using the WLAN modem and the at least one WLAN;

[1d] a user interface to allow a user to set one or more of a plurality of aspects of the differential traffic control policy to select one or more applications that are *only allowed to utilize the at least one WWAN* for Internet service activities *when those applications are classified as interacting with a user in the device user interface foreground*; and

[1e] one or more processors configured to implement *an application program interface (API) that allows a particular application to access one or more aspects of the differential traffic control policy applicable to that application*, including whether the user-settable aspects of the policy only allow the particular application to utilize the at least one WWAN for Internet service activities when the particular application is classified as interacting with a user in the device user interface foreground.

Id. at claim 1.¹ As shown by claim element [1d], the differential traffic control policy of the claims, for at least one given application, must be such that the given application can only access the WWAN when the application is interacting with the user in the foreground. And as shown by claim element [1e], the claimed API must permit a given application to access information about the differential traffic control policy that is applicable to that application.

¹ All emphases herein added unless otherwise noted.

B. Summary of the Prosecution of the '578 Patent

In the Notice of Allowance, the Examiner explained that the claims were allowed because the prior art of record failed to disclose, in particular, claim elements [1c], [1d], and [1e]. Ex. 1002 at 309-11 (citing, among other references, “McConnell et al.” (Ex. 2005) and indicating that McConnell is “the closest prior art” to the '578 Patent).

In addition to McConnell and the our other references explicitly mentioned in the Notice of Allowance, the Examiner also considered a family member of the Rao reference (Ex. 2001) and the issued version of the Montemurro reference (Ex. 2003) relied on in the Petition, which have only negligible differences of no consequence to the invalidity theories presented by the Petition. Ex. 2002 (comparison of Rao to the Rao family member before the Examiner); *see* Pet. at 77 (admitting the Rao family member was before the Examiner); *see also* Ex. 1001 at 7, 11 (listing the Rao family member and as-issued Montemurro in the References Cited section); Ex. 1002 at 469, 472 (listing the Rao family member and as-issued Montemurro on an IDS that the Examiner signed); *infra* § VI.A.1.

III. LEVEL OF ORDINARY SKILL IN THE ART

The Petition proposes that a POSITA in the field of the '578 Patent “would have had (1) at least a bachelor’s degree in computer science, electrical engineering, or a related field, and (2) three to five years of experience with networking, power

consumption of networked computing devices, and/or wireless digital communications systems. Additional graduate education could substitute for professional experience, and *vice versa*.” Ex. 1003 ¶18; *see* Pet. at 12 n.2 (citing Ex. 1003 ¶¶17-18). For purposes of this preliminary response, Patent Owner does not challenge that definition.

IV. CLAIM CONSTRUCTION

The Petition states that “no formal claim constructions are necessary.” Pet. at 2. For purposes of this preliminary response only, Patent Owner agrees that no formal claim construction is necessary.

V. THE PETITION FAILS TO SHOW A REASONABLE LIKELIHOOD OF PREVAILING FOR ANY CHALLENGED CLAIM.

A. The Petition does not demonstrate that its proposed combination discloses or renders obvious claim element 1[d].

Claim element [1d] requires, in part, “a user interface to allow a user to ... select one or more *applications that are **only** allowed to utilize the at least one WWAN for Internet service activities when those applications are classified as interacting with a user in the device user interface foreground.*” Ex. 1001 at 108:31-37. Thus, the claim requires the system to be configurable to define applications that are only permitted to access the WWAN when that application is interacting with a user in the foreground; if the application is running in the background (for example), its access to the WWAN is disallowed or blocked. The Petition confirms that it has

the same understanding of the claims. *See* Pet. at 32-33 (in relation to this claim element, discussing “applying a policy to prioritize network transmissions of [an] application[to] result in ‘Internet service activities’ being ‘*allowed*’ or ‘*disallowed*’”) (first emphasis in original, other emphasis removed).

This understanding, in which the application must be blocked from accessing the WWAN modem, is also consistent with the specification of the ’578 Patent, which teaches “block[ing]” access as distinct from less drastic remedies that apply to individual network packets, such as delaying or re-ordering network packets by putting that traffic into lower-priority queues. Ex. 1001 at 13:37-42 (“block/allow” different from “traffic control techniques,” such as “delay” or “priority queue”); *id.* at 57:6-7 (determines whether to allow or block a session, or alternatively, to implement traffic control techniques such as “queue priority”); *id.* at 11:38-49 (distinguishing “network access requests (e.g., IP address requests)” from “other network service usage activities”); *id.* at 77:54 (“priority level 0 can provide a blocked network access”); *id.* at 88:21-22 (“blocking [] access”); *id.* at 88:49-54 (“blocking [] access”); *id.* at 93:54-62 (“before a connection is allowed to be opened (e.g., before a socket is opened), transmission, or a flow/stream is initiated, it is blocked”); *id.* at 94:20-39 (“allow/block” is a “network access setting” applicable to a “network access request”). For example, the ’578 Patent describes “allow/block” as a separate operation from “queu[ing]” or “defer[ring]” (*id.* at 94:22-32) and

clarifies that “blocking” access applies to an entire network connection or socket rather than at the level of individual packets (*id.* at 93:54-62). *See also id.* at 104:51-105:8 (teaching that an advantage of “***block[ing]***” the application is “that the network service consuming application is prevented from consuming any [network] resources” so that costly network resources are not used when the user does not want them to be).

The Petition relies only on Rao and Oestvall in its discussion of the “one or more applications that are allowed to utilize the at least one WWAN for Internet service activities when those applications are classified as interacting with a user in the device user interface foreground” portion of claim element [1d]. *See* Pet. at 32-33. For this reason, Patent Owner does not address Montemurro for this limitation, but rather only addresses the Petition’s reliance on Rao and Oestvall below.

- 1. The Petition does not establish why Rao’s policies would mean that certain “applications ... are only allowed to utilize [the WWAN] when those applications are classified as interacting with a user in the device user interface foreground.”**

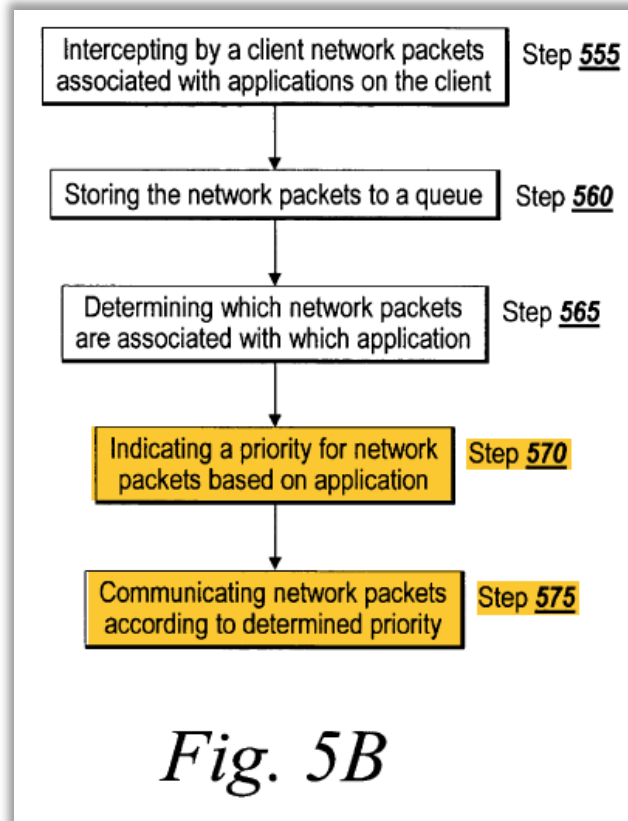
The Petition alleges that “a POSITA would have understood and found obvious that the Rao-Oestvall-Montemurro device would have been configured to implement Rao’s technique of intercepting network packets of an application based on the application’s prioritization, and (1) where the application is classified as running in the ***foreground***, network packets of that application would be ***stored in a***

queue ahead of other application(s) running in the background, and (ii) where the application is classified as running in the *background*, network packets of that application would be *stored in a queue behind other application(s) running in the foreground*.” *Id.* at 33. But as noted above, this is not what the claim requires. Rather, *only if* the claimed application is interacting with a user in the foreground, access to the WWAN modem is allowed. If that condition is not met (e.g., if the application is running in the background), the application is not permitted to access the WWAN modem at all—not simply assigned a lower priority within a queue.

Contrary to this requirement, the Petition recognizes that even in its exemplary scenario, packets of a given application that are deprioritized as a result of Rao’s prioritization scheme are “presently disallowed” only until the device turns to handling the queued packets of the application—regardless of whether that application is interacting with a user in the foreground at that later time or not. *See id.* The Petition does not ever allege that Rao’s prioritization scheme results in only allowing *an application to access* to the WWAN modem when the application is interacting with a user in the foreground, and otherwise disallowing or blocking access to the WWAN modem if this condition is not met, and indeed it does not.

Rather, Rao makes clear that its prioritization scheme, at most, simply delays the transmission of lower-priority packets (such as packets from applications running in the background) in favor of higher-priority packets—packets given a

lower priority as a result of Rao's prioritization scheme are nevertheless transmitted. Indeed, if there are no higher-priority packets ahead of them in the queue awaiting transmission, then Rao transmits the lower-priority packets *without any delay*, even if the packets are associated with an application running in the background. Rao explains that "the network ***packets are organized into priority queues 540a-540[n]*** so that the network packets of the highest priority queue 540a-540n are communicated first, and then the next highest priority queue 540a-540n second, and so on Regardless of the queue 540a-540n organization and management, one ordinarily skilled in the art will recognize and appreciate that the ***remote access client of the present invention will communicate the network packets from the queues***" Ex. 1005 ¶[0194]; *see also id.* ¶[0184] ("[T]he outbound network packets generated by an application 338a-338n on the client 105 are ***prioritized by the client 105 prior to transmission*** based on the type and/or priority of the application 338a-338n."). This is illustrated in Rao's Figure 5B; after packets are assigned a priority "based on application" in step 570, those network packets are then communicated over the network in step 575:



Id. at Fig. 5B (annotation added). And because network packets are communicated “according to determined priority,” if there are no “higher priority” packets in Rao’s queue (such as those issued by applications running in the foreground) as compared with what would be “lower priority” packets (such as those issued by applications running in the background), the “low priority” packets in this scenario would be communicated without any delay at all.

Rao’s claims also make clear that even when a packet may have lower priority than other packets, the lower-priority packet is nevertheless eventually communicated, regardless of the foreground/background status of its corresponding application. *See id.* at claim 4 (only preventing a lower-priority packet from being

communicated “*ahead of*” higher priority packets); *id.* at claim 5 (discussing “holding” a deprioritized network packet, and then “releasing” that hold “upon communication” of certain higher priority packets). This is further confirmed because Rao teaches assignment of priority involves at least *some* (non-zero) level of priority, contrary to the teachings of the ’578 Patent, which discloses that a “priority level 0” can be assigned to “block[]” modem access as opposed to non-zero priority levels that “provide” modem access. *Compare id.* ¶[0180] (referring to “levels of priority, such as high, medium, low, or numerically such as priority 1 ... 10”) (ellipses in original) *with* Ex. 1001 at 77:50-58 (disclosing that “a priority level 0 can provide a blocked network access, while priority levels between 1 through 9 can provide relatively increasing prioritized network access”).

Indeed, as noted above, the Petition recognizes that packets of a given application that are deprioritized as a result of Rao’s prioritization scheme are “presently disallowed” only until the device turns to handling the queued packets of the application. Pet. at 33. In other words, the Petition itself recognizes that Rao (1) allows packets from background applications to be transmitted without any delay if there are no higher-priority packets in the queue, and (2) allows packets from background applications to be transmitted even when there are higher-priority packets from foreground applications, only delaying the lower-priority packets to the extent that the higher-priority packets get transmitted first. Thus, t Petition itself

acknowledges that Rao lacks any policy that controls *whether* a packet is transmitted based on the background or foreground status of the corresponding application.

As shown above, the Petition's theory relies only on Rao's queuing system for claim element [1d]. *Id.* at 32-33. Notably, the Petition does *not* rely on disclosures in Rao that address circumstances when an individual packet may be *discarded* to show claim element [1d] is satisfied. *Id.* However, because Petitioner relies on discarding packets as meeting various claim limitations in related proceedings, in the interest of completeness and to avoid any confusion between proceedings, Patent Owner below explains why discarding packets (again, a theory not advanced by the Petition) would not satisfy the claim elements [1d] here, even if that the Petition *had* relied on a theory involving discarding packets.

Rao limits its discussion to discarding individual network packets in scenarios where (1) a network disruption or congestion occurs, or (2) network disruption/congestion is *not* occurring and a packet is classified as "unwanted." As explained in further detail below, even if discarding of individual network packets when the application that generated the packets is not running in the foreground could satisfy this claim limitation, neither of these two scenarios does so, and the Petition does not provide any motivation to implement a combination based on Rao in a manner that would meet the claim requirements.

Turning to the first of these scenarios, Rao teaches that certain packets can be discarded during a network disruption. *See* Ex. 1005 ¶[0207]. However, discarding packets **during a network disruption** does not constitute “*only allow[ing specified applications] to utilize the at least one WWAN when those applications are classified as interacting with the user in the device user interface foreground,*” and otherwise disallowing access, as required by claim 1. At most, it would teach only allowing particular applications to access the WWAN **when the WWAN network is not disrupted**. Specifically, network disruption is caused by factors on the network, not by whether particular applications are running in the foreground or background. And even assuming that the entirety of certain applications’ packets were discarded during a network disruption on the basis of that application not interacting with a user in the foreground (something Rao does not teach), Rao teaches that it attempts to reestablish normal network operation independently of which particular applications are running in the foreground or background. And of course, the Petition does not allege any (and there would be no) reason for Rao’s system to delay reestablishment of a disrupted network connection until any given application is interacting with a user in the foreground. To the contrary, Rao teaches that it attempts to reestablish connectivity without waiting. *See id.* at Fig. 6B, ¶¶[0208]-[0209] (discussing re-establishing the “network connection” and “[c]ontinuing with session” automatically and without checking on the status of any application). Thus,

as soon as the network disruption concludes and Rao has reestablished connectivity, all applications (regardless of foreground status) will be allowed to utilize the WWAN. Thus, no applications are *only* allowed to utilize the WWAN “when classified as interacting with the user in the device user interface foreground,” as required by claim element [1d].

Another instance where Rao teaches discarding packets is where certain network packets may not be communicated due to “network[] factors, such as congestion, even though the network packets may have a higher priority than other network packets in a queue.” *Id.* ¶[0195]. The Petition does not rely on this teaching of Rao in its discussion of the “applications ... only allowed to utilize the at least one WWAN *when those applications are classified as interacting with the user in the device user interface foreground*” limitation (see Pet. at 31-33), and for good reason. Specifically, the Petition alleges that, in Rao, an application’s background status leads to *low-priority* queuing of that application’s packets, as compared with packets from applications running in the foreground. Yet this portion of Rao (Ex. 1005 ¶[0195]) teaches discarding “*higher priority*” packets (e.g., packets from applications running in the foreground), such that “*lower priority*” packets (e.g., packets from applications running in the background) would *not* be discarded, as would be required for this discarding of packets to (even arguably) satisfy the claim language. Accordingly, Rao’s network congestion scenario does not teach or suggest

only allowing any applications to access the WWAN “when those applications are classified as interacting with the user in the device interface foreground,” as claimed.

Turning to the second scenario mentioned above, where the network is **not** disrupted or congested, Rao provides only the following disclosure:

The filter 322 may use a filter table for filtering packets. The filtering table is used to determine what action to take against packets, such as packets intercepted by the packet capture mechanism 365. *The filter 322 can inspect the contents of the packets, such as routing information, to determine the action to take based on the filtering table.* In some embodiments, the *filter 322 may drop or accept the network packets depending on their content.* In other embodiments, the filter 322 may route the network packets to the agent 326 based on the packets content and/or the filtering table. *The filter table may also be used to ensure that unwanted packets are discarded.* The filter 322 may be used to *deny access to particular protocols or to prevent unauthorized access from remote computers by discarding packets to specified destination addresses.*

Id. ¶[0102]. As shown above, this disclosure of discarding “unwanted” packets teaches three categories of information on which a decision is made that a packet should be discarded—the “content” of the packet, the packet’s “protocols,” and the packet’s “destination address[.]” *Id.* None of these are based in any part on whether an application is not interacting with a user in the foreground (as claim 1 of the ’578 Patent would require).

First, Rao teaches that packets may be discarded “depending on their content” (e.g., “routing information”). *Id.* However, there is no teaching in Rao or allegation by the Petition that the “content” of a packet would indicate whether the packet was from an application not interacting with a user in the foreground; for example, an application may transmit a packet having a given content (e.g., routing information) while interacting with a user in the foreground; likewise, that same application could transmit a packet having *identical* content (e.g., routing information) while running in the background. Because the foreground or background status of an application in Rao does not affect the content of packets from that application, discarding packets in this scenario could not constitute only allowing an application access to the WWAN modem when the application is interacting with a user in the foreground.

Rao also teaches that packets may be deemed “unwanted” and thus discarded if they are using “particular protocols” and packets directed to “specified destination addresses.” *Id.* But again, neither what protocol is used for communication, nor the destination address of a given packet, depends (or is even alleged to depend) on whether the corresponding application was not interacting with a user in the foreground. For instance, applications can use the same protocols and destination addresses when running in either the foreground or the background. Accordingly, discarding packets based on a specified protocol or destination address does not constitute only allowing application access to the WWAN modem when the

application is interacting with a user in the foreground.

Further, Rao discusses filtering out “unwanted packets,” which are discarded entirely, as a mechanism wholly distinct from assigning packets a priority for eventual communication. *Compare id.* ¶[0102] (discussing packets being “unwanted” by virtue of the “protocols” they use or their “destination addresses”) *with id.* ¶[0184] (“[T]he outbound network packets generated by an application 338a-338n on the client 105 are prioritized by the client 105 **prior to transmission** based on the type and/or priority of the application 338a-338n.”); *id.* ¶[0194] (“[T]he network packets are organized into priority queues 540a-540[n] so that the network packets of the highest priority queue 540a-540n are communicated first, and then the next highest priority queue 540a-540n second, and so on Regardless of the queue 540a-540n organization and management, one ordinarily skilled in the art will recognize and appreciate that the remote access client of the present invention **will communicate the network packets** from the queues”).

More generally, there is no allegation or disclosure that packets would be considered “unwanted packets” based on a determination that the corresponding application was not interacting with a user in the foreground. While Rao *is* alleged to teach that packets generated by applications not running in the foreground (for example, those running in the background) may be given lower priority than packets generated by applications running in the foreground (*see* Pet. at 31; *see also* Ex. 1005

¶¶[0046], [0189]), this is in the context of assigning packets from applications running in the foreground a higher queuing priority than packets from applications running in the background. Rao never suggests **discarding** packets of an application based on a determination that the application is not running in the foreground. Indeed, as mentioned above, Rao is explicit that “one ordinarily skilled in the art will recognize and appreciate that the remote access client of the present invention **will communicate the network packets from the queues** in a manner according to or consistent with the determined priorities” (Ex. 1005 ¶[0194]), and Rao never suggests that its system is configured to **discard** low-priority packets, including those from applications not running in the foreground, when there is no network disruption.

Finally, although the Petition does not allege that it would have been obvious to discard certain of Rao’s packets, even **assuming** that a POSITA would have been motivated to discard certain low-priority packets under certain conditions where network disruption did not exist, the Petition would still fail. This is because the Petition does not explain how discarding of individual low-priority packets would constitute controlling an **application’s** access to the WWAN modem, such that any given application would **only** be allowed to access the WWAN modem when that application is interacting in the foreground, as the claims require. Even if particular packets may be discarded, nothing in Rao teaches or suggests that an **application**

will be disallowed or blocked from accessing the WWAN modem until it is interacting with a user in the foreground (rather than just having a certain portion of its packets being discarded on a case-by-case basis, yet still having at least some access to the modem).

To the contrary, Rao teaches that individual packets may be discarded while the application maintains access to the modem, and without taking the drastic step of only allowing access to the WWAN modem if the application is interacting with a user in the foreground, and otherwise disallowing or blocking access by the application to the modem. For instance, Rao teaches that its system allows “lossy protocol network packets [to] get to the recipient on time rather than getting to the recipient reliably” (*id.* ¶[0077]; *see also id.* ¶[0153]), which indicates that even if lossy protocol packets are discarded in certain instances (i.e., the packets do not arrive “reliably”), ***the application generating those packets still is able to maintain access to the modem*** (such that the lossy packets are able to arrive “on time”). In other words, no application is ***only*** allowed access to the WWAN modem when it is interacting with a user in the foreground, as all of the challenged claims require, because applications are able to maintain at least ***some*** access to the WWAN modem regardless of foreground status. Thus, even if the Petition ***could*** establish the obviousness of ***sometimes*** discarding ***individual*** low-priority packets on the basis of the corresponding application not interacting with a user in the foreground in the

proposed combination (which it cannot), that would still not render obvious *only* allowing an application to access to the WWAN modem when it is interacting with a user in the foreground. Instead, any given application would still have the ability to access the WWAN modem during at least some times when it is not interacting with a user in the foreground.

Accordingly, the Petition fails to show that a POSITA would have found it obvious to use Rao's alleged differential traffic control policy to "only allow[applications] to utilize the at least one WWAN for Internet service activities when those applications are classified as interacting with the user in the device user interface foreground," as required by all challenged claims. As shown above, the queueing theory relied on by the Petition does not satisfy that limitation. And the Petition does not rely on a theory that discarding packets satisfies that limitation for good reason, because Rao's discarding of certain packets would not satisfy that limitation.

2. Oestvall does not cure the deficiencies of Rao discussed above.

As noted above, the Petition does not establish (or even allege) that Rao's alleged storing of "network packets of [a background] application" in "a queue behind other application(s) running in the foreground" (Pet. at 33) discloses any application would "*only* [be] allowed to utilize the at least one WWAN ... when [it is] classified as interacting with a user in the device user interface foreground," as

required by all challenged claims. *See supra* § V.A.1. Accordingly, the Petition relies on Oestvall’s “prevent[ing] the untrusted [background application] from running” (Ex. 1006 ¶[0023]; *see* Pet. at 34 (citing same)) as constituting “activity associated with [an untrusted background application] being ***allowed only when*** the application is running in the foreground.” Pet. at 34 (emphasis in original).

As explained in more detail below, this theory does not cure the Petition’s deficiencies for two reasons. First, the broader context of the claim language requires “***a user interface to allow a user ... to select*** one or more applications that are only allowed to utilize the at least one WWAN for Internet service activities when those applications are classified as interacting with a user in the device user interface foreground.” Ex. 1001 at 108:31-37. For the Petition’s Oestvall-based theory to be consistent with this claim language and cure Rao’s deficiencies, the user interface would need to allow a ***user*** to select which applications were “trusted” or “untrusted,” but Oestvall does not disclose or render this obvious.

Second, the claim language in broader context also requires “a user interface to allow a user to set one or more of a plurality of aspects ***of the differential traffic control policy*** to select one or more applications.” *Id.* at 108:31-37. However, the Petition does not allege that Oestvall’s prevention of background untrusted applications from running constitutes a “differential traffic control policy,” and in fact such an assertion would be incorrect, as both unsupported by the disclosures of

Oestvall and as inconsistent with other claim requirements such as claim element [1c] (in which the “differential traffic control policy [is] applicable to data communicated ... using the WWAN modem ..., but not applicable to data communicated ... using the WLAN modem”).

- a. **Oestvall does not disclose or render obvious “*a user interface to allow a user ... to select one or more applications that are only allowed to utilize the at least one WWAN ... when those applications are classified as interacting with a user in the foreground.*”**

The Petition appears to recognize that “Rao’s technique of intercepting network packets of an application based on the application’s prioritization” (which simply queues and prioritizes individual packets) (see Pet. at 33) would not specify any “applications that are only allowed to utilize” the WWAN modem “when those applications are classified as interacting with a user in the device user interface foreground.” The Petition therefore turns to Oestvall in an attempt to cure this deficiency of Rao. However, the Petition fails to even allege that Oestvall discloses any user interface that would permit *a user to select applications* that can only access the WWAN when those applications are interacting with a user in the foreground. *See id.* at 30-31, 35-36.

Turning to what the Petition does allege about Oestvall in the context of this claim limitation, the Petition points to “Oestvall’s techniques of preventing an untrusted application running in the background from ‘being given any services or

consuming any resources’ while allowing the foreground application [whether trusted or untrusted] to run and [be] ‘provided with resources and services.’” *Id.* at 34 (quoting Ex. 1006 ¶¶[0023], [0025]); *see also id.* at 31 (alleging that “Oestvall also describes that the device uses a ‘window server component 2 ... to determine if an application is in the background or foreground on display’”) (quoting Ex. 1006 ¶[0023]); *id.* at 34 (alleging the same). Thus, for any Oestvall-based theory to succeed, the Petition would need to show that Oestvall discloses (or renders obvious) a user interface that allows a user to select which applications are “trusted” and “untrusted.” The Petition does not make any such allegation, and Oestvall does not disclose or suggest such functionality.

Rather, Oestvall discloses that “[t]rust will conventionally be established for a given application using a signature in the application installation file, although there are other techniques that may be deployed as part of the secure computing base of the device.” Ex. 1006 ¶[0015]; *see also id.* ¶[0020]. Oestvall further discloses other “criteria that may be relevant in assessing whether a give[n] application is ‘untrusted’ or not” and provides examples of those criteria. *Id.* ¶[0010]. A first example is “which protected resources on the device can be accessed by the application,” because “an ‘untrusted’ application might be defined as one that is not able to access certain predefined resources.” *Id.* ¶[0011]. A second example is “whether the application was loaded from ROM or RAM” because “applications

loaded from RAM are likely to be from third party sources and hence less trustworthy than applications loaded from ROM, which would typically be provided by the device manufacturer.” *Id.* ¶[0012]. And a third example is “whether the application has been validated using some predefined validation or certification process.” *Id.* ¶[0013].

Oestvall does not disclose or suggest a user interface (or any other mechanism) for allowing a user to select which applications are “untrusted” or “trusted.” Rather, Oestvall suggests that a user should *not* be permitted to do so. If an “untrusted” application is running in the background, Oestvall does not provide *any* option to permit the background untrusted application run, making clear that “untrusted applications ... *need to be actively prevented from running*” in the background. *Id.* ¶[0014]; *see also id.* ¶¶[0015], [0023], Abstract. By contrast, “*trusted applications may still be allowed to run* in the background, or may be actively prevented in the same way as non-trusted applications, or they *may be requested (but not prevented) to stop running* in the background.” *Id.* ¶[0015]; *see also id.* ¶[0023].

Oestvall explains that preventing any activity from “untrusted” background applications is important because, as compared with “trusted” applications, they are “more likely to contain a wrong implementation of normal background behaviour” that can result in, for example, unnecessary battery drain. *Id.* ¶¶[0014], [0021]. This

is because “[a]pplications might, in theory, be written so that they take notice of an event sent to them when they are sent to background, causing them to automatically cease running. But even this is likely to be missed in application which are from certain kinds of third party programmers or are not validated as proper implementations.” *Id.* ¶[0014].

Permitting a user to select which applications are “untrusted” and “trusted,” as opposed to using “a signature in the application installation file,” or the other criteria that Oestvall discloses to do so (*id.* ¶¶[0010]-[0013], [0015]), would frustrate Oestvall’s goal of “preserving power ... and system resources” by preventing applications that fail to meet those “trusted” criteria from running in the background at all (*id.* ¶[0021]). For example, a user is unlikely to have any insight into the implementation details of “third party applications” such as “games or similar types of applications.” *See id.* ¶[0019]. Thus, a user would not have insight into whether these types of applications “contain a wrong implementation of normal background behavior” and should thus be deemed “untrusted.” *Id.* ¶[0014]. Indeed, if given the option, a user might believe a downloaded game to be safe, flag it as a “trusted” application, and thus expose the system to unnecessary resource drain and network communications. It would thus not make sense to allow a *user* to determine which applications are “trusted” or not, as opposed to determining trust “conventionally” as Oestvall teaches, such as through “a signature in the application installation file.”

Id. ¶[0015].

Accordingly, the Petition fails to show that Oestvall discloses or renders obvious “a user interface to allow a user ... to select one or more applications that are only allowed to utilize the at least one WWAN ... when those applications are classified as interacting with a user in the foreground,” as required by all challenged claims.

b. Oestvall’s prevention of untrusted background applications does not meet the claim requirements because it is not alleged to be a “differential traffic control policy.”

The Petition does not allege that Oestvall’s prevention of untrusted background applications from running is somehow even related to any “aspects” of a “differential traffic control policy,” or is itself a “differential traffic control policy.” *See* Pet. at 25-26 (discussing only Rao in analyzing the “aspects of the differential traffic control policy” limitation). Nor would Oestvall’s prevention of untrusted background applications from running meet the Petition’s implicit construction of “differential traffic control policy” because Oestvall does not “offer different controls for different network traffic (network packets).” *See id.* at 25.

As the Petition admits, in its Rao-Oestvall combination, where Rao’s application 338 is an untrusted application presently in the background, the Oestvall-like scheduler “would ‘*prevent[] the [application] from running,*’ e.g., ‘operates so as to *never allocate any services or resources to the [application].*’” *Id.* at 34

(quoting Ex. 1006 ¶[0023]) (alterations in original). In other words, and as also discussed in the preceding section, Oestvall stops untrusted background applications from running entirely, which prevents them from doing *anything*, including attempting to transmit network packets. Ex. 1006 at Abstract (discussing “a control signal ... that in effect prevents the untrusted application from running, e.g., being given any services or consuming any resources”); *id.* ¶[0021] (“With the present invention, when an untrusted application is running on the battery operated device and another application should be in the foreground, the untrusted application is placed into the background *and is also actively prevented from running.*”); *id.* ¶[0014] (explaining that untrusted background applications “*need to be actively prevented from running*”); *see also id.* ¶¶[0023]-[0024]. Therefore, Oestvall’s disclosure of preventing untrusted applications from running *at all* if they are not running in the foreground, to the extent it meets other elements of claim 1, would not relate to any alleged “aspects of a differential traffic control policy,” or a “differential traffic control policy” itself, as required.

Accordingly, the Petition’s discussions of Oestvall at, for example, pages 33-35 (addressing claim language “one or more applications that are only allowed to utilize the at least one WWAN ... when those applications are classified as interacting with a user in the device user interface foreground”) are not relevant to whether the claims as a whole are met, because those discussions do not allege (much

less show) that Oestvall discloses “a differential traffic control policy,” or any “aspects” of such a policy.

Furthermore, one theory that the Petition does not argue, but that Patent Owner considered, is whether packets from Oestvall’s “untrusted background applications” would be deemed “unwanted” (and thus discarded) in the Petition’s combination because Oestvall teaches denying system resources to such applications. In this scenario, the Petition might have argued that network access by such applications would be blocked according to a “differential traffic control policy.” This hypothetical argument likewise fails.

Oestvall teaches that untrusted background applications should be *prevented from running* altogether, such that untrusted background applications would never be able to establish a network connection or to generate any communications resulting in network packets. Ex. 1006 at Abstract, ¶¶[0014], [0021], [0023]. The Petition is explicit that its combination of Rao with Oestvall maintains this teaching of Oestvall, and does not provide any motivation to deviate from that teaching. *See* Pet. at 14 (“The [combination] would have also enabled the improved agent to prevent an untrusted application in the background from running”). Thus, the combined system would not be configured to discard network packets from an untrusted background application, because untrusted background applications would be completely *incapable* of generating network packets.

In sum, Oestvall’s prevention of background untrusted applications from running does not disclose (and is not alleged to disclose) a “differential traffic control policy,” or any “aspects” of such a policy. And the Petition does not allege that Rao’s packet management policies would discard packets from background untrusted applications (and there would be no reason to do so, because under the Petition’s proposed combination, background untrusted applications would be prevented from running and thus prevented from generating packets in the first place).

B. The Petition does not show that its combination discloses or renders obvious claim element [1e].

Claim element [1e] requires, in part, “an application programming interface (API) that *allows* a particular *application to access* one or more *aspects of the differential traffic control policy applicable to that application.*” Ex. 1001 at 108:38-47. Put simply, this claim limitation requires an API that allows an application to access information concerning the “differential traffic control policy” that applies to the application’s Internet service activities. The Petition does not point to anything in Rao, Oestvall, or Montemurro that teaches or renders obvious this limitation. Nor does the Petition show that the combination of these references renders this limitation obvious.

1. **Rao does not disclose or render obvious “an application programming interface (API) that allows a particular application to access one or more aspects of the differential traffic control policy applicable to that application.”**

The Petition claims that an API disclosed in Rao “allows application 338 to access one or more of policies 520 that are configured for that application.” Pet. at 38. The Petition reasons that this is case because: (1) Rao’s “agent 326 may communicate the priority of network packets to the filter 322 ... via an application programming interface (API)” (*id.* (quoting Ex. 1005 ¶[0190]) (emphasis removed); (2) Rao’s ““*remote access client 120*,’ which includes the agent 326 and/or the filter [322], ‘*may be included within an application*’” (*id.* at 37-38 (quoting Ex. 1005 ¶[0115])); and “[a] POSITA would have understood and found obvious that an *application, which includes the remote access client 120* ..., would access the policies accessible by agent 326 through the API that enables communication between agent 326 and filter 322” (*id.* at 38).

However, even if Rao does disclose that its remote access client 120 can be included in an application, Rao does **not** teach any API allowing a particular application to access a differential traffic control policy application to **that application**, as all claims require. *See* Ex. 1001 at 108:38-47 (reciting “one or more processors configured to implement an [API] that allows a particular application to access one or more aspects of the differential traffic control policy **applicable to that application**”). The Petition’s theory hinges on whether Rao’s “remote access client

120,” including “filter 322,” is included within *the same application(s)* subject to what the Petition maps to the claimed “differential traffic control policy.” But this is not the case.

The Petition maps the claimed “differential traffic control policy” to Rao’s “*one or more policies 520* for specifying client-side *prioritization of network communications* related to applications 338a-338n.” Pet. at 25 (quoting Ex. 1005 ¶[0182]). But Rao makes clear that not *all* applications discussed in its disclosure, including not all of those labeled as an “application 338,” are subject to such policies concerning prioritization of network communications. Rather, some of Rao’s applications cannot connect to a network at all (and thus are *not* subject to Rao’s prioritization policies): “The application 338 can be any type and/or form ... of *executable instructions capable of executing on client 105 or communication via a network 104.*” Ex. 1005 ¶[0088]. Put simply, an application that Rao discloses may be an application that cannot connect to a network (and therefore cannot have “one or more policies 520 for specifying client-side prioritization of network communications related to” it) and can rather be an executable that simply runs on the client in non-networked fashion.

As noted above, the Petition alleges that Rao’s “remote access client 120 ... may be included within an application.” Pet. at 37 (quoting Ex. 1005 ¶[0115]). The paragraph of Rao on which the Petition relies reads in its entirety as follows:

Although the remote access client 120 is illustrated with multiple components, such as an agent 326 and a filter 322, one ordinarily skilled in the art will recognize and appreciate that the operations and functionality of the *remote access client 120* described herein may be practiced in a *single mechanism or single component*. For example, in some embodiments, the operations and functionality of the remote access client 120 may be included *within an application 338*. In one embodiment for example, the functionality and operates of the remote access client 120 may be provided *just as an agent 326*, and in another embodiment, *just as a network driver, such as a filter*.

Ex. 1005 ¶[0115]. This portion of Rao is simply providing ways in which the remote access client 120 can be embodied as a single mechanism or component, with an application being one option. Nothing in this paragraph indicates or suggests that “application” here refers specifically to applications that have “one or more policies 520 for specifying client-side prioritization of network communications related to” them. Rather, the context of paragraph 115 counsels to the contrary—that “application” here is simply a generic disclosure of the form the remote access client could take.

The following paragraph in Rao further supports this understanding: “In some embodiments, remote access client 120 ... may comprise an *application*, module, service, computer program, software component, web service, web component, library, function, process, task, thread, or any other type and/or form of executable

instruction” *Id.* ¶[0116]. Again, this paragraph discloses that a generalized “application” is simply one form the remote access client can take, and there is no indication or suggestion that the application referred to in paragraph 116 would have “one or more policies 520 for specifying client-side prioritization of network communications related to” it.

Moreover, implementing Rao’s remote access client within an application that is subject to Rao’s prioritization policies would not make logical sense. For example, Rao explains that “a TCP connection is initiated by an application 338 executing on the client 105 for transmission of IP packets,” and that “[t]he *remote access client* 120 may *intercept or capture the IP packets* generated by the application 338.” *Id.* ¶[0111]. Then, “[t]he *remote access client* 120 may *send a TCP acknowledgement packet to the application 338* and terminate the TCP connection initiated by the application 338.” *Id.* If the remote access client was implemented within the networked application described here, the application would be *intercepting its own packets* and *sending itself* a TCP acknowledgement packet. The Petition provides no explanation of why a POSITA would be motivated to implement Rao in this unconventional manner, and indeed, such an implementation, where an application is intercepting its own packets and sending TCP messages to itself, would make little sense.

In addition, this type of implementation may result in redundancy, with *multiple remote access clients, and multiple packet capture mechanisms and filters, on a single device*, potentially one for each application that is subject to Rao's prioritization scheme. The Petition likewise does not explain why a POSITA would have been motivated to pursue such an inefficient configuration.

Moreover, this configuration would frustrate Rao's stated goal of "application-aware prioritization." *See, e.g., id.* at Abstract. As the Petition admits, Rao's "policies 520 may be accessible by, configured into, or loaded by the agent 326," and "remote access client 120" "includes agent 326." Pet. at 36-37 (citing Ex. 1005 ¶¶[0115], [0183], Fig. 5A). If an application subject to Rao's prioritization mechanism had its own remote access client 120, including an agent 326 that can access or contain policies 520, it follows that the application developer would be able to modify the remote access client and the policies to, for example, override prioritization policies applicable to its own application as well as other applications. The Petition provides no explanation of why a POSITA would be motivated to implement a complex configuration that would thwart Rao's stated purpose. The much more natural approach would be to have the remote access client operate *independently of* any application that is subject to the policies implemented by the remote access client, and the Petition does not provide any motivation to deviate from this common-sense approach—which is the clear implication of Rao's

teachings. Accordingly, the Petition does not show that Rao discloses or renders obvious “one or more processors configured to implement an application program interface (API) that *allows a particular application to access one or more aspects of the differential traffic control policy **applicable to that application***,” as required by all challenged claims.

Finally, the Petition also alleges that because “Rao describes that its device can run the Java operating system,” “a POSITA would have understood and found obvious that the application would have received an indication, via the Java sockets API, of the network access condition.” *Id.* at 39-40. Of course, the Petition does not allege that Rao discloses any “Java sockets API” and indeed it does not. The Petition likewise does not allege why a POSITA would have been motivated to use a Java sockets API rather than the APIs described in Rao, let alone use them for a functionality that Rao does not contemplate for the APIs that Rao does disclose.

2. Oestvall/Dive-Reclus do not cure the deficiencies of Rao’s API-related disclosures.

The Petition claims that “Oestvall incorporates by reference Dive-Reclus, which teaches using APIs in accessing a network” and that “Dive-Reclus teaches permissions regulating network access by a third-party application that uses an API call.” Pet. at 38-39 (citing Ex. 1006 ¶[0020]; Ex. 1026 at 16:23-17:28, 20:1-12) (footnote omitted). Setting aside whether Oestvall effectively incorporates Dive-Reclus by reference, even assuming that it does, the Petition never alleges that Dive-

Reclus discloses “an application programming interface (API) that allows a particular application to access one or more aspects of the differential traffic control policy applicable to that application.” And it does not. Dive-Reclus simply states that “on each access to the sensitive API call, a dialog box created by the server asks the user if they wish to grant the capability.” Ex. 1026 at 16:19-20.

Based on this facially irrelevant disclosure, the Petition states in conclusory fashion that a “POSITA would have found it obvious that a permission decision (grant/deny) is communicated to the third-party application through a corresponding API” (Pet. at 36), with no explanation of what API it is referring to, and likewise with no explanation of why a POSITA would have been motivated to communicate any of Dive-Reclus’ (or Oestvall’s) permission decisions to any “third-party application” such that it could access them.

Moreover, to be consistent with any Oestvall-based theory for claim element [1d], in which it would be necessary to (incorrectly) assume that Oestvall’s prevention of untrusted background applications from running is a “differential traffic control policy,” the API would need to allow a given application to access “aspects” of that policy indicating whether it is “untrusted” or “trusted.” But the Petition does not allege that Dive-Reclus’ API (or any other API) would provide information to applications indicating whether they are trusted or not, and the Petition likewise does not allege that Oestvall (or Dive-Reclus) renders doing so

obvious. This is unsurprising because, as discussed above, the Petition does not allege that Oestvall (or Dive-Reclus) discloses the claimed “aspects of the differential traffic control policy,” or the claimed “differential traffic control policy” itself, in the first place. *See supra* § V.A.2.b. It thus follows that the Petition likewise does not allege that Oestvall (or Dive-Reclus) discloses or renders obvious “an application programming interface (API) that allows a particular application to access one or more aspects of the differential traffic control policy.”

The Petition also alleges that (a) “based on Rao and Oestvall’s disclosure of API usage, Rao-Oestvall’s improved agent would have leveraged several types of APIs in *regulating applications*,” (b) “a POSITA would have found obvious that [this] improved agent leverages APIs including those Rao and Oestvall describes, and conventional APIs known by the Critical Date, *to support application operations* in mobile devices,” and (c) a “POSITA would have found it obvious to use well-known APIs *to provide communications to applications* in Rao-Oestvall.” Pet. at 38-40. Not only are these allegations conclusory, but they are also not relevant to the claim limitation at hand. The Petition does not (and could not) explain how generalized concepts such as using (unidentified) APIs to “regulat[e] applications,” “support application operations,” or “provide communications to applications” disclose or render obvious “an application programming interface (API) that allows a particular application to access one or more aspects of the differential traffic

control policy applicable to that application.”

3. Montemurro does not cure the deficiencies of Rao and Oestvall/Dive-Reclus’s alleged API-related disclosures.

The Petition asserts that “a POSITA would have understood and found obvious that Montemurro’s API (e.g., socket-based API 206) ... operates to allow a particular application 204 to access ‘various factors’ of one of ‘a set of rules/policies’ ... in rules engine 206A, which is applicable to that particular application.” Pet. at 41. But Montemurro contains no such disclosure or suggestion. Rather, Montemurro discloses that one of the ways that “applications 204” can communicate “is socket-based using a socket-based application programming interface (API) 206 for communications.” Ex. 1007 ¶[0033]. “A socket-based connection uses the connection table and routing table to determine how an IP packet will be transmitted on the network 104 and 106.” *Id.* Even assuming that Montemurro’s “set of rules/policies” (*see id.* ¶[0029]) is the claimed “differential traffic control policy,” Montemurro does not contemplate that its socket-based API is used to “allow[] a particular application to access one or more aspects of” the “set of rules/policies” that apply to that application. Rather, Montemurro discloses that the socket-based connection is used to determine how packets are transmitted, and does not disclose or suggest that the connection is used to communicate anything about a “set of rules/policies” to the application to which those rules/policies apply.

The Petition also alleges that “Montemurro describes that ‘[r]ules engine 206A also interacts with the connection API’s to determine which interface would be best used to serve a particular application,” and that “the instructions define a communication API for handling communications on behalf of applications, said communication API routing said communications in accordance with the routing table and connection table.”” Pet. at 40 (quoting Ex. 1007 ¶[0035], claim 7) (alteration in original). The Petition does not allege that Montemurro’s communication APIs are used to communicate anything about a “set of rules/policies” to the application to which those rules/policies apply. And they are not. Instead, Montemurro contemplates that its communication APIs (similar to its socket-based APIs) interact with the rules engine, or connection table and routing table, to determine what network interface will be used for a given application.

Finally, the Petition does not contain any rationale for why a POSITA would have been motivated to modify Montemurro such that its socket-based connection or its communication APIs would communicate information concerning a “set of rules/policies” that apply to that application to the application itself, in addition to (or instead of) performing their disclosed functions of interacting with the connection table, routing table, and/or the rules engine to determine how packets should be transmitted or what network interface should be used for a given application.

VI. THE BOARD SHOULD EXERCISE ITS DISCRETION UNDER 35 U.S.C. § 325(d) TO DENY INSTITUTION.

The Board “may take into account whether, and reject the Petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). As the Board explained in *Advanced Bionics, LLC v. Med-El Elektromedizinische Gerate GmbH* (“*Advanced Bionics*”):

[U]nder § 325(d), the Board uses the following two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, whether the Petition has demonstrated that the Office erred in a manner material to the patentability of the challenged claims. If a condition in the first part of the framework is satisfied and the Petition fails to make a showing of material error, the Director generally will exercise discretion not to institute inter partes review.

IPR2019-01469, Paper No. 6 at 8-9 (PTAB Feb. 13, 2020) (precedential) (footnote omitted). “If reasonable minds can disagree regarding the purported treatment of the art or arguments, it cannot be said that the Office erred in a manner material to patentability. At bottom, this framework reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Id.* at 9.

“In evaluating whether to exercise our discretion when the same or

substantially the same prior art or arguments previously were presented to the Office under section 325(d), we have weighed some common *non-exclusive* factors:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relied on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments.”

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017-01586, Paper No. 8 at 17-18 (§ III.C.5) (PTAB Dec. 15, 2017) (“*Becton, Dickinson*”) (informative, precedential as to § III.C.5) (italics in original). “If, after review of factors (a), (b), and (d), it is determined that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner has demonstrated a material error by the Office.” *Advanced Bionics* at

10.

- A. *Advanced Bionics Step 1 (Becton, Dickinson Factors (a), (b), and (d))*: The same or substantially the same prior art was previously presented to the USPTO.**

The Petition contains only one alleged ground of invalidity, an obviousness ground based on Rao, Oestvall, and Montemurro (Ground 1, for claims 1-22). *See* Pet. at 1. As explained below, each of Rao, Oestvall, and Montemurro are the same or substantially the same as art considered during prosecution.

- 1. Rao and Montemurro are cumulative of and substantially the same as a nearly identical family members considered by the Examiner during prosecution.**

Rao is the Petition’s lead reference. The Petition admits that “a relative of Rao (PCT application WO 2006/012610A2 (‘Rao-2’)) was cited on the face of the ’578 Patent.” *Id.* at 77; *see also* Ex. 1001 at 11 (listing Rao-2 in the “References Cited” section). A comparison of Rao (Ex. 1005) and Rao-2 (Ex. 2001) reveals that aside from formatting differences and some additional introductory material in Rao-2, there is no difference between these two family members—Rao-2 contains all of the same disclosures as Rao plus a small amount of additional content. *See* Ex. 2002. Rao and Rao-2 also share the same set of patent figures. *Compare* Ex. 1005 at Figs. 1-6 *with* Ex. 2001 at Figs. 1-6.

Although the Petition asserts that Montemurro (a published patent application) was “not previously before the Office” (Pet. at 78), the Petition neglects

to mention that the patent that issued from the Montemurro application on which the Petition relies is listed on an IDS in the file history. Ex. 1002 at 469 (listing U.S. Patent No. 8,825,109 to Montemurro et al. (“Montemurro Patent”)); *see* Ex. 1001 at 7 (listing the Montemurro Patent in the “References Cited” section). As would be expected, there are very few differences between the disclosures of the Montemurro Patent (Ex. 2003) and the published application from which that patent issued (Ex. 1007), with differences limited to formatting and an additional parenthetical in the issued patent explaining that “store 200” is “an example of a computer readable storage medium.” *See* Ex. 2004. Montemurro and the Montemurro Patent also share the same set of patent figures. *Compare* Ex. 1007 at Figs. 1-6 *with* Ex. 2003 at Figs. 1-6.

The Petition does not even mention, let alone explain, why any alleged differences between Rao and Rao-2, or any alleged differences between Montemurro and the Montemurro Patent, are relevant here. Rather, as to Rao, the Petition alleges that “there is no evidence that the Office substantively considered Rao-2.” Pet. at 77. But the prosecution history makes clear that the Examiner considered Rao-2 because the Examiner placed a copy of the IDS containing this reference in the file history, with an electronic signature next to the statement “All references considered except where lined through,” with no line through Rao-2. *See* Ex. 1002 at 472. A copy of Rao-2 is also included in the file history. *See id.* at 858-975.

And as to Montemurro, the Petition misleadingly claims that Montemurro was “not previously before the Office” (Pet. at 78), ignoring that the Montemurro Patent (the issued version of the Montemurro application on which the Petition relies) was. And again, the prosecution history makes clear that the Examiner considered the Montemurro Patent because the Examiner placed a copy of the IDS containing this reference in the file history, with an electronic signature next to the statement “All references considered except where lined through,” with no line through the Montemurro Patent. *See* Ex. 1002 at 469.

To the extent Petitioner intends to argue that citation of art on an IDS is insufficient to support denial under Section 325(d), the Petition cites no authority for this argument (*see* Pet. at 77-78), and indeed, this argument is contrary to the precedential *Advanced Bionics* decision and its progeny: “***Previously presented art includes art*** made of record by the examiner, and art provided to the Office by the applicant, such as ***on an Information Disclosure Statement (IDS)***, in the prosecution history of the challenged patent.” *Advanced Bionics* at 8; *see also, e.g., Biocon Pharma Ltd. v. Novartis Pharms. Corp.*, IPR2020-01263, Paper No. 12 at 9 (PTAB Feb. 16, 2021) (“[W]e accept that the Examiner considered [the prior art reference] because it is listed on the IDS and “the Examiner signed the IDS with the statement ‘all references considered except where lined through.’”); *Vital Connect, Inc. v. Bardy Diagnostics, Inc.*, IPR2023-00381, Paper No. 7 at 14 (PTAB July 11,

2023) (Because “Oster was listed in an information disclosure statement (IDS),” “appears on the face of the [challenged patent],” and “[t]he examiner also certified that he considered all references listed in the IDS ‘except where lined through,’ and Oster is not lined through,” “[t]here can be no dispute that Oster was before the Office.”), *Director review denied*, Paper No. 9 (PTAB Oct. 3, 2023); *see also id.* at 15-16 (holding the same for a family member of a reference asserted in the petition, and finding the reference asserted in the petition cumulative of the family member); *Eyenovia, Inc. v. Sydnexus*, IPR2022-00963, Paper No. 7 at 10-11 (PTAB Nov. 8, 2022) (“*Eyenovia*”) (Because “references appear in the references cited section of the [challenged] patent and were identified in Information Disclosure Statements (‘IDSs’) during prosecution[,] ... these references were ‘previously presented’ for the purposes of assessing the application of discretion under 35 U.S.C. § 325(d).”); *BMW of N. Am., LLC v. Stragent, LLC*, IPR2021-00419, Paper No. 14 at 12-13 (PTAB July 19, 2021) (exercising discretion to deny institution under § 325(d) in part because relied-upon prior art was cited on an IDS), *reh’g denied*, Paper No. 21 at 5 (PTAB Mar. 21, 2022); *Vovomart (HK) Enters. Co. v. Office Kick, Inc.*, PGR2022-00048, Paper No. 14 at 9 (PTAB Jan. 12, 2013) (same), *reh’g denied*, Paper No. 16 (PTAB Mar. 9, 2023); *Microsoft Corp. v. AlmondNet, Inc.*, IPR2022-01319, Paper No. 9 at 8, 10 (PTAB Jan. 30, 2023) (“*AlmondNet*”) (same), *POP request denied*, Paper No. 13 (PTAB Mar. 24, 2023), *reh’g denied*, Paper No. 14

(PTAB Apr. 23, 2023).

And to the extent that Petitioner intends to argue that, in order to support denial under Section 325(d), the same or substantially the same art needs to be part of a prior art rejection in an Office Action during prosecution, the Petition likewise cites no authority for this argument. *See* Pet. at 77-78. And the Board has held to the contrary: “[T]here is no requirement that Examiner needs to rely on a reference in a rejection during prosecution in order for the reference to be ‘considered’ during prosecution.” *Ivantis, Inc. v. Sight Sciences, Inc.*, IPR2022-01530, Paper No. 14 at 17 (PTAB Mar. 27, 2023); *see also, e.g., Palo Alto Networks, Inc. v. Centripetal Networks, Inc.*, IPR2021-01156, Paper No. 10 at 13-14 (PTAB Jan. 24, 2022) (rejecting argument that “the first part of the *Advanced Bionics* framework is not met because [the prior art was] not substantively discussed or applied in a rejection during prosecution” because “[u]nder the Board’s precedent in *Advanced Bionics*, however, ‘[p]reviously presented art includes ... art provided to the Office by an applicant, such as on an [IDS]’”) (quoting *Advanced Bionics* at 7-8) (alterations in original), *POP request denied*, Paper No. 13 (PTAB Mar. 16, 2022), *reh’g denied*, Paper No. 14 (PTAB May 5, 2022).

In sum, because Rao-2 and the Montemurro Patent were previously presented to the Office, and Rao and Montemurro are cumulative of Rao-2 and the Montemurro Patent, respectively, the same or substantially the same art as Rao has

already been presented to the Office.

2. The Petition’s reliance on Oestvall for limitations [1c], [1d], and [1e] does not change the Section 325(d) calculus.

Oestvall is the only reference other than Rao and Montemurro that the Petition relies upon in Ground 1, the Petition’s only ground and thus the Petition’s only challenge to the sole independent claim of the ’578 Patent (claim 1). For claim elements [1pre], [1a], and [1b], the Petition relies only on disclosures from Rao and/or Montemurro, with Oestvall only relied upon in the analysis for claim elements [1c], [1d], and [1e]. Pet. at 21-42. This portion of the preliminary response therefore only addresses the cumulative nature of Oestvall disclosures with respect to claim elements [1c], [1d], and [1e]. As detailed below, each of the cited disclosures from Oestvall is substantially the same as cited disclosures from Rao or Montemurro, or as disclosures from the McConnell reference that the Examiner found to be the “closest prior art” to the ’578 Patent. *See* Ex. 1002 at 309-10; *id.* at 444 (signed IDS listed the application number of the McConnell reference); *see also* *Nokia of Am. Corp. v. Soto*, IPR2023-00680, Paper No. 10 at 21-23, 26-28 (PTAB Nov. 3, 2023) (denying institution of review where the petitioner relied on different art than was cited during prosecution, but applied the art in the “same manner” as other art before the Office).

- a. **The sole Oestvall disclosure on which the Petition relies for claim element [1c] is cumulative of and substantially the same as those it relies on from Montemurro.**

In its analysis of claim element [1c], the Petition alleges that “WWAN was known as a radio access technology that consumes more processing and battery power than technologies like WLAN.” Pet. at 29. In support of this statement, the Petition quotes the following unremarkable disclosure in Oestvall: “smartphones that consume high power levels by virtue of connecting to always-on GPRS or 3G cellular networks,” i.e., WWAN networks. *Id.* (quoting Ex. 1006 ¶[0004]). Oestvall explains that, for this reason, “battery conservation in battery operated computing devices is very important, particularly in devices such as smartphones.” Ex. 1006 ¶[0004]. But the Petition alleges that Montemurro discloses these same basic concepts: “As Montemurro recognizes, ... ‘[s]election among the different radio access technologies [e.g., WWAN and WLAN] may be driven by the different properties of the technologies such as bandwidth, range, cost, and **power consumption**, among other considerations.” Pet. at 28 (quoting Ex. 1007 ¶[0003]) (first alteration in original); *see id.* at 20, 29 (quoting same); *see also* Ex. 1007 ¶[0053] (Montemurro noting that “[s]ince handheld device 600 is a **mobile battery-powered device**, ... [s]uch a battery 666 provides electrical power to most if not all electrical circuitry in handheld device 600)).

- b. Each of the Oestvall disclosures on which the Petition relies for claim element [1d] is cumulative of and substantially the same as those it relies on from Rao, or as disclosures from McConnell.**

The Petition relies on Oestvall for the following sub-limitation of this claim element: “one or more application that are only allowed to utilize the at least one WWAN for Internet service activities when those applications are classified as interacting with a user in the device user interface foreground.” Ex. 1001 at 108:31-37. Each of the disclosures on which the Petition relies for this sub-limitation is cumulative of and substantially the same as disclosures from Rao, or as disclosures from the McConnell reference that the Examiner found to be the “closest prior art” to the ’578 Patent.

First, the Petition alleges that “[s]imilarly [to Rao], Oestvall also describes that the device uses a ‘window server component 2 ... to **determine if an application is in the background of foreground on display.**’” Pet. at 31-32 (citing Ex. 1006 ¶¶[0008], [0016]-[0017], [0022]-[0023]); *see also id.* at 34 (discussing an alleged “an Oestvall-like window server component that determines if the application is running in the foreground or background”) (citing Ex. 1006 ¶[0023]). The Petition similarly contends that its lead reference Rao “**classifies ‘whether an application is running in the foreground or the background of the client.’**” *Id.* at 31 (quoting Ex. 1005 ¶[0182])

Second, the Petition asserts that “Oestvall’s techniques ... *prevent[] an untrusted application running* in the background *from ‘being given any services of consuming any resources’* while allowing the foreground application to run and [to be] ‘provided with resources and services.’” Pet. at 34 (citing Ex. 1006 at Abstract, ¶¶[0008], [0010], [0015], [0023], [0025]); *see also id.* (“[T]he Oestvall-like scheduler would ‘prevent[] the [application from running,’ e.g., ‘operate so as to never allocate any services or resources to the [application].’”) (quoting Ex. 1006 ¶[0023]) (alterations in original). Although the Examiner found that McConnell (U.S. Patent Application Publication No. 2006/0291419, Ex. 2005) does not disclose claim element [1d], the specific disclosures from Oestvall on which the Petition relies for this specific sub-limitation are cumulative of disclosures in McConnell, which the Examiner indicated in his Notice of Allowance was the piece of “closest prior art.” *See* Ex. 1002 at 309-10.

As the Examiner explained, “McConnell et al. disclose having a multi-mode mobile station includ[ing] a first interface for wireless communication with a wireless local area network (WLAN) and a second interface for wireless communication with a wireless wide area network (WWAN).” *Id.* at 310 (citing Ex. 2005 at Abstract). The Examiner also noted that “McConnell et al. further disclose having a predefined policy [that] may specify what types of communication sessions can be continued via the second wireless network and under what conditions

whereby the *policy may specify* that voice sessions are generally continuable but that *data sessions may or may not be continuable.*” *Id.* (citing Ex. 2005 ¶[0019]). McConnell describes an example in which, while connected to a WLAN, a “multi-mode mobile station” establishes both a voice session and a data session. Ex. 2005 ¶¶[0064]-[0067]. “In response to determining that the WWAN is available and preferred, ... [t]he multi-mode mobile station then transmits a handoff request via the WWAN.” *Id.* ¶¶[0069]-[0070]. “In this example, ... the voice session is continuable via the WWAN but the data session is not.” *Id.* ¶[0074]. “If the user opts for the handoff [from the WLAN to the WWAN], *the voice session is continued via the WWAN, but the data session is dropped.*” *Id.* ¶[0078]; *see also id.* at Abstract.

In short, the Oestvall disclosures on which the Petition relies for the “one or more application that are only allowed to utilize the at least one WWAN for Internet service activities when those applications are classified as interacting with a user in the device user interface foreground” portion of claim limitation [1d] are cumulative of and substantially the same as those from “closest prior art” McConnell. The Petition alleges that Oestvall’s device selectively blocks and allows access to “resources and services” for “untrusted” applications depending on the circumstances, and McConnell similarly discloses blocking and allowing access for an application running a data session depending on the circumstances. Although McConnell does not disclose blocking and allowing access based on an applications

background or foreground status, as discussed immediately above, the Petition alleges that Rao classifies applications based on such criteria.

Finally, the Petition claims that “Oestvall provides non-limiting reference to an application ‘being given *any* services or consuming *any* resources’ to include network connectivity resources.” Pet. at 35 (quoting Ex. 1006 ¶[0023]) (emphases in original). In other words, the Petition alleges that Oestvall’s resources (to which applications access can be selectively blocked or allowed) can include network resources. McConnell likewise discloses that such resources can be network resources. *See supra* at 51-52 (describing how McConnell discloses regulating application access to a network such as a WWAN).

c. The Oestvall disclosure on which the Petition relies for claim element [1e] is cumulative of and substantially the same as those it relies on from Rao.

The Petition relies on Oestvall for the following sub-limitation of this claim element: “one or more application that are only allowed to utilize the at least one WWAN for Internet service activities when those applications are classified as interacting with a user in the device user interface foreground.” Ex. 1001 at 108:38-47. In particular, the Petition alleges that “Oestvall incorporates by reference Dive-Reclus, which teaches using APIs in accessing a network,” and that “Dive-Reclus teaches permissions regulating network access by a third-party application that uses an API call.” Pet. at 38-39 (citing Ex. 1006 ¶[0020]; Ex. 1026 at 16:23-17:28, 20:1-

12) (footnotes omitted). The Petition further alleges, based on these disclosures, that a “POSITA would have found it obvious that *a permission decision (grant/deny) is communicated to the third-party application through a corresponding API.*” *Id.* at 39. Setting aside whether Oestvall effectively incorporates Dive-Reclus by reference, even assuming that it does, the Petition contends that, based on disclosures in Rao, “a POSITA would have understood and found obvious that [Rao’s] *application would have received an indication, via the Java sockets API, of the network access condition.*” *Id.* at 39-40. In other words, the Petition alleges that both Oestvall and Rao disclose communication of a network access permission decision to an application through an API.

3. The Petition’s reliance on art for certain limitations of certain dependent claims does not counsel against denial of institution.

The Board has held that “Petitioners’ citation of references not considered by Examiner solely for ‘additional subject matter of certain dependent claims[] is insufficient to persuade us that exercising our discretion under 35 U.S.C. § 325(d) is inappropriate.’” *See, e.g., Miltenyi Biomed. GmbH v. Trs. of Univ. of Pa.*, IPR2022-00853, Paper No. 11 at 45 (PTAB Oct. 11, 2022) (“*Miltenyi*”) (quoting *Kayak Software Corp. v. Int’l Bus. Machs. Corp.*, CBM2016-00075, Paper No. 16 at 10 (PTAB Dec. 15, 2016) (informative)) (alteration in original), *reh’g denied*, Paper No. 18 (PTAB Feb. 17, 2023). Therefore, it is of no event whether or not the Petition

relies on non-cumulative disclosures from Oestvall (the only art in the Petition not previously considered by the Office) for its analysis of dependent claims for the simple reason that if the independent claim is valid then so are the dependent claims. *See AlmondNet* at 8, 11 (denying institution under Section 325(d) even though the Narin reference, which was not before the Examiner, was applied by the Petition for certain dependent claims, and noting that patent owner argued that “whether or not Narin discloses certain limitations of [a] dependent claim ... would have made no difference to the Examiner’s analysis, and it is therefore unnecessary to evaluate the questions of what Narin discloses or whether Narin was of record”). It is therefore unnecessary to evaluate the questions of what Oestvall discloses or whether Oestvall was of record, in the context of these dependent claims. *See, e.g., Miltenyi* at 45; *AlmondNet* at 8, 11.

* * *

Because the Petition relies only on references for the sole independent claim that have the same or substantially the same relevant disclosures as references presented to the Office and considered by the Examiner, the first part of the *Advanced Bionics* framework is satisfied. *See Advanced Bionics* at 20 (“As discussed above, we determine that the ‘same or substantially the same prior art’ was previously presented to the Office. Accordingly, the first condition of the first part of the framework is satisfied, and we need not reach whether the ‘same or

substantially the same arguments’ previously were presented to the Office.”).

B. *Advanced Bionics* Step 2 (*Becton, Dickinson* Factors (c), (e), and (f)): Petitioner has made no showing of material Examiner error.

Although the Petition admits that a family member of Rao was before the Examiner during prosecution, and does not identify any material differences between the family member and the reference on which it relies, the Petition fails to make any non-conclusory allegations concerning Examiner material error. *See* Pet. at 77-78.

The Petition simply alleges in conclusory fashion that “the Examiner clearly not [sic] appreciate Rao and how Rao in combination with other prior art references not previously before the Office (Oestvall, Montemurro) render the Challenged Claims obvious.” *Id.* at 78. As a preliminary matter, as noted above, the Petition is incorrect that Montemurro’s disclosure was not before the Office. *See supra* § VI.A.1. As for each of Rao, Montemurro, and Oestvall, “[a]lthough there was no rejection issued over the particular references cited in the Petition, these references were either before the Examiner ... or are cumulative of references ... before the Examiner. There is no evidence that suggests the Examiner overlooked the most pertinent teachings in the art presented during prosecution.” *Eyenovia* at 19 (denying institution in part because the petition failed to demonstrate that the Examiner materially erred); *see also Gator Bio, Inc. v. Sartorius Bioanalytical Instruments, Inc.*, IPR2023-00215, Paper No. 19 at 21 (PTAB June 20, 2023).

Finally, although not necessary for the Board to exercise its discretion and deny institution under Section 325(d), the Examiner did not err. As explained in Section V, the Petition fails to show that its combination *only* allows an application to access to a WWAN modem when that application is interacting with a user in the foreground, as required by claim element [1d]. And the Petition's combination likewise does not provide an API that permits an application to access information about a "differential traffic control policy" that is applicable to it, as required by claim element [1e]. The weak merits of the Petition, which relies on the same or substantially the same art as was before the Examiner, is a further indication of lack of Examiner error, let alone material error.

* * *

Because the Petition presents only the same and substantially the same prior art as previously presented during prosecution, and because the Petition fails to meet its burden of showing of material error by the USPTO, Patent Owner respectfully requests that the Board exercise its discretion and deny institution under 35 U.S.C. § 325(d). *See Advanced Bionics* at 9 ("If a condition in the first part of the framework is satisfied and the petitioner fails to make a showing of material error, the Director generally will exercise discretion not to institute *inter partes* review.").

VII. CONCLUSION

Patent Owner respectfully requests that the Board deny institution for either

or both of two independent reasons. First, each of the Petition's grounds fails on the merits. Second, the Board should deny institution because the same or substantially the same prior art was presented to the USPTO during prosecution, and the Petition has failed to show any material error by the Examiner.

Date: December 29, 2023

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CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 13,469 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on December 29, 2023, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

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