

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

**SAMSUNG ELECTRONICS CO., LTD., and
SAMSUNG ELECTRONICS AMERICA, INC.,**

Petitioners,

v.

VASU HOLDINGS, LLC,

Patent Owner.

Case IPR2025-00448
Patent No. 10,368,281

PETITION FOR *INTER PARTES* REVIEW

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EXHIBIT LIST

Exhibit No.	DESCRIPTION
1001	U.S. Patent No. 10,368,281 (“’281”)
1002	File History of U.S. Application No. 15/480,293 (“’281FH”)
1003	Declaration of Mark Lanning (“Lanning”)
1004	U.S. Patent App. Pub. No. 2004/0137902 (“Chaskar”)
1005	U.S. Patent App. Pub. No. 2005/0048977 (“Dorenbosch”)
1006	U.S. Patent No. 6,049,715 (“Willhoff”)
1007	U.S. Patent App. Pub. No. 2005/0063348 (“Donovan”)
1008	U.S. Patent App. Pub. No. 2004/0246922 (“Ruan”)
1009	U.S. Patent App. Pub. No. 2003/0084056 (“DeAnna”)
1010	U.S. Patent App. Pub. No. 2005/0136927 (“Enzmann”)
1011	<i>Reserved</i>
1012	U.S. Patent App. No. 14/806,482 (“’482-App”)
1013	Docket Control Order (Dkt. No. 28), <i>Vasu Holdings, LLC v. Samsung Electronics Co., Ltd.</i> , No. 2:24-cv-00034-JRG-RSP (E.D. Tex.)
1014	Plaintiff Vasu Holdings, LLC’s Objections and Responses to Defendants Samsung Electronics Co., Ltd, and Samsung Electronics America, Inc.’s First Set of Interrogatories (Nos. 1-25)
1015	Plaintiff Vasu Holdings, LLC’s Supplemental Objections and Responses to Defendants Samsung Electronics Co., Ltd, and Samsung Electronics America, Inc.’s Interrogatories (Nos. 1-5, 8, 9, 13-15, 19-22, 25)

Exhibit No.	DESCRIPTION
1016	Plaintiff Vasu Holdings, LLC’s Objections and Responses to Defendants Samsung Electronics Co., Ltd, and Samsung Electronics America, Inc.’s Second Set of Interrogatories (No. 26)
1017	Gregory P. Pollini, Trends in Handover Design (March 1996)
1018	U.S. Patent App. Pub. No. 2003/0017842
1019	U.S. Patent App. Pub. No. 2002/0037715
1020	U.S. Patent No. 7,826,868
1021	U.S. Patent App. Pub. No. 2004/0008645
1022	U.S. Patent No. 7,414,992
1023	Timer, The IEEE Standard Dictionary of Electrical and Electronics Terms (6th ed., 1996).
1024	Server, McGraw-Hill Dictionary of Computing & Communications (6th ed., 2003)
1025	Server, Modern Dictionary of Electronics (7th ed., 1999).
1026	Declaration of Jonathan Bradford in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 10,368,281

TABLE OF ABBREVIATIONS

Abbreviation	DESCRIPTION
'281	U.S. Patent No. 10,368,281 (“’281”) (Ex. 1001)
'281FH	File History of U.S. Application No. 15/480,293 (Ex. 1002)
IPR	<i>Inter Partes</i> Review
Petitioners	Petitioners Samsung Electronics Co. Ltd. and Samsung Electronics America Inc.
PO	Patent Owner Vasu Holdings, LLC
POSITA	Person of Ordinary Skill in the Art
PTAB	Patent Trial and Appeal Board
USPTO	United States Patent and Trademark Office

LIST OF CHALLENGED CLAIMS

[1.pre] A device comprising:

[1.a] a switching system to switch operation between a first communication module and a second communication module,

[1.b] wherein during an established communication if a context changes, the established communication is switched to a second communication over a second network, wherein switching is based on detecting a second context being preferred over the context within a set of networks,

[1.c] wherein upon activation of a timer, the switching system causes the second communication module to change state from a sleep mode to an active mode, wherein the timer is activated to establish a time window of a predefined size,

[1.d] wherein if a Wi-Fi signal monitor detects that a Wi-Fi signal level is below a second predefined threshold value V_{th2} , the timer is activated to establish a second time window of a second predefined size $T2$,

[1.e] wherein a third predefined threshold value V_{th3} is smaller than V_{th2} .

[12.pre] A method comprising:

[12.a] determining a first context;

[12.b] activating a timer to establish a first time window of a first predefined

size T1 based on the detected first context;

[12.c] determining a second context during the first time window;

[12.d] automatically switching a communication in progress via a wireless network to a communication via a Wi-Fi network based on the second detected context;

[12.e] detecting a third context;

[12.f] establishing a second time window of a second predefined size T2 if the third detected context falls below a second predefined threshold value Vth2;

[12.g] detecting a fourth context during the second time window; and

[12.h] continuing a Wi-Fi communication without change if the fourth detected context is equal to or greater than a third predefined threshold value Vth3,

[12.i] wherein Vth3 is smaller than Vth2.

[31.pre] A method comprising:

[31.a] determining, with a server, a first signal level;

[31.b] activating, with the server, a timer to establish a first time window of a first predefined size T1 if the detected first signal level is greater than a first predefined threshold value;

[31.c] determining, with the server, a second signal level during the first time window;

[31.d] if the second detected signal level falls below the first predefined threshold value, then searching for alternative Wi-Fi signals having signal level above the first predefined threshold value, with the server;

[31.e] if an alternative signal level is above the first predefined threshold value, then switching a Wi-Fi communication in progress to a source of the alternative Wi-Fi signal, with the server; and

[31.f] if no alternative signal level is above the first predefined threshold value, then switching a Wi-Fi communication in progress to the wireless network, with the server,

[31.g] wherein if a signal monitor detects that the alternative signal level is below a second predefined threshold value, a timer is activated to establish a second time window of a second predefined size,

[31.h] wherein a third predefined threshold value is smaller than a second predefined threshold value.

[37.pre] A device comprising:

[37.a] a switching system to switch operation between a first communication module and a second communication module,

[37.b] wherein during an established communication if a monitor detects that a context changes, the established communication is switched to a second

communication over a network, wherein switching is based on detecting a second context being preferred over the context within a set of known networks,

[37.c] wherein upon activation of a timer, the switching system causes the second communication module to change state from a sleep mode to an active mode, wherein the timer is activated to establish a time window of a predefined size,

[37.d] wherein if the monitor detects that a signal level is below a second predefined threshold value V_{th2} , the timer is activated to establish a second time window of a second predefined size $T2$,

[37.e] wherein a third predefined threshold value V_{th3} is smaller than V_{th2} .

Pursuant to §§311-319 and §42.1,¹ Samsung Electronics Co. Ltd. and Samsung Electronics America Inc. (“Petitioners”) respectfully petition for IPR of claims 1, 12, 31, and 37 (“Claims”) of U.S. Patent No. 10,368,281 (“’281”). There is a reasonable likelihood—and it is highly likely—that at least one challenged claim is unpatentable as explained herein. Petitioners request review of the Claims and judgment finding them unpatentable under §103.

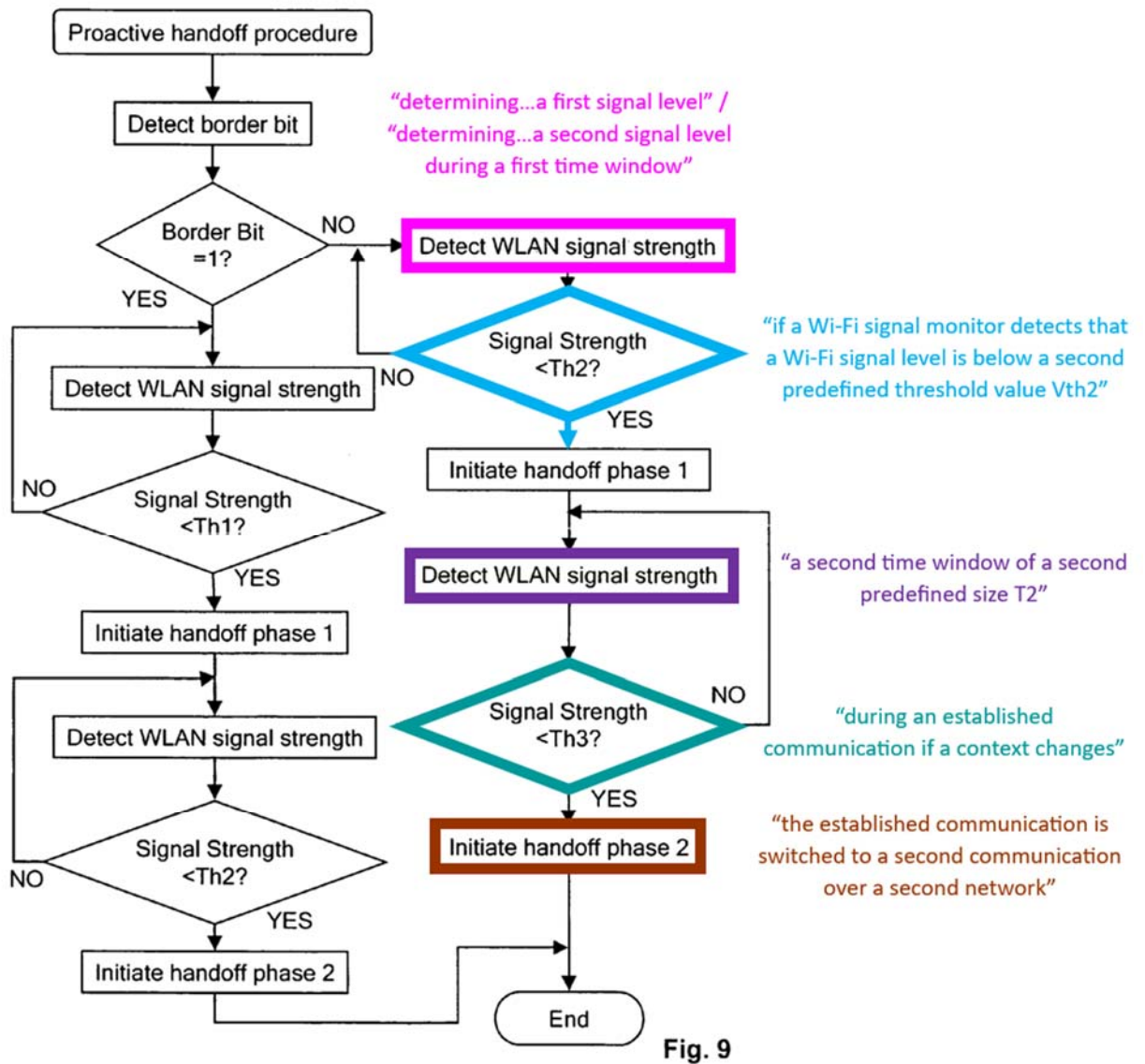
I. INTRODUCTION

The ’281 is generally directed to a mobile communication device that performs wireless handover between networks. ’281, 2:37-41. The device includes a cellular communication module and a Wi-Fi communication module and a network switch unit to automatically switch between them. ’281, 5:35-55, 6:20-27, 6:36-42. The alleged inventive concept that led to allowance is the network switch unit’s multi-step process for switching from the Wi-Fi communication module to the cellular communication module. *See* ’281FH, at 732. First, the Wi-Fi signal strength is measured during a window of time measured by a timer and compared against a

¹ Section cites are to 35 U.S.C. or 37 C.F.R. as context indicates. All emphasis/annotations added unless noted. Figure annotations herein generally quote the Claims for reference. Citations herein are exemplary and not meant to be limiting.

threshold V_{th2} . '281, claim 1. If the Wi-Fi signal strength falls below V_{th2} , the Wi-Fi signal strength is again measured during a second time window measured by the timer, but compared against another, lower threshold V_{th3} . '281, 6:59-67. If the Wi-Fi signal strength again falls below V_{th3} , the network switch unit switches to the cellular communication module. *Id.* Lanning, ¶¶37-38.

But these concepts were not new. For example, **Chaskar**, discloses a method to control handover between a wireless local area network (WLAN) and a cellular networks. Chaskar, [0036]. In **Chaskar's** method, when a mobile communication device **detects a WLAN signal strength falls below a threshold (Th2)** during a signal strength averaging window, it initiates a first handoff phase, and thereafter, if the device **detects the WLAN signal strength falls below a threshold (Th3)** during a second signal strength averaging window, **the device switches communication networks**. Chaskar, [0072]-[0073]. Lanning, ¶39.



Further, **Willhoff** discloses “a long term RSSI [(Received Signal Strength Indication)] average to determine when a handoff condition is to be checked,” using a timer to establish time windows of “milliseconds” or “seconds” in length over which a signal strength is averaged. Willhoff, 2:33-37, 9:54-61. A POSITA would have applied **Willhoff’s** implementation details for measuring signal strength over a particular time window to **Chaskar’s** signal strength averaging windows to

advantageously ensure consistency of measurements. Lanning, ¶40-41.

Accordingly, Petitioners request the Board institute trial and find the Claims unpatentable.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Parties-in-Interest

Petitioners Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. are the real parties-in-interest. No other party had access to or control over the present Petition, and no other party funded or participated in preparation of the present Petition.

B. Related Matters

The '281 is the subject of the following co-pending civil action:

Vasu Holdings, LLC v. Samsung Electronics Co., Ltd. et al, 2:24-cv-00034 (EDTX)
(“Texas Case”).

C. Lead and Back-Up Counsel

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Petitioners consent to electronic service of documents to the email addresses of the counsel identified above.

III. PAYMENT OF FEES

The undersigned authorizes the Office to charge the fee required by §42.15(a) and any additional fees that might be due to Deposit Account 18-1945, under Order No. 110797-0055-653.

IV. REQUIREMENTS FOR *INTER PARTES* REVIEW

A. Grounds for Standing

Pursuant to §42.104(a), Petitioners certify the '281 is available for IPR. Petitioners and any real parties-in-interest are not barred or estopped from requesting IPR challenging the Claims on the Grounds identified herein.

B. Identification of Challenge

Pursuant to §§42.104(b)-(b)(1), Petitioners request IPR of the Claims and that the Board cancel the same as unpatentable.

1. The Specific Art on Which the Challenge Is Based

Petitioners rely upon the following art (Lanning, ¶¶8, 55-59):

Name	Exhibit	Publication	Filed	Published /Issued	Prior art under at least
Chaskar	1004	US2004/0137902	11/13/2003	7/15/2004	§102(e)
Dorenbosch	1005	US2005/0048977	8/26/2003	3/3/2005	§102(e)
Willhoff	1006	US6049715	2/20/1997	4/11/2000	§102(b)
Donovan	1007	US2005/0063348	9/19/2003	3/24/2005	§102(e)
Ruan	1008	US2004/0246922	6/3/2003	12/9/2004	§102(e)
DeAnna	1009	US2003/0084056	10/11/2002	5/1/2003	§102(a)

Each of **Chaskar**, **Dorenbosch**, **Donovan**, **Willhoff**, and **Ruan** was filed

and/or published before the earliest '281 priority date (1/6/2004).²

2. Statutory Grounds on Which the Challenge is Based

Ground	Claim(s)	Basis	References
1	1, 12, and 37	§103	Chaskar in view of Dorenbosch and Willhoff
2			Ground 1 in further view of Donovan
3	31		Chaskar in view of Willhoff and Ruan
4			DeAnna in view of Ground 3 (Chaskar, Willhoff and Ruan)

V. '281 PATENT AND PROSECUTION HISTORY

A. '281

The purported “invention” of the '281 relates to a “mobile communication device” for handover between networks. '281, 2:36-41. As shown in Fig. 1, “mobile communication device 100” includes “a cellular communication module” and “a Wi-Fi communication module.” '281, 5:35-45. Network switch unit facilitates handover between the cellular communication module and Wi-Fi communication module. '281, 5:35-45, 6:20-27, 36-42. Lanning, ¶42.

² If AIA applies, these references are prior art under §102(a)(1)/§102(a)(2) for the same reason.

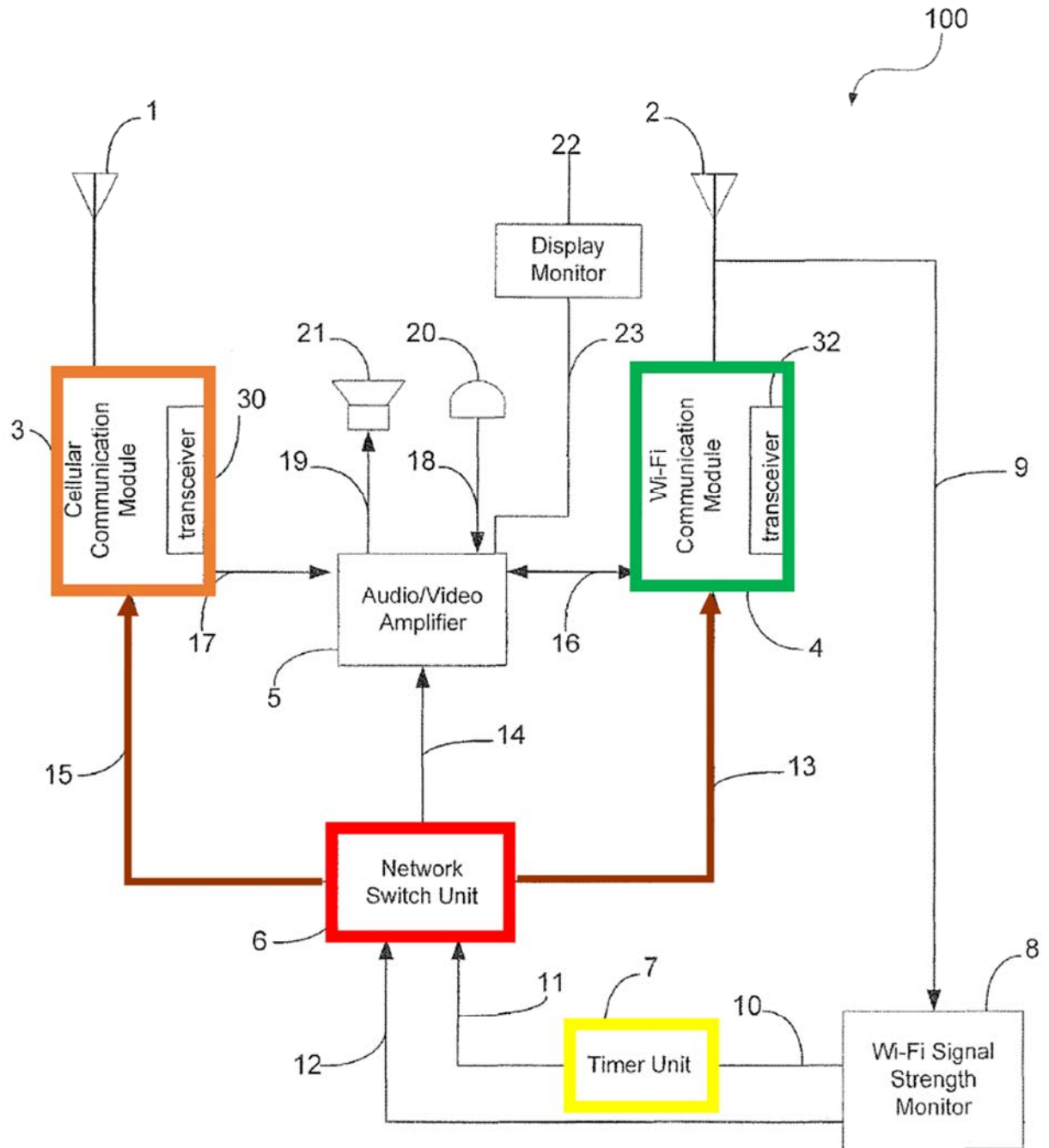


FIG. 1

While the mobile communication device is communicating via its **cellular communication module**, and the device detects a Wi-Fi signal having a first

predefined level (strength) V_{th1} , a **timer** is activated to establish a first time window of a first predefined size. '281, 4:43-49, 5:58-6:5, 6:15-20. If the Wi-Fi signal level remains equal to or greater than V_{th1} during the window, **network switch unit automatically switches** the communication to the **Wi-Fi communication module**. '281, 4:49-56, 6:20-45. Further, when the timer is activated, the **Wi-Fi communication module** changes from a sleep mode to an active mode, before the communication is switched to the **Wi-Fi communication module**. '281, 4:4-10, 4:57-67, 5:33-36, 5:58-6:5. Lanning, ¶43.

While the mobile communication device is communicating via its **Wi-Fi communication module**, and the device detects the level of the received Wi-Fi signal falls below a second predefined value V_{th2} , the **timer** is activated to establish a second time window of a second predefined size. '281, 6:46-60. The device continues monitoring the signal strength during the second time window, and if the Wi-Fi signal level detected during the second time window is equal to or greater than a third predefined value V_{th3} , the communication via the **Wi-Fi communication module** is maintained. '281, 6:61-67. V_{th3} is less than V_{th2} . '281, 6:63-67. If the detected Wi-Fi signal strength remains below V_{th3} , the **switching circuit switches** the communication to the **cellular communication module**. '281, 7:1-14. Lanning, ¶44.

B. Prosecution History

U.S. Patent Application 15/480,293 (“’293-App”), which matured into the ’281, was filed 04/05/2017. The Examiner issued multiple office actions rejecting the as-filed claims over prior art. ’281FH, 433-44, 492-501, 598-605. Through a series of amendments, Applicant amended the independent claims such that all claims required activation of “a timer” to establish a “time window” and various limitations relating to threshold values. ’281FH, 16-22, 456-64, 542-50, 567-75, 640-48, 710-18. The Examiner allowed the claims, determining, for issued claims 1, and 37, the prior art fails to teach “wherein if a Wi-Fi signal monitor [detects] that a Wi-Fi signal level is below a second predefined threshold value V_{th2} ; the timer is activated to establish a second time window of the second predefined size T_2 , wherein a third predefined threshold value V_{th3} is smaller than V_{th2} .” *Id.*, 732. And for issued claim 12, the prior art fails to teach “establishing a second time window of a second predefined size T , if the third detected context falls below a second predefined threshold value V_{th2} ; detecting a fourth context during the second time window; and continuing a Wi-Fi communication without change if the fourth detected context is equal to or greater than a third predefined threshold value V_{th3} ; wherein V_{th3} is smaller than V_{th2} ”; and for issued claim 31, the prior art fails to teach “a timer is activated to establish a second time window of a second predefined size, wherein a third predefined threshold value is smaller than a second predefined

threshold value.” *Id.*, 732. Lanning, ¶¶45-48.

VI. §325(d) AND §314(a) DISCRETION SHOULD NOT BE EXERCISED

A. §325(d)

Under the two-part *Advanced Bionics* framework, the Board should not exercise its discretion.

The Grounds raised by this Petition are not the same or substantially the same as the art or arguments raised during ’281’s prosecution. Dorenbosch, Willhoff, Donovan, Ruan, and DeAnna were not considered during prosecution. Though the Examiner identified **Chaskar**, the Examiner did not consider this in combination with newly-identified references. ’281FH, 438-43; *Sony v. MZ Audio Scis., LLC*, IPR2022-01544, Pap. 12, *7 (§325(d) discretion improper where “Examiner did not consider the specific combination of references asserted”). For example, unlike **Willhoff**, the cited art did not teach a timer that establishes a time window during a signal strength measurement, which would naturally motivate combination with **Chaskar’s** disclosures of signal strength measuring time windows. Lanning, ¶¶80-85.

Even if the art or arguments were substantially the same, the Examiner erred in a manner material to the patentability of the Claims. Because the Examiner did not consider **Chaskar, Dorenbosch, Donovan, Willhoff, Ruan, and DeAnna** as prior art, “[i]t is...difficult, if not impossible, to discern exactly why the

Examiner allowed the claims of the ['281] patent, or how the Examiner might have considered the arguments presented in the Petition, had they been presented to the Examiner.” *Bowtech, Inc. v. MCP IP, LLP*, IPR2019-00379, Pap. 14, *19-20 (declining to exercise §325(d) discretion where Petitioner did not “even attempt[] to explain how the Examiner erred in any way”). To the extent art considered by the USPTO was substantially the same as references identified in the Grounds, the Examiner erred by not rejecting the Claims for the reasons discussed in §IX.

B. §314(a)

The Texas Case also does not warrant exercising discretion under §314(a) based on the *Fintiv* factors.

1: Following institution, Petitioners intend to seek a stay of the Texas Case pending the outcome of this IPR, along with other IPRs collectively challenging all asserted claims.

2-3: The Texas Case trial is currently set for 11/3/2025,³ more than three months after the deadline for institution. The Texas Case is in its early stages; the court has not issued any substantive orders related to the validity of the '281, and the parties have only just begun the claim construction process. Samsung has diligently prepared and filed these IPRs.

4: The Texas Case will involve multiple grounds of invalidity not at issue

³ Ex.1013.

here, enabling the court to focus its limited trial time on different invalidity defenses, if the suit is not stayed.

5: The litigation and PTAB parties are the same.

6: The merits of this Petition are compelling as shown herein. Indeed, the concept of comparing a Wi-Fi signal strength against multiple thresholds, using a timer to establish multiple time windows and a communication changing state from a sleep mode to an active mode when switching between communication networks was well-known in the field. See §§I, IX.

VII. LEVEL OF ORDINARY SKILL IN THE ART

For purposes of this Petition only, the Claims are entitled to the benefit of the 1/6/2004 filing date of App. No. 60/534,466 listed in the '281's priority claim.

On or before this date, a POSITA would have had a Bachelor's degree in electrical engineering, computer engineering, computer science, or the equivalent thereof, and approximately two years of professional experience working with networking and wireless communications systems. Additional education could substitute for professional experience, or vice-versa. Lanning, ¶¶49-52.

VIII. CLAIM CONSTRUCTION

Claim terms subject to IPR are to be construed according to the *Phillips* standard applied in district court. §42.100(b). Petitioners apply the plain and ordinary meanings of terms. Lanning ¶¶53-54. Only terms necessary to resolve the

controversy must be construed.

IX. GROUNDS OF UNPATENTABILITY

This Petition is supported by the Declaration of Mark Lanning, which describes the prior art's scope and content at the time of and well before the '281. See Ex.1003. The prior art renders the Claims unpatentable based on the below grounds. Lanning ¶¶1-285.

A. Ground 1: Chaskar in view of Dorenbosch and Willhoff (Claims 1, 12, and 37)

As explained below, this ground involves the use of **Chaskar's** multi-threshold comparison process for switching from Wi-Fi to cellular (see §IX.A.1), to which is applied **Dorenbosch's** procedure for switching from cellular to Wi-Fi (see §IX.A.2) to improve performance. **Willhoff's** teaching of using a timer for measuring signal strength (see §IX.A.4) is applied to each signal strength measurement involved in these switching processes. Lanning ¶¶86-87.

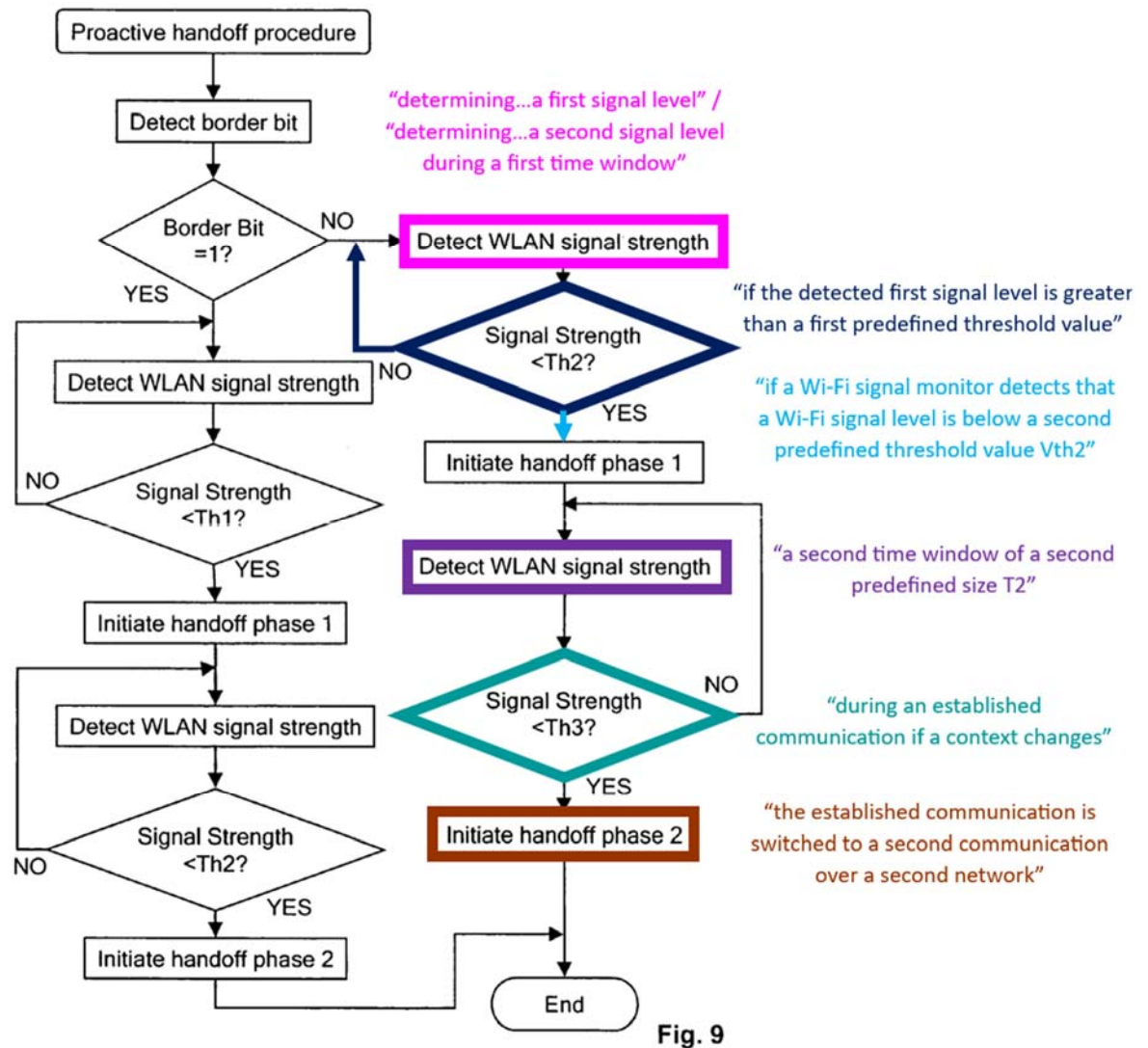
1. Overview of Chaskar

Chaskar discloses a handover method between WLAN and cellular networks by “detecting information about regions of an area of the first technology network,” and “initiating a handover procedure between the first and second technology networks based on the detected region information.” Chaskar, [0036]. **Chaskar's** method detects “whether a user of a mobile node is well within a WLAN footprint, [or] roaming near the boundary of it or has left hot spot premises, [so that] smart

handoff decision policies can be implemented.” Chaskar, [0016]. **Chaskar’s** method improves inter-technology handover control and avoids spurious handoff triggers. Chaskar [0013]. Lanning ¶62.

Chaskar’s method detects whether the device is in a WLAN border region by detecting whether a WLAN access point’s border bit is 1 or 0, and determines whether to transfer to cellular accordingly. Chaskar, [0044], [0070]-[0073]. Lanning ¶63.

When the mobile node detects a border bit=0 (indicating “a non-border region of the WLAN”), the device “detect[s the] WLAN signal strength” over a “signal strength averaging window” of a particular “width,” and if the WLAN signal strength is larger than Th2, it repeats the measurement against Th2. Chaskar, [0072], [0076]-[0077]. If the signal strength falls below Th2, the mobile node initiates “handoff phase 1” (initial steps for potential handoff). Chaskar, [0037], [0072]. After initiation of phase 1, the mobile node “detect[s the] WLAN signal strength” over a second signal strength averaging window of a particular width, and if the signal strength falls below Th3, “handoff phase 2” is initiated where handover to cellular is performed. Chaskar, [0037], [0073], [0076]-[0077]. Th3 is less than Th2. Chaskar, [0069]. Lanning ¶64.



Chaskar, Fig. 9.

2. Overview of Dorenbosch

Dorenbosch discloses “mobile subscriber unit 306...includes one or more **processors 418**,” and “a **main memory 414**” storing “**handover manager 514**.” Dorenbosch, [0027]. **Dorenbosch**’s mobile subscriber unit also contains “two sets of transceivers—one for the **WLAN system** and one for the **WAN system**, each

transceiver containing an antenna 402, 408, an RF front end 404, 410, and a decoder/encoder 406, 412 respectively, designed to transmit, receive, encode and decode wireless signals for the frequencies and characteristics of its corresponding system.” Dorenbosch, [0026]. Lanning, ¶65.

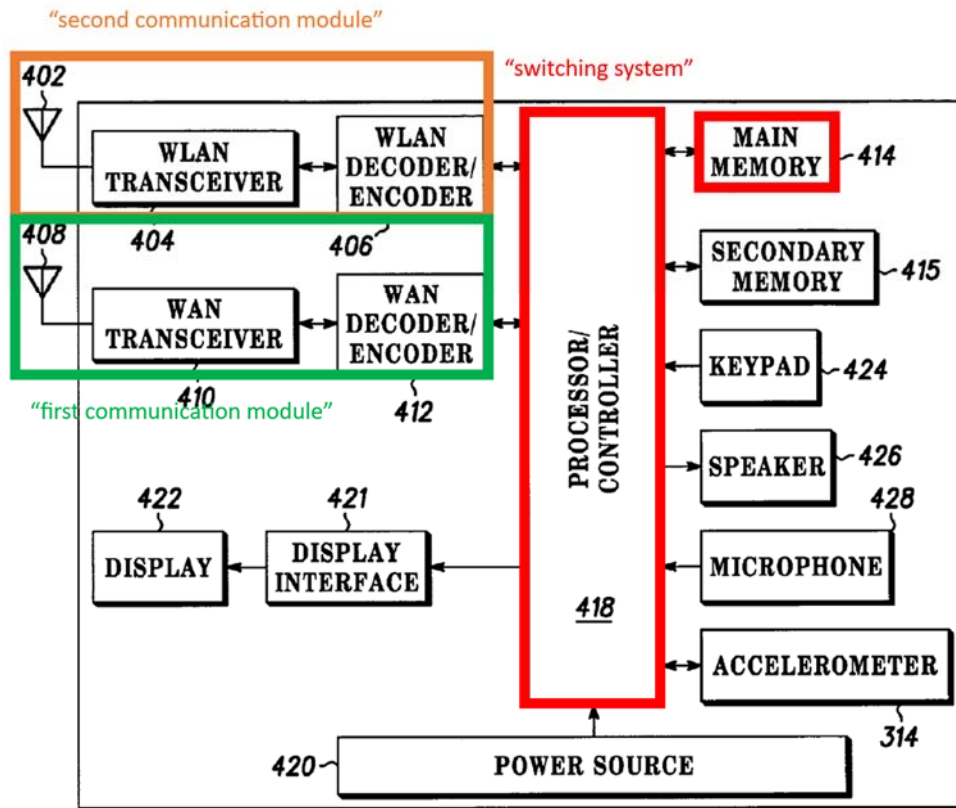


FIG. 4 306

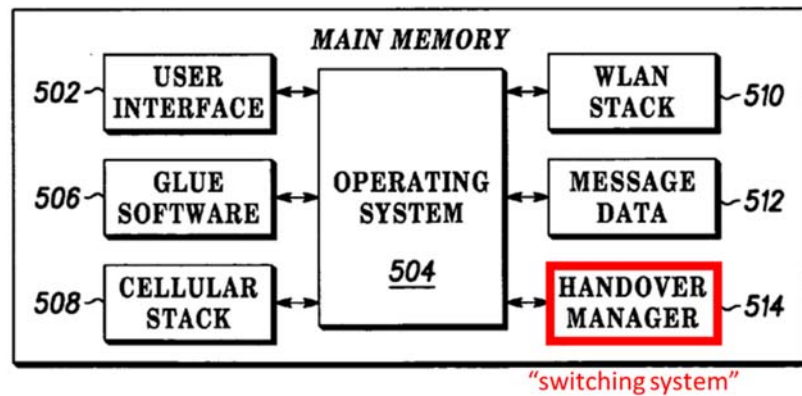


FIG. 5 414

Dorenbosch discloses maintaining a call while switching from a WLAN to a wide area network (WAN/cellular network), **the mobile subscriber unit “attempt[ing] to detect the presence of a border cell 210 or degradation in signal quality of the WLAN coverage.”** Dorenbosch, [0038], Fig. 8. If either condition is detected, the mobile subscriber unit **“initiates the registration sequence with the WAN system” (including activating WAN hardware)** and monitors the mobile subscriber unit’s movement and detects WAN signal strength. Dorenbosch, [0038]. If the “speed and/or displacement of the device 306 [exceeds] the first predetermined threshold and the signal strength of the WAN signal is still good,” the device checks if registration is complete, and if so, conducts present/subsequent calls via the **WAN**, and “terminat[es]” the **“WLAN stack 510 and hardware.”** Dorenbosch [0038]. Lanning, ¶166.

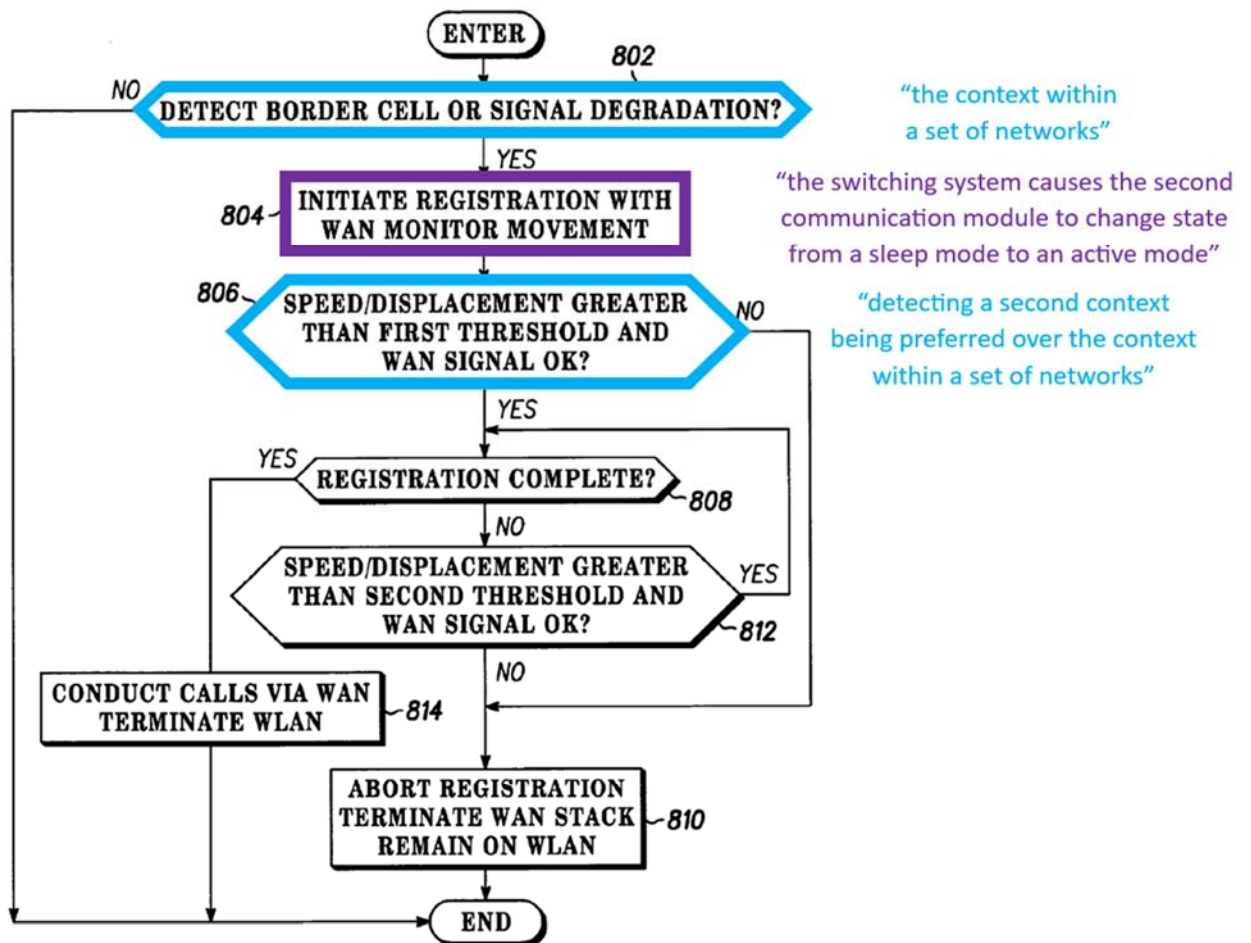


FIG. 8 800

Dorenbosch also discloses switching from WAN to WLAN coverage, in which the mobile subscriber unit starts the **WLAN stack and associated hardware** and “attempts to receive signals from WLAN cells.” Dorenbosch, [0045]; Fig. 10. If the mobile subscriber unit “**detects a WLAN border cell...**[it] registers with the WLAN and begins to monitor its movement,” and “if the speed and/or displacement [of the mobile subscriber unit] exceed predetermined thresholds” (e.g., not relatively stationary) the unit “**check[s] the signal strength of the WLAN signal.**”

Dorenbosch, [0045]. If the WLAN signal strength is sufficient, the mobile subscriber unit **“terminat[es] running the WAN stack...and hardware”** and **conducts the present call via the WLAN**. Dorenbosch, [0045]. Lanning, ¶67.

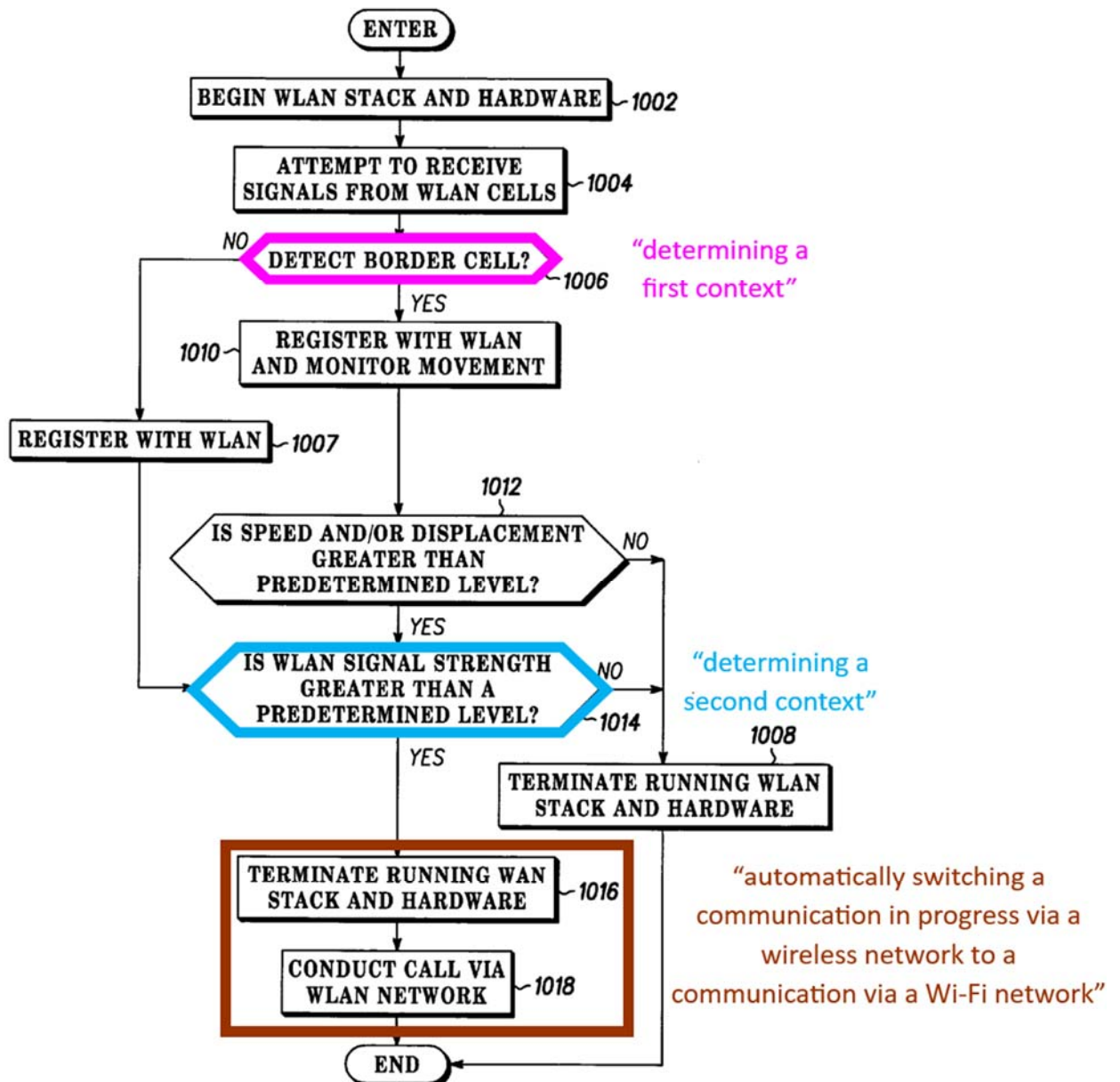


FIG. 10 1000

3. Motivation to Apply Dorenbosch's Teachings to Chaskar

Chaskar and **Dorenbosch** are in the same field as the '281—which includes wireless communications—and are reasonably pertinent to the problems purportedly addressed by the '281—e.g., switching between wireless communication networks. *See e.g.*, '281, Abstract, 2:36-41; Chaskar, Abstract, [0036]; Dorenbosch, Abstract, [0002], [0038], [0045]. Like the '281, **Chaskar** and **Dorenbosch** each contemplate switching between WAN and WLAN networks according to signal strengths detected by a mobile device. *See, e.g.*, '281, 2:54-67; Chaskar, [0070]-[0073]; Dorenbosch, [0038], [0045]. Lanning, ¶¶68-71.

A POSITA would have been motivated to apply **Dorenbosch's** teachings of WLAN and WAN transceiver in implementing **Chaskar's** mobile node, as **Dorenbosch** provides implementation details for communication on the WLAN and WAN. Chaskar, [0070]-[0073]; Dorenbosch, [0026], [0038], [0045]. Lanning, ¶72.

A POSITA would have been motivated to apply **Dorenbosch's** teachings of detecting both WLAN and WAN contexts to **Chaskar's** handover from a WLAN to WAN to advantageously increase system efficiency so communication over the WAN is not performed unless the WAN signal strength is strong enough to support communication, avoiding a handover to the WAN when it cannot sustain communication. Lanning, ¶73; *see also* Chaskar, [0013] (describing an object of its invention is “to improve inter-technology handover control so that spurious handoff

triggers can be avoided.”); Enzmann, [0007] (detecting both cellular and 802.1x (WLAN) networks allows for “handoffs to occur automatically and seamlessly”). **Chaskar** teaches a handoff procedure for switching a communication from a WLAN to a WAN based only on a detected border bit and WLAN signal strength, but does not consider WAN signal strength. See Chaskar, [0071]-[0073]. A POSITA would have looked to **Dorenbosch’s** teaching of further checking the WAN signal strength before making a WLAN to WAN switch to avoid connecting to a WAN that cannot maintain communication, improving **Chaskar’s** handoff procedure. Dorenbosch, [0038]. Lanning, ¶73. A POSITA would have recognized a WAN transceiver would measure WAN signal strength. Lanning, ¶73.

A POSITA would have been motivated to apply **Dorenbosch’s** teaching of transitioning from a WAN to a WLAN to **Chaskar’s** device to advantageously switch a call to WLAN instead of continuing the call on cellular, which has higher service fees, increases power consumption, and provides slower service than WLAN. Lanning, ¶74; see also Chaskar, [0004] (“[I]t is supposed that the user has chosen WLAN as the preferred access to the IP network...because WLAN access [is] typically cheaper and faster than cellular access.”); Dorenbosch, [0003], [0006], [0008], [0049]. Lanning, ¶74. In applying these teachings to **Chaskar**, a POSITA would have understood the WLAN signal strength would be measured using a signal strength averaging window of a particular width. Chaskar, [0076] (explaining the

use of a signal strength averaging windows generally “for robust measurement of received signal strength”). Lanning, ¶74.

Further, a POSITA would have been motivated to apply **Dorenbosch’s** teachings of the WAN transceiver changing state from sleep mode to active mode in **Chaskar’s** handover method to advantageously reduce power consumption. As **Dorenbosch** explains, keeping both WLAN and WAN transceivers active while on a network has “significant detrimental effect[s] on battery life.” Dorenbosch, [0006]. Lanning, ¶75. A POSITA would have recognized changing state from sleep mode to active mode would predictably be performed at initial stages of handover such that communications are not disrupted. Dorenbosch, [0038]. Lanning, ¶75.

A POSITA would have had a reasonable expectation of success applying **Dorenbosch’s** teachings in implementing **Chaskar’s** WLAN to WAN handoff procedure. Chaskar, [0070]-[0073]; Dorenbosch, [0038]. Both references teach communicating over WANs and WLANs, and **Dorenbosch’s** teachings are specific to these communications. This would have been a straightforward application of **Dorenbosch’s** teachings in a manner that advantageously improves **Chaskar’s** mobile device. Lanning, ¶76.

Accordingly, a POSITA would have had a reasonable expectation of success applying **Dorenbosch’s** teachings to **Chaskar’s** mobile device, and would have known such a combination (yielding the claimed limitations) would predictably

work and provide the expected functionality. Lanning, ¶77.

4. Overview of Willhoff

Willhoff discloses a “dual stage method and apparatus for accurately evaluating a received signal by providing a mobile station with a concise and consistent measure of a received signal strength.” Willhoff, 2:56-62; *see also* Willhoff, Abstract. **Willhoff** discloses using “a long term RSSI [(Received Signal Strength Indication)] average to determine when a handoff condition is to be checked” followed by a “short term average” before handoff is performed. Willhoff, 2:33-37, 9:54-10:7. The long term RSSI average is computed by averaging samples of received signal strength contained in a particular window of time over “several seconds,” while the short-term average is averaged over a smaller window of time of “tens to hundreds of milliseconds.” Willhoff, 9:56-61. A POSITA would have understood these windows are determined using a timer activated at the beginning of the time window, and at minimum it would have been obvious to do so. Lanning, ¶78. Long-term measurement windows avoid premature triggers from “fluctuating signals,” while short-term measurement windows avoid “historical bias” from measurements that occurred in different locations over time. Willhoff, 4:13-18, 2:6-8. Lanning, ¶79.

5. Motivation to Apply Willhoff’s Teachings to Chaskar (as Optionally Modified by Dorenbosch)

Like **Chaskar** and **Dorenbosch**, **Willhoff** is analogous art, in the same field

as the '281, which includes wireless communications, and reasonably pertinent to alleged problems addressed by the '281 of switching between wireless communication networks. See *e.g.*, Willhoff, 1:15-20 (“The invention relates generally to...handoff decisions”). Lanning, ¶80.

A POSITA would have been motivated to apply **Willhoff’s** teaching of using a timer to measure signal strength in implementing **Chaskar’s** (as optionally modified by **Dorenbosch**) signal strength averaging windows of a set width to advantageously provide the implementation details for using such a measurement mechanism. While **Chaskar** discloses measuring signal strength using “signal strength averaging windows” “having different...widths,” it does not provide implementation details for such measurement. See Chaskar, [0076]-[0077]. A POSITA would have looked to **Willhoff** for implementation details for **Chaskar’s** signal strength averaging windows. Lanning, ¶81. For example, **Willhoff** explains the “width of the window” is selected as a particular amount of time based on how many samples the device should sample and the sample rate of the signal strength measurement, and as discussed above, a POSITA would have understood and at least found obvious that the windows are measured with a timer. Willhoff, 10:47-55. Moreover, timers are commonly used in communication modules to determine time lengths, and would have predictably been implemented in **Chaskar’s** device to determine the time averaging window width. Lanning, ¶81.

Further, a POSITA would have been motivated to apply **Willhoff's** teaching of using a longer time window (e.g., on the order of seconds) to **Chaskar's** first signal strength measurement for comparison against Th2 and **Willhoff's** teaching of using a shorter time window (e.g., on the order of milliseconds) to **Chaskar's** second signal strength measurement for comparison against Th3. A POSITA would have understood that, by using a longer window for the first measurement, the device would avoid a premature handoff based on a momentary signal strength fluctuation. Willhoff, 1:41-43, 1:51-65, 3:31-34, Abstract. Lanning, ¶82. Further, a POSITA would have understood that, by using a shorter window for the second measurement, the device would measure “quickly enough” to complete handoff before WLAN connection is lost in situations when the device is leaving a WLAN coverage area. Willhoff, 2:31-33. Lanning, ¶¶83-84. A POSITA would have understood that the use of different signal strength measuring window widths as taught by **Willhoff** for Th2 and Th3 comparisons in **Chaskar** would be predictable, as **Chaskar** already contemplates using measurement windows of different widths and thus discloses using the two different size windows. Chaskar, [0077]. Lanning, ¶¶82-84.

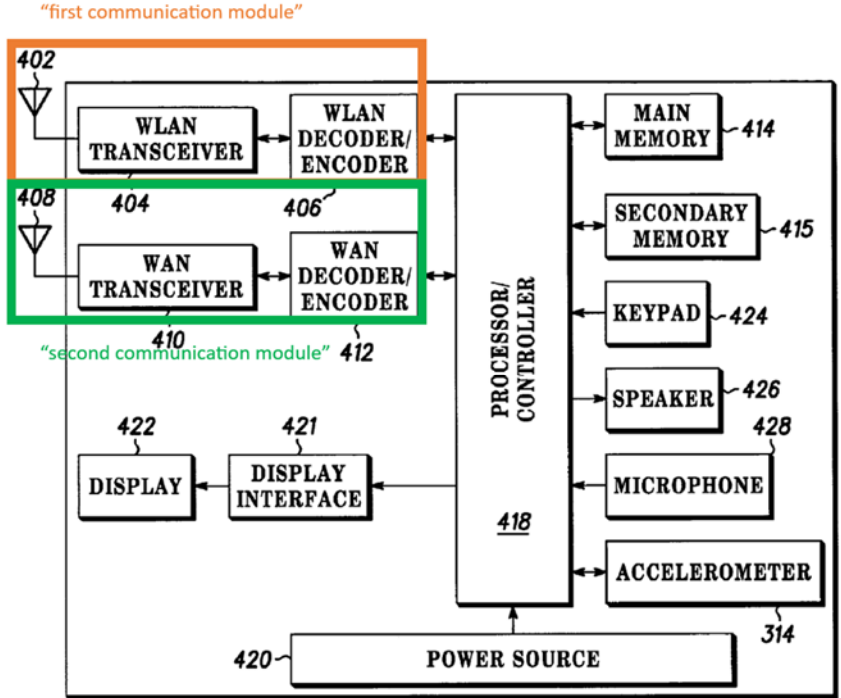
Accordingly, a POSITA would have had a reasonable expectation of success applying **Willhoff's** teachings of using a timer for measuring signal strength and using measurement windows of different sizes in implementing **Chaskar's** handoff procedure (as optionally modified by **Dorenbosch**), and would have known such a

combination (yielding the claimed limitations) would predictably work and provide the expected functionality. Lanning, ¶85.

6. Claim Chart

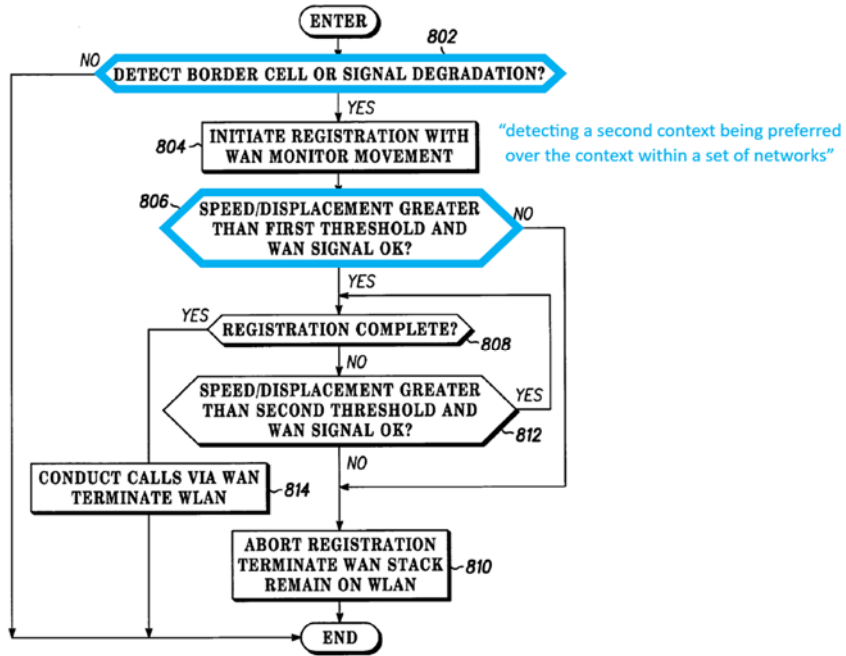
'281	Chaskar in view of Dorenbosch and Willhoff
[1.pre] A device comprising:	To the extent the preamble is limiting, Chaskar discloses a device (<i>e.g.</i>, “mobile node”). <u>E.g., Chaskar:</u> Chaskar discloses a “mobile node.” [0070]. Lanning, ¶¶88-90. • [0070]: “In a first step in FIG. 9, a border bit is detected by the mobile node from a beacon of the WLAN AP with which the mobile node is connected.” • <i>See also</i> [0071]-[0075].
[1.a] a switching system to switch operation between a first communication module and a second communication module,	Chaskar discloses a switching system (<i>e.g.</i>, “handoff decision logic”) to switch operation (<i>e.g.</i>, “handoff” to “cellular”) between a first communication module (“WLAN” module) and a second communication module (“cellular” module). <u>E.g., Chaskar:</u> Chaskar discloses a “mobile node” connected to a WLAN and detects the WLAN signal strength to determine whether a handoff to a cellular network is required to maintain communication. [0036]. A POSITA would have understood that, because the device communicates with WLAN and cellular networks, Chaskar’s mobile node includes WLAN and cellular modules. The mobile node includes “handoff decision logic” to perform the determination. [0078]. Lanning, ¶¶91-93. • [0036]: “The idea of the present invention is to control handover between a first technology

'281	Chaskar in view of Dorenbosch and Willhoff
	<i>network and a second technology network....The first technology network may be a WLAN and the second technology network may be a cellular network.</i>” • [0078]: “...[E]ven though the received signal strength is the parameter used in the illustrations of possible embodiments, mobile nodes may also use other parameters...in the handoff decision logic.” • See also, [0070]-[0075]. To the extent it is argued further disclosure of a communication module is required, Dorenbosch discloses a first communication module (e.g., “WLAN” “transceiver”) and a second communication module (e.g., “WAN” “transceiver”). <u>E.g., Dorenbosch:</u> Dorenbosch discloses a mobile subscriber unit 306 that “contains two sets of transceivers—one for the WLAN system” (e.g., for “IEEE Standard 802.11” communications) and “one for the WAN system, each transceiver containing an antenna 402, 408, an RF front end 404, 410, and a decoder/encoder 406, 412 respectively, designed to transmit, receive, encode and decode wireless signals.” [0025], [0026], Fig. 4. Lanning, ¶¶94-96. As explained in §IX.A.3, a POSITA would have been motivated to apply Dorenbosch’s teachings of WLAN and WAN transceivers in implementing Chaskar’s mobile node. Lanning, ¶96. • Fig. 4:

'281	Chaskar in view of Dorenbosch and Willhoff
	 FIG. 4 306 [0025]: “The WLAN cells 104 may be any of a number of different wireless protocols such as <i>IEEE Standard 802.11</i> or Bluetooth.” [0026]: “...The SU 306 contains <i>two sets of transceivers—one for the WLAN system and one for the WAN system</i>, each transceiver containing an antenna 402, 408, an RF front end 404, 410, and a decoder/encoder 406, 412 respectively, designed to transmit, receive, encode and decode wireless signals for the frequencies and characteristics of its corresponding system.”
[1.b] wherein during an established communication if a context changes, the established communication is	Chaskar discloses that during an established communication (e.g., established “voice call[.]”) if a context changes (e.g., “WLAN signal strength...fall[s] below Th3”), the established communication is switched to a second communication over a second network (e.g., “handoff” to “cellular”).

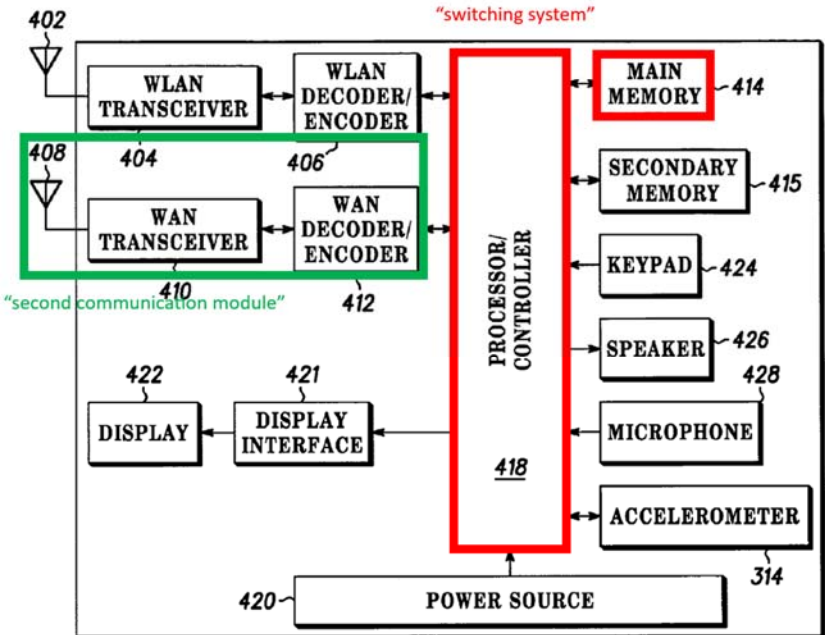
'281	Chaskar in view of Dorenbosch and Willhoff
switched to a second communication over a second network, wherein switching is based on detecting a second context being preferred over the context within a set of networks,	<u>E.g., Chaskar:</u> See [1.a]. Chaskar further discloses a handover procedure “for voice calls” that detects the “WLAN signal strength” and performs a handoff to the cellular network “[a]fter the signal strength has fallen below Th3.” [0043], [0072]-[0073], Fig. 9. Lanning, ¶¶97-100. - Fig. 9: <pre> graph TD Start([Proactive handoff procedure]) --> DetectBorder[Detect border bit] DetectBorder --> BorderBit{Border Bit = 1?} BorderBit -- YES --> DetectWLAN1[Detect WLAN signal strength] DetectWLAN1 --> SignalTh1{Signal Strength < Th1?} SignalTh1 -- YES --> InitPhase1[Initiate handoff phase 1] InitPhase1 --> DetectWLAN2[Detect WLAN signal strength] DetectWLAN2 --> SignalTh2{Signal Strength < Th2?} SignalTh2 -- YES --> InitPhase2[Initiate handoff phase 2] InitPhase2 --> End([End]) SignalTh2 -- NO --> DetectWLAN3[Detect WLAN signal strength] DetectWLAN3 --> SignalTh3{Signal Strength < Th3?} SignalTh3 -- YES --> InitPhase2 SignalTh3 -- NO --> DetectWLAN3 BorderBit -- NO --> DetectWLAN4[Detect WLAN signal strength] DetectWLAN4 --> SignalTh4{Signal Strength < Th2?} SignalTh4 -- YES --> InitPhase1 SignalTh4 -- NO --> DetectWLAN5[Detect WLAN signal strength] DetectWLAN5 --> SignalTh5{Signal Strength < Th1?} SignalTh5 -- YES --> InitPhase1 SignalTh5 -- NO --> DetectWLAN6[Detect WLAN signal strength] DetectWLAN6 --> SignalTh6{Signal Strength < Th3?} SignalTh6 -- YES --> InitPhase2 SignalTh6 -- NO --> DetectWLAN6 </pre> Fig. 9 [0043]: “The handoff policies as described above can be simultaneously applied to different applications. For example, policy 1 for voice calls....” [0072]: “In case the detected border bit is equal to 0,...while a detected WLAN signal strength is larger than Th2, the mobile node waits.”

'281	Chaskar in view of Dorenbosch and Willhoff
	[0073]: “After initiation of phase 1, WLAN signal strength is detected again and while the detected WLAN signal strength is larger than a predetermined threshold Th3, the mobile node waits. After the signal strength has fallen below Th3, handoff phase 2 is initiated.” Dorenbosch discloses detecting a second context (<i>e.g.</i>, “signal strength of the WAN signal is” “good”) being preferred over the context within a set of networks (<i>e.g.</i>, preferred over “[i]f...WLAN signal degradation is detected”). <u>E.g., Dorenbosch:</u> Dorenbosch discloses a handover procedure that decides to perform a handover from a WLAN to a WAN because “degradation in signal quality of the WLAN coverage” has occurred and “signal strength of the WAN signal is still good.” [0038], Fig. 8; <i>see also</i> [0037], [0039], Figs. 7, 9. Lanning, ¶¶101-102. As explained in §IX.A.3, a POSITA would have been motivated to apply Dorenbosch’s teachings of detecting both the context of a WLAN network and WAN network to Chaskar’s handover method. Lanning, ¶103. In implementing Dorenbosch’s teachings in Chaskar’s method, the handover would occur only if both the WAN signal strength is sufficient and the WLAN signal strength is insufficient (Dorenbosch, [0038]), whereby a sufficient WAN signal is preferred over an insufficient WLAN signal so that the call is not dropped. Lanning, ¶104. - Fig. 8:

'281	Chaskar in view of Dorenbosch and Willhoff
	 <pre> graph TD 802([ENTER]) --> 802{DETECT BORDER CELL OR SIGNAL DEGRADATION?} 802 -- NO --> END([END]) 802 -- YES --> 804[INITIATE REGISTRATION WITH WAN MONITOR MOVEMENT] 804 --> 806{SPEED/DISPLACEMENT GREATER THAN FIRST THRESHOLD AND WAN SIGNAL OK?} 806 -- NO --> 810[ABORT REGISTRATION TERMINATE WAN STACK REMAIN ON WLAN] 806 -- YES --> 808{REGISTRATION COMPLETE?} 808 -- YES --> 814[CONDUCT CALLS VIA WAN TERMINATE WLAN] 808 -- NO --> 812{SPEED/DISPLACEMENT GREATER THAN SECOND THRESHOLD AND WAN SIGNAL OK?} 812 -- YES --> 814 812 -- NO --> 810 810 --> END 814 --> END </pre> FIG. 8 800 [0038]: "...Again, the subscriber unit 306 attempts to detect the presence of a border cell 210 or degradation in signal quality of the WLAN coverage at step 802. If the border cell 210 or WLAN signal degradation is detected, then the unit 306 initiates the registration sequence with the WAN system and begins to monitor the movement of the device 306, at step 804....[I]f either the speed and/or displacement of the device 306 do not exceed a first predetermined threshold or the strength of the WAN signal is unacceptable, at step 806, then the registration sequence is aborted...resulting in a current and/or future calls continuing to be placed via the WLAN system. However, if the speed and/or displacement of the device 306 do exceed the first predetermined threshold and the signal strength of the WAN signal is still good, at step 806, then

'281	Chaskar in view of Dorenbosch and Willhoff
	the device checks to see if the registration sequence has been completed, at step 808.” • See also Figs. 7, 9; [0037], [0039].
[1.c] wherein upon activation of a timer, the switching system causes the second communication module to change state from a sleep mode to an active mode, wherein the timer is activated to establish a time window of a predefined size,	Chaskar discloses the switching system (see [1.a]), the second communication module (see [1.a]), and establishing a time window of a predefined size (e.g., establishing “signal strength averaging window[]” having a “width[]” to determine if “WLAN signal strength...has fallen below Th2”). <u>E.g., Chaskar:</u> See [1.a]. Chaskar further discloses the mobile terminal measures signal strength using “signal strength averaging windows.” [0076]. At minimum, it would have been obvious to use signal strength averaging windows because they advantageously provide robust signal strength measurement. [0076]. The averaging window has a “width[].” [0076]. Handoff phase 1 is initiated when the WLAN signal strength “has fallen below Th2.” [0063], [0072], Fig. 9. Lanning, ¶¶64, 105-108. • [0076]: “[M]obile nodes may use some method for robust measurement of received signal strength. Examples are use <i>of signal strength averaging windows...</i>” • [0077]: “It is to be noted that <i>it is also possible to build in aggressiveness and conservativeness into handoff logic in a different manner. For example, having different values for the widths of averaging windows...</i>” • [0063]: “[W]ith the beginning of handoff phase 1, <i>a mobile node sends a proxy router solicitation message ProxyRtSol to an old foreign agent still</i>

'281	Chaskar in view of Dorenbosch and Willhoff
	<i>serving the mobile node, e.g. to an agent of the first technology network such as WLAN.”</i> • [0072]: “In case the detected border bit is equal to 0...<i>while a detected WLAN signal strength is larger than Th2, the mobile node waits. After the signal strength has fallen below Th2, in order to be proactive, handoff phase 1 is initiated.</i>” To the extent it is argued further disclosure is required, Dorenbosch discloses the switching system (e.g., “processor[] 418” and “main memory 414” having “handover manager 514”) causes the second communication module (e.g., “WAN” “transceiver”) to change state from a sleep mode (e.g., “hardware 410, 412” is “terminate[d]”) to an active mode (e.g., receiver circuitry of “WAN” “transceiver” is activated and used to determine whether “strength of the WAN signal is unacceptable” or “good”). <u>E.g., Dorenbosch:</u> See [1.a]. Dorenbosch further discloses “one or more processors 418 which processes instructions” and “main memory 414” that includes a “handover manager 514” for triggering a handover between the WLAN and WAN transceivers. [0021], [0027], Figs. 4, 5. Lanning, ¶¶109-111. Dorenbosch further discloses that the “WAN stack 508 and hardware 410, 412” is “terminate[d],” such that, when calls are serviced via WLAN, the WAN transceiver is in a sleep mode. [0041], [0045]. Then, the transceiver’s software and hardware are activated, and then, as explained in [1.b], Dorenbosch discloses measuring whether the WAN signal strength is “unacceptable” or “good.” [0038], Fig. 8. Lanning, ¶¶112.

'281	Chaskar in view of Dorenbosch and Willhoff
	As explained in §IX.A.3, a POSITA would have been motivated to apply Dorenbosch's teachings of the WAN transceiver changing state from sleep to active mode and of measuring the WAN signal strength in Chaskar's handover method. Lanning, ¶113. - Fig. 4:  FIG. 4 306 - Fig. 5:

'281	Chaskar in view of Dorenbosch and Willhoff
	FIG. 5 414 "switching system" - Fig. 8: FIG. 8 800 "the switching system causes the second communication module to change state from a sleep mode to an active mode" [0021]: "FIGS. 7, 8, 9, 10 and 11 are operational flow diagrams illustrating portions of a handover process between a WLAN and a WAN..." [0027]: "The mobile subscriber unit 306 also includes one or more processors 418 which

'281	Chaskar in view of Dorenbosch and Willhoff
	<i>processes instructions, performs calculations, and manages the flow of information through the SU 306. The SU 306 also includes a main memory 414....Included within the main memory 414...are...handover manager 514...."</i> • [0038]: <i>"Note that hereafter, the process of initiating the registration sequence with a communications system, be it a cellular (WAN) system or a local area (WLAN) system, includes the steps necessary to bring up the corresponding hardware and software for that system. In this example, if...the strength of the WAN signal is unacceptable, at step 806, then the registration sequence is aborted...resulting in a current and/or future calls continuing to be placed via the WLAN system. However, if the speed and/or displacement of the device 306 do exceed the first predetermined threshold and the signal strength of the WAN signal is still good, at step 806, then the device checks to see if the registration sequence has been completed, at step 808."</i> • [0041]: <i>"This presents further benefits to the phone battery life and the WAN system demands in that the unit 306 does not even start the WAN stack 510 and hardware 410, 412, or burden the WAN system unnecessarily until sufficient movement has been detected."</i> • [0045]: <i>"If all the conditions are met (i.e. sufficient signal strength, necessary movement conditions within border cell coverage) then the unit 306 will terminate running the WAN stack 508 and hardware 410, 412, at step 1016, and conducts any present and/or subsequent calls via the WLAN system, at step 1018."</i>

'281	Chaskar in view of Dorenbosch and Willhoff
	Willhoff discloses activation of a timer (<i>e.g.</i>, starting timer measuring “window of time”), wherein the timer is activated to establish a time window of a predefined size (<i>e.g.</i>, “window of time” of long “width”). <u>E.g., Willhoff:</u> Willhoff discloses using an “RSSI average to determine when a handoff condition is to be checked” in a cellular system. Abstract, 9:53-56. The “RSSI average” is computed by “averaging samples representing the strength of the received signal, contained in a particular window of time.” 9:56-59. The measurement is performed over “several seconds” for a window of longer “width.” 9:56-62, 10:46-47. Lanning, ¶¶114-115. A POSITA would have understood, or at least found it obvious, that a timer is used to measure the “window” because the measurements are precisely measured according to “seconds” or “milliseconds.” 10:46-11:3. Lanning, ¶¶115. As explained in §IX.A.5, a POSITA would have been motivated to apply this teaching in implementing Chaskar’s (as modified by Dorenbosch) signal strength averaging windows. Lanning, ¶¶116. In implementing Willhoff’s timer teachings in Chaskar’s device (as modified by Dorenbosch), because the timer is used to set a time window for signal strength measurement, a POSITA would have understood or at least found it obvious that the signal strength measurement (and thus the transition from sleep to active state) would be upon activation of the timer for measuring the signal strength, to advantageously wake up the transceiver hardware only when needed to reduce

'281	Chaskar in view of Dorenbosch and Willhoff
	power consumption. Lanning, ¶¶117 (citing Dorenbosch, [0038]). • Abstract: “A long term average and a short term value of the strength of a received signal is used to determine a trigger condition in a mobile communications system to perform such functions as control channel or traffic channel reselect....” • 3:31-34: “The averaging process <i>removes the effects of short term fades in the signal that may cause a premature reselect decision due to these short term signal fluctuations....</i>” • 9:53-56: “...The Voice Channel (VCH) in the base station will use a long term <i>RSSI average to determine when a handoff condition is to be checked.</i>” • 9:56-62: “The long term <i>RSSI average</i> is computed by <i>averaging samples representing the strength of the received signal, contained in a particular window of time, e.g. several seconds.</i> The short term average is a the average over a smaller window of time, e.g. typically tens to hundreds of milliseconds....” • 10:46-11:3: “...<i>The RSSI Sample Rate gives the long term averaging time, i.e. the width of the window. Typical values of the window are in the range of 2.5 to 3.5 seconds. Wider ranges for the long term averaging widow are also possible. For instance, in one particular configuration, the range can vary from 0.32 seconds to 5.12 seconds.</i> Optimum ranges will vary according to the system (i.e. the specific hardware and software) and the environment in which the system is utilized....[I]n one particular embodiment, the <i>SSSR can range from 20-300</i>

'281	Chaskar in view of Dorenbosch and Willhoff
	<i>ms with 120 ms being preferred</i> , based on characteristics of the system and environment.”
[1.d] wherein if a Wi-Fi signal monitor detects that a Wi-Fi signal level is below a second predefined threshold value Vth2, the timer is activated to establish a second time window of a second predefined size T2,	Chaskar discloses wherein if a Wi-Fi signal monitor (e.g., monitor for detecting “802.11” “WLAN signal strength”) detects that a Wi-Fi signal level is below a second predefined threshold value Vth2 (e.g., “WLAN signal strength...has fallen below Th2”), establishing a second time window of a second predefined size T2 (e.g., “signal strength averaging window[]” having a “width[]” to determine if “the signal strength has fallen below Th3”). <u>E.g., Chaskar:</u> See [1.c]. Chaskar further discloses after handoff phase 1, the monitor then detects the “WLAN signal strength” again in another signal strength averaging window to determine whether “the signal strength has fallen below Th3.” [0073], Fig. 9. Chaskar further discloses implementing the WLAN using 802.11 (Wi-Fi). [0015]. Lanning, ¶¶118-121. • Fig. 9:

'281	Chaskar in view of Dorenbosch and Willhoff
	Fig. 9 [0015]: “The invention enables smart detection of hot spot (such as 802.11 WLAN or HiperLAN) border crossing.” [0073]: “After initiation of phase 1, WLAN signal strength is detected again and while the detected WLAN signal strength is larger than a predetermined threshold Th3, the mobile node waits.” Willhoff discloses the timer is activated to establish a second time window of a second predefined size T2 (e.g., starting timer measuring “window of time” of a shorter “width”). <u>E.g., Willhoff:</u>

'281	Chaskar in view of Dorenbosch and Willhoff
	See [1.c]. Willhoff further discloses a second signal strength measurement during handoff over a short term of “tens to hundreds of milliseconds.” 9:59-61. Lanning, ¶¶122-124. As explained in §IX.A.5, a POSITA would have been motivated to apply Willhoff’s teachings of a timer for measuring a window of time to Chaskar’s averaging window of a predetermined size. Lanning, ¶125. Moreover, if the claimed “second time window of a second predefined size T2” must be different than “a time window of a predefined size,” as explained in §IX.A.5, a POSITA would have been motivated to apply Willhoff’s teachings of using different-sized time windows to Chaskar’s handoff procedure. Lanning, ¶126.
[1.e] wherein a third predefined threshold value Vth3 is smaller than Vth2.	Chaskar discloses a third predefined threshold value Vth3 (e.g., “Th3”) is smaller than Vth2 (e.g., “Th2”). <u>E.g., Chaskar:</u> See [1.d]. Chaskar further discloses “multiple thresholds can be used, for example Th1>Th2>Th3.” [0069]. Lanning, ¶¶127-130. • [0069]: “...According to an alternative embodiment of the proactive handoff procedure, multiple thresholds can be used, for example Th1>Th2>Th3...”
[12.pre] A method comprising:	To the extent the preamble is limiting, Chaskar discloses a method (e.g., “method[”). <u>E.g., Chaskar:</u> Chaskar discloses a handover method. [0022]. Lanning, ¶¶131-133. • [0022]: “The methods of the present invention includes detecting information about regions of an area of the first technology network, and

'281	Chaskar in view of Dorenbosch and Willhoff
	<i>deciding initiating a handover procedure between the first and second technology networks based on the detected region information.”</i>
[12.a] determining a first context;	Dorenbosch discloses determining a first context (<i>e.g.</i>, “detect[ing] a WLAN border cell”). <u>E.g., Dorenbosch:</u> Dorenbosch discloses a mobile device, “while on the WAN network...check[ing] for coverage of the WLAN system,” attempting to “detect[] a WLAN border cell.” [0045]. Lanning, ¶¶134-136. As explained in IX.A.3, a POSITA would have been motivated to apply Dorenbosch’s teaching of transitioning from a WAN to WLAN to Chaskar’s device. Lanning, ¶¶137. • Fig. 10:

'281	Chaskar in view of Dorenbosch and Willhoff
	<pre> graph TD ENTER([ENTER]) --> 1002[BEGIN WLAN STACK AND HARDWARE] 1002 --> 1004[ATTEMPT TO RECEIVE SIGNALS FROM WLAN CELLS] 1004 --> 1006{DETECT BORDER CELL?} 1006 -- NO --> 1007[REGISTER WITH WLAN] 1006 -- YES --> 1010[REGISTER WITH WLAN AND MONITOR MOVEMENT] 1010 --> 1012{IS SPEED AND/OR DISPLACEMENT GREATER THAN PREDETERMINED LEVEL?} 1012 -- NO --> 1008[TERMINATE RUNNING WLAN STACK AND HARDWARE] 1012 -- YES --> 1014{IS WLAN SIGNAL STRENGTH GREATER THAN A PREDETERMINED LEVEL?} 1014 -- NO --> 1008 1014 -- YES --> 1016[TERMINATE RUNNING WAN STACK AND HARDWARE] 1016 --> 1018[CONDUCT CALL VIA WLAN NETWORK] 1018 --> END([END]) 1007 --> 1014 </pre> FIG. 10 1000 [0045]: "...From time to time, <i>while on the WAN network, the unit 306 will execute this process in order to check for coverage of the WLAN system....</i>The unit 306 enters the method, at step 1002 where it <i>begins running the WLAN stack 510 and its associated hardware 404, 406</i>. The unit then <i>attempts to receive signals from WLAN cells at step 1004</i>. If the unit <i>detects a WLAN border cell, at step 1006</i>, then the unit 306

'281	Chaskar in view of Dorenbosch and Willhoff
	registers with the WLAN and begins to monitor its movement, at step 1010. Otherwise, <i>if the unit 306 determines that the unit is within a normal WLAN cell 104, the unit will immediately register with the WLAN, at step 1007</i>, and begin to handover any current call(s) to the WLAN system....<i>For a unit 306 that detects a border cell, if the speed and/or displacement exceed predetermined thresholds, at step 1012, then the unit will check the signal strength of the WLAN signal, at step 1014....</i> • [0049]: “...<i>The WAN system will no longer be burdened with the unnecessary load of placing calls for users that remain within the WLAN coverage even though they are using the border cells.</i>”
[12.b] activating a timer to establish a first time window of a first predefined size T1 based on the detected first context;	Chaskar discloses a first time window of a first predefined size (e.g., “signal strength averaging window[]” having a “width[]”). See [1.c]. Lanning, ¶¶138-140. Dorenbosch discloses performing a signal strength measurement (e.g., “check[ing] the signal strength of the WLAN signal”) based on the detected first context (e.g., “detect[ing] a WLAN border cell”). <u>E.g., Dorenbosch:</u> See [12.a], [1.c]. Dorenbosch further discloses checking the WLAN signal strength based on whether a border cell is detected: If a border cell is not detected, the signal strength measurement is performed immediately upon WLAN registration; if a border cell is detected, the signal strength measurement is performed only if

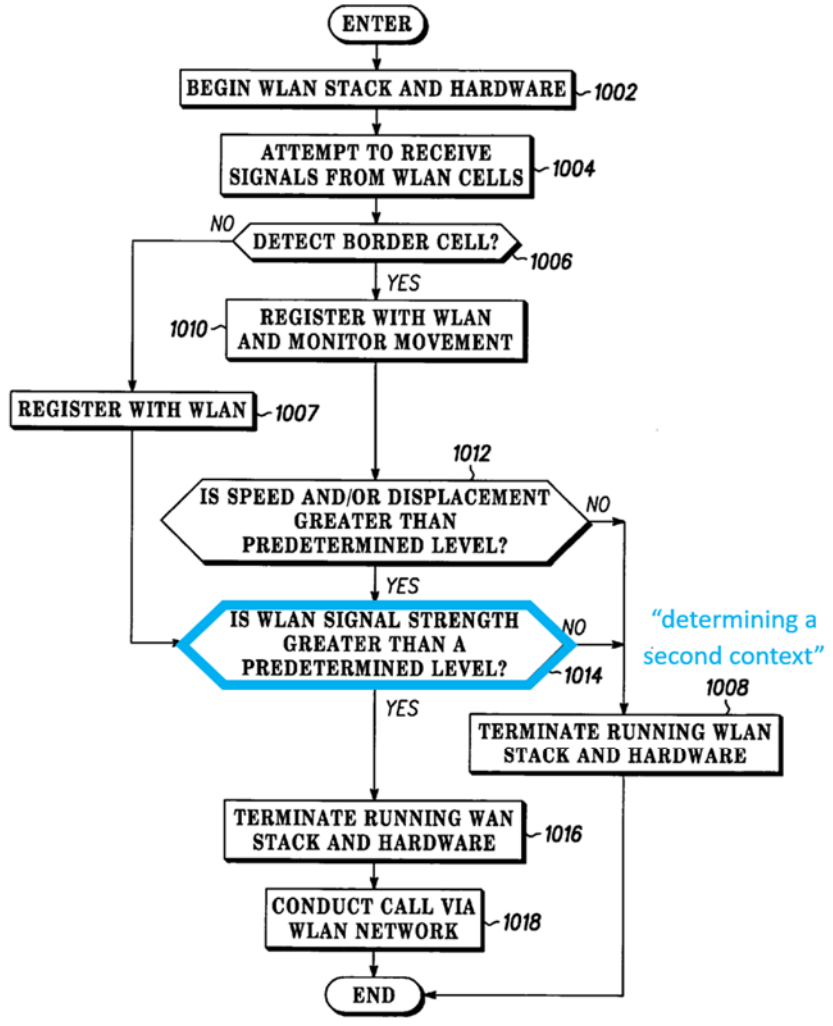
'281	Chaskar in view of Dorenbosch and Willhoff
	speed/displacement of the device is greater than a threshold.⁴ [0045], Fig. 10. Lanning, ¶¶141-143. As explained in §IX.A.3, a POSITA would have been motivated to apply Dorenbosch's teaching of transitioning from a WAN to a WLAN to Chaskar's device, and when doing so, the signal strength would be measured using a signal strength averaging window of a particular width. Lanning, ¶144. • Fig. 10:

⁴ See '281 5:64-6:24 (confirming “based on the detected first context” modifies “activating a timer...”). Lanning, ¶143.

'281	Chaskar in view of Dorenbosch and Willhoff
	<pre> graph TD ENTER([ENTER]) --> 1002[BEGIN WLAN STACK AND HARDWARE] 1002 --> 1004[ATTEMPT TO RECEIVE SIGNALS FROM WLAN CELLS] 1004 --> 1006{DETECT BORDER CELL?} 1006 -- YES --> 1010[REGISTER WITH WLAN AND MONITOR MOVEMENT] 1006 -- NO --> 1007[REGISTER WITH WLAN] 1010 --> 1012{IS SPEED AND/OR DISPLACEMENT GREATER THAN PREDETERMINED LEVEL?} 1012 -- YES --> 1014{IS WLAN SIGNAL STRENGTH GREATER THAN A PREDETERMINED LEVEL?} 1012 -- NO --> 1008[TERMINATE RUNNING WLAN STACK AND HARDWARE] 1014 -- YES --> 1016[TERMINATE RUNNING WAN STACK AND HARDWARE] 1014 -- NO --> 1008 1016 --> 1018[CONDUCT CALL VIA WLAN NETWORK] 1018 --> END([END]) 1008 --> END </pre> FIG. 10 1000 [0045]: “...If the unit detects a WLAN border cell, at step 1006, then the unit 306 registers with the WLAN and begins to monitor its movement, at step 1010. Otherwise, if the unit 306 determines that the unit is within a normal WLAN cell 104, the unit will immediately register with the WLAN, at step 1007, and begin to handover any current call(s) to the WLAN

'281	Chaskar in view of Dorenbosch and Willhoff
	system, (i.e. <i>the unit will bypass the steps for checking the movement and skip ahead to step 1014</i>). For a unit 306 that detects a border cell, if the speed and/or displacement exceed predetermined thresholds, at step 1012, then the unit will check the signal strength of the WLAN signal, at step 1014. Otherwise, the unit 306 again terminates running the WLAN stack 510 and hardware 404, 406, at step 1008, if either the movement information or the WLAN signal strength is insufficient to warrant a handover. If all the conditions are met (i.e. sufficient signal strength, necessary movement conditions within border cell coverage) then the unit 306 will terminate running the WAN stack 508 and hardware 410, 412, at step 1016, and conducts any present and/or subsequent calls via the WLAN system, at step 1018.” Willhoff discloses activating a timer (e.g., starting timer measuring “window of time”) to establish a first time window of a first predefined size T1 (e.g., “window of time” of shorter “width”) to perform a signal strength measurement (measure “RSSI”). See [1.c] (also addressing motivation to apply Willhoff’s teachings to Chaskar (as modified by Dorenbosch)). As explained in [1.c], Willhoff discloses measuring signal strength over a period of time. Moreover, as explained above, a POSITA would have understood when applying Dorenbosch’s teachings of WAN-to-WLAN switching to Chaskar, WLAN signal strength would be measured using a signal strength averaging window of a particular width. Thus, because WLAN signal strength is measured based on whether there is a detected border bit (the “first context”), as noted above, when applying Willhoff’s

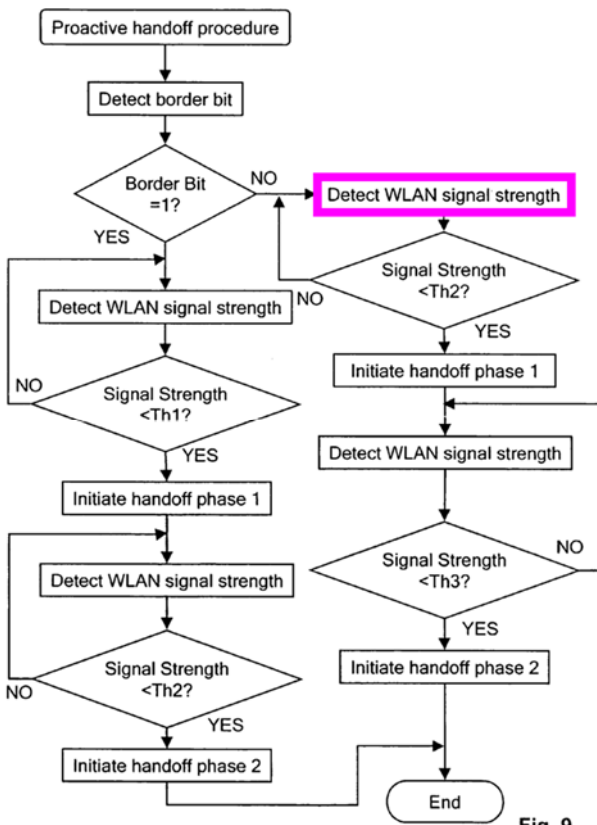
'281	Chaskar in view of Dorenbosch and Willhoff
	teachings of a timer to measure a window to Chaskar (as modified by Dorenbosch), the timer would be activated based on the “first context.” Lanning, ¶¶145-147.
[12.c] determining a second context during the first time window;	Chaskar discloses the first time window (e.g., “signal strength averaging window[]”). <i>See</i> [1.c]. Lanning, ¶¶148-150. Dorenbosch discloses determining a second context (e.g., while connected to WAN network, “check[ing] the signal strength of the WLAN signal” and finding “sufficient [WLAN] signal strength”). <u>E.g., Dorenbosch:</u> <i>See</i> [12.b]. Dorenbosch further discloses, if a border cell is detected, the unit registers with the WLAN and begins to monitor whether its speed/displacement exceed predetermined thresholds, and thereafter checks the signal strength of the WLAN signal. [0045], Fig. 10. Lanning, ¶¶151-153. As explained in §IX.A.3, a POSITA would have been motivated to apply Dorenbosch’s teaching of transitioning from a WAN to a WLAN to Chaskar’s device, such that strength is checked during the window. Lanning, ¶154. • Fig. 10:

'281	Chaskar in view of Dorenbosch and Willhoff
	 <pre> graph TD ENTER([ENTER]) --> 1002[BEGIN WLAN STACK AND HARDWARE] 1002 --> 1004[ATTEMPT TO RECEIVE SIGNALS FROM WLAN CELLS] 1004 --> 1006{DETECT BORDER CELL?} 1006 -- NO --> 1007[REGISTER WITH WLAN] 1006 -- YES --> 1010[REGISTER WITH WLAN AND MONITOR MOVEMENT] 1010 --> 1012{IS SPEED AND/OR DISPLACEMENT GREATER THAN PREDETERMINED LEVEL?} 1012 -- NO --> 1008[TERMINATE RUNNING WLAN STACK AND HARDWARE] 1012 -- YES --> 1014{IS WLAN SIGNAL STRENGTH GREATER THAN A PREDETERMINED LEVEL?} 1014 -- NO --> 1008 1014 -- YES --> 1016[TERMINATE RUNNING WAN STACK AND HARDWARE] 1016 --> 1018[CONDUCT CALL VIA WLAN NETWORK] 1018 --> END([END]) 1008 --> END </pre> FIG. 10 1000 [0045]: “...<i>If all the conditions are met (i.e. sufficient signal strength, necessary movement conditions within border cell coverage)...</i>” Willhoff discloses the first time window (e.g., “window of time”).

'281	Chaskar in view of Dorenbosch and Willhoff
	See [1.c] (also addressing motivation to apply Willhoff's teachings to Chaskar (as modified by Dorenbosch)). Lanning, ¶¶155-156.
[12.d] automatically switching a communication in progress via a wireless network to a communication via a Wi-Fi network based on the second detected context;	Dorenbosch discloses automatically switching (<i>e.g.</i>, “conduct[] any present and/or subsequent calls via the WLAN system”) a communication in progress via a wireless network (<i>e.g.</i>, “present...call[]”) to a communication via a Wi-Fi network (<i>e.g.</i>, “WLAN” using “IEEE Standard 802.11” protocols) based on the second detected context (<i>e.g.</i>, handoff based on “sufficient signal strength” of the WLAN). <u>E.g., Dorenbosch:</u> See [12.c]. Dorenbosch further discloses, when handover manager 514 is connected to a WAN signal, for which users must pay a “cost” for usage, and detects a “WLAN signal strength greater than a predetermined level” while the speed/displacement of the device exceeds a threshold, handover manager 514 switches to the WLAN to conduct the “present call.” [0008], [0045], [0049]. The 802.11 Wi-Fi WLAN is preferable because it has sufficient signal strength and there are no use charges. [0049]. Switching is performed automatically because it is performed without human intervention. Lanning, ¶¶157-160. As explained in §IX.A.3, a POSITA would have been motivated to apply Dorenbosch's teaching of WAN-to-WLAN transitioning to Chaskar's device. Lanning, ¶¶161. • Fig. 10:

'281	Chaskar in view of Dorenbosch and Willhoff
	<pre> graph TD ENTER([ENTER]) --> 1002[BEGIN WLAN STACK AND HARDWARE] 1002 --> 1004[ATTEMPT TO RECEIVE SIGNALS FROM WLAN CELLS] 1004 --> 1006{DETECT BORDER CELL?} 1006 -- NO --> 1007[REGISTER WITH WLAN] 1006 -- YES --> 1010[REGISTER WITH WLAN AND MONITOR MOVEMENT] 1010 --> 1012{IS SPEED AND/OR DISPLACEMENT GREATER THAN PREDETERMINED LEVEL?} 1012 -- NO --> 1008[TERMINATE RUNNING WLAN STACK AND HARDWARE] 1012 -- YES --> 1014{IS WLAN SIGNAL STRENGTH GREATER THAN A PREDETERMINED LEVEL?} 1014 -- NO --> 1008 1014 -- YES --> 1016[TERMINATE RUNNING WAN STACK AND HARDWARE] 1016 --> 1018[CONDUCT CALL VIA WLAN NETWORK] 1018 --> END([END]) 1008 --- Note1["second detected context"] 1016 --- Note2["automatically switching a communication in progress via a wireless network to a communication via a Wi-Fi network"] </pre> FIG. 10 1000 [0045]: “...<i>If the unit detects a WLAN border cell, at step 1006, then the unit 306 registers with the WLAN and begins to monitor its movement, at step 1010....For a unit 306 that detects a border cell, if the speed and/or displacement exceed predetermined thresholds, at step 1012, then the unit will check the signal strength of the WLAN signal, at step 1014. Otherwise, the unit 306 again terminates running the WLAN stack 510 and hardware 404, 406, at step 1008, if either the movement information or the WLAN signal strength is insufficient to warrant a handover. If all the conditions are met (i.e. sufficient signal strength, necessary movement conditions within border cell coverage) then the unit 306 will</i>

'281	Chaskar in view of Dorenbosch and Willhoff
	<i>terminate running the WAN stack 508 and hardware 410, 412, at step 1016, and conducts any present and/or subsequent calls via the WLAN system, at step 1018.”</i> • [0049]: “The novel system...provide significant advantages...such as improving the reliability of the handover, thereby allowing for significant cost savings by allowing more calls to be made over the WLAN.” • See also [0008].
[12.e] detecting a third context;	Chaskar discloses detecting a third context (e.g., if “detected border bit is equal to 0” while connected to the WLAN network, “detect[ing] WLAN signal strength”). <u>E.g., Chaskar:</u> See [1.d]. As discussed in [1.d], Chaskar discloses, when a border bit equal to 0 is detected, the WLAN signal strength is detected to determine if it is above or below Th2. [0072], Fig. 9. Lanning, ¶¶162-165. • Fig. 9:

'281	Chaskar in view of Dorenbosch and Willhoff
	 Fig. 9 • [0072]: “In case the detected border bit is equal to 0...while a detected WLAN signal strength is larger than Th2, the mobile node waits. After the signal strength has fallen below Th2, in order to be proactive, handoff phase 1 is initiated.” • See also [0017]-[0021].
[12.f] establishing a second time window of a second predefined size T2 if the third detected context falls below a second predefined threshold value Vth2;	Chaskar discloses establishing a second time window of a second predefined size T2 (e.g., establishing “signal strength averaging window[]” having a “width[]”) if the third detected context falls below a second predefined threshold value Vth2 (e.g., if “detect[ed] WLAN signal strength...falls below Th2”). <u>E.g., Chaskar:</u> See [1.d], [12.e].

'281	Chaskar in view of Dorenbosch and Willhoff
	Chaskar discloses establishing a second time window to detect if WLAN strength falls below Th3 after the device determines WLAN strength falls below a Th2, thereby monitoring for further decrease in WLAN signal strength to determine if handoff to cellular is required. [0072]-[0073], Fig. 9. Lanning, ¶¶166-169. - Fig. 9: <pre> graph TD Start([Proactive handoff procedure]) --> DetectBorder[Detect border bit] DetectBorder --> BorderBit{Border Bit = 1?} BorderBit -- YES --> DetectWLAN1[Detect WLAN signal strength] DetectWLAN1 --> Th1{Signal Strength < Th1?} Th1 -- YES --> InitPhase1_1[Initiate handoff phase 1] InitPhase1_1 --> DetectWLAN2[Detect WLAN signal strength] DetectWLAN2 --> Th2{Signal Strength < Th2?} Th2 -- YES --> InitPhase2_1[Initiate handoff phase 2] InitPhase2_1 --> End([End]) Th2 -- NO --> DetectWLAN3[Detect WLAN signal strength] DetectWLAN3 --> Th2 BorderBit -- NO --> DetectWLAN4[Detect WLAN signal strength] DetectWLAN4 --> Th2_2{Signal Strength < Th2?} Th2_2 -- YES --> InitPhase1_2[Initiate handoff phase 1] InitPhase1_2 --> DetectWLAN5[Detect WLAN signal strength] DetectWLAN5 --> Th3{Signal Strength < Th3?} Th3 -- YES --> InitPhase2_2[Initiate handoff phase 2] InitPhase2_2 --> End Th3 -- NO --> DetectWLAN5 </pre> Fig. 9 [0072]: “In case the detected border bit is equal to 0...<i>while a detected WLAN signal strength is larger than Th2, the mobile node waits.</i>” [0073]: “After initiation of phase 1, <i>WLAN signal strength is detected again and while the detected WLAN signal strength is larger than a predetermined threshold Th3, the mobile node waits.</i>”

'281	Chaskar in view of Dorenbosch and Willhoff
	To the extent further disclosure of a second predefined size is required, Willhoff discloses a second time window of a second predefined size T2 (e.g., “window of time” of shorter “width”). <u>E.g., Willhoff</u> See [1.d] (also addressing motivation to apply Willhoff’s teachings to Chaskar (as modified by Dorenbosch)). Lanning, ¶¶170-171.
[12.g] detecting a fourth context during the second time window; and	Chaskar discloses detecting a fourth context (e.g., after handoff phase 1 is initiated “detect[ing] WLAN signal strength”) during the second time window (e.g., time window established for “signal strength averaging windows”). <u>E.g., Chaskar:</u> See [12.f]. As explained in [12.f], Chaskar discloses detecting the WLAN signal strength again, during a signal strength averaging window, after handoff phase 1 initiation. [0072]-[0073]. Lanning, ¶¶172-175. • Fig. 9:

'281	Chaskar in view of Dorenbosch and Willhoff
	<pre> graph TD Start([Proactive handoff procedure]) --> DetectBorder[Detect border bit] DetectBorder --> BorderBit{Border Bit = 1?} BorderBit -- YES --> DetectWLAN1[Detect WLAN signal strength] BorderBit -- NO --> DetectWLAN2[Detect WLAN signal strength] DetectWLAN1 --> SignalTh1{Signal Strength < Th1?} SignalTh1 -- YES --> InitPhase1[Initiate handoff phase 1] SignalTh1 -- NO --> DetectWLAN1 InitPhase1 --> SignalTh2{Signal Strength < Th2?} SignalTh2 -- YES --> InitPhase2[Initiate handoff phase 2] SignalTh2 -- NO --> DetectWLAN1 InitPhase2 --> End([End]) DetectWLAN2 --> SignalTh2_2{Signal Strength < Th2?} SignalTh2_2 -- YES --> InitPhase1_2[Initiate handoff phase 1] SignalTh2_2 -- NO --> DetectWLAN2 InitPhase1_2 --> SignalTh3{Signal Strength < Th3?} SignalTh3 -- YES --> InitPhase2_2[Initiate handoff phase 2] SignalTh3 -- NO --> DetectWLAN2 InitPhase2_2 --> End </pre> Fig. 9
[12.h] continuing a Wi-Fi communication without change if the fourth detected context is equal to or greater than a third predefined threshold value Vth3,	Chaskar discloses continuing a Wi-Fi communication without change if the fourth detected context is equal to or greater than a third predefined threshold value Vth3 (e.g., “mobile node” continues Wi-Fi (802.11) communication “while the detected WLAN signal strength is larger than a predetermined threshold Th3”). <u>E.g., Chaskar:</u> See [12.f], [1.d]. Chaskar discloses that, if the detected signal strength remains above Th3, the 802.11 communication continues until the WLAN signal strength drops below Th3. [0073]. Lanning, ¶¶176-179. Fig. 9:

'281	Chaskar in view of Dorenbosch and Willhoff
	Fig. 9 [0073]: “After initiation of phase 1, WLAN signal strength is detected again and while the detected WLAN signal strength is larger than a predetermined threshold Th3, the mobile node waits. After the signal strength has fallen below Th3, handoff phase 2 is initiated.”
[12.i] wherein Vth3 is smaller than Vth2.	See [1.e]. Lanning, ¶¶180-183.

'281	Chaskar in view of Dorenbosch and Willhoff
[37.pre]-[37.a]	See [1.pre]-[1.a]. Lanning, ¶¶184-187.
[37.b] wherein during an established communication if a monitor detects that a context changes, the established communication is switched to a second communication over a network, wherein switching is based on detecting a second context being preferred over the context within a set of known networks,	Chaskar discloses during an established communication (<i>e.g.</i>, established “voice call[]”) if a monitor detects that a context changes (<i>e.g.</i>, monitor detects “WLAN signal strength...fall[s] below Th3”), the established communication is switched to a second communication over a network (<i>e.g.</i>, “handoff” to “cellular”). See [1.b]. Further, a POSITA would have understood or at least found it obvious that Chaskar’s detection of the WLAN signal strength falling below Th3 is performed by a monitor, such as through software running on the mobile node. Lanning, ¶¶188-191. Dorenbosch discloses detecting a second context (<i>e.g.</i>, “signal strength of the WAN signal is” “good”) being preferred over the context within a set of known networks (“WAN” preferred over “[i]f...WLAN signal degradation is detected”). See [1.b] (also addressing motivation to apply Dorenbosch’s teachings to Chaskar). “WAN” and “WLAN” are known networks in order to evaluate their signals. Lanning, ¶¶192-193.
[37.c]-[37.e]	See [1.c]-[1.e]. Lanning, ¶¶194-199.

B. Ground 2: Ground 1 in further view of Donovan (Claims 1, 12, 37)

If further disclosure of a “sleep mode” is required, **Donovan** discloses a “sleep mode” (also referred to as a “low power mode”). **Donovan** discloses a wireless-LAN-connected mobile station, which includes “**wireless network communications device 48**” (communication module) transitioning between a “sleep” (or “low power”) and an “active mode.” Donovan, [0042], [0057]. Lanning ¶200.

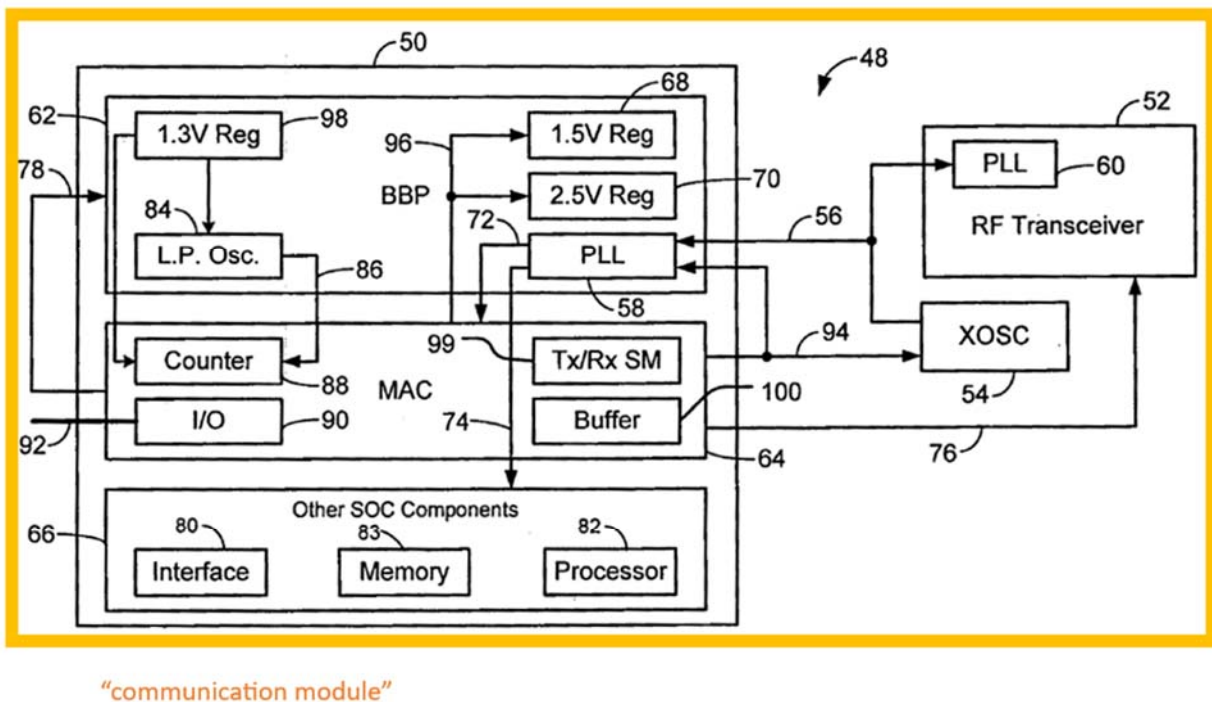
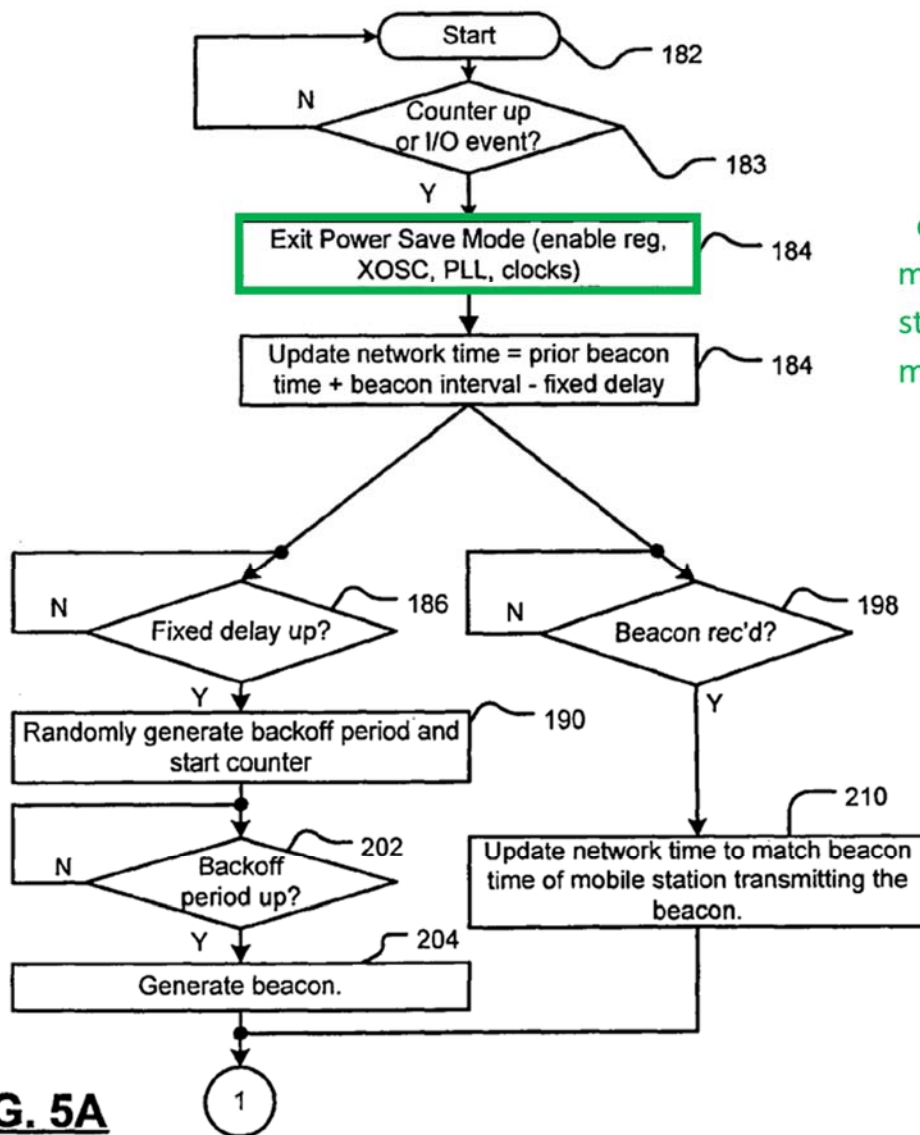


FIG. 2

Donovan, Fig. 2.

In “active mode,” “the wireless network communications device 48 processes

incoming and outgoing data.” Donovan, [0042]. In “sleep mode,” **Donovan’s** RF transceiver “remains deactivated...and does not transmit or receive RF signals,” but “may utilize a small amount of power to ensure a quick transition from the low power mode to the active mode.” Donovan, [0045]. If “a mobile station requires the wireless network communications device 48 to return to the active mode, the mobile station triggers an I/O input 92,” and “**the remaining circuitry is enabled in step 184.**” Donovan, [0050], [0057]; Fig. 5A. After entering active mode, wireless communications device 48 transmits and receives signals. Donovan, [0058].
Lanning ¶201.



“the second communication module to change state from a sleep mode to an active mode”

Like **Chaskar**, **Dorenbosch**, and **Willhoff**, **Donovan** is analogous art, in the same field as the '281, which includes wireless communications, and reasonably pertinent to alleged problems addressed by the '281 of connecting to wireless communication networks. *See, e.g.*, '281 Abstract, 2:36-41; Donovan, [0042]-[0043]. Lanning, ¶202.

A POSITA would have been motivated to apply **Donovan's** teachings of a

communication module changing state from low power sleep state to active state in implementing **Chaskar's** device (as modified by **Dorenbosch** and **Willhoff**) to allow the device to reduce power consumption and allow faster wake-up than if the module were completely shut off. Dorenbosch, [0006]; Donovan, [0045]. Lanning, ¶203. Further, a POSITA would have found it straightforward to apply these teachings to **Chaskar's** device as modified by **Dorenbosch** because **Dorenbosch** teaches turning off its WAN or WLAN communication module when communicating over the other, and how that impacts the switching operation. Dorenbosch, [0038]. *See* §IX.A.2. Lanning, ¶203.

Accordingly, a POSITA would have had a reasonable expectation of success applying **Donovan's** teachings of sleep and active modes to **Chaskar's** handoff procedure (as modified by **Dorenbosch** and **Willhoff**), and would have known such a combination (yielding the claimed limitations) would predictably work and provide the expected functionality. Lanning, ¶204.

C. Ground 3: Chaskar in view of Willhoff and Ruan (Claim 31)

As explained below, this ground involves the use of **Chaskar's** multi-threshold comparison process for switching from Wi-Fi to cellular (*see* §IX.A.1), to which is applied **Ruan's** procedure for switching to another Wi-Fi network before switching to cellular (*see* §IX.C.1) to improve performance. **Willhoff's** teaching of using a timer for measuring signal strength (*see* §IX.A.4) is applied to each signal

strength measurement involved in these switching processes. Lanning ¶¶212-213.

1. Overview of Ruan

Ruan discloses a wireless device that makes “roaming decisions based on association qualities between the wireless device and one or more wireless access points.” Ruan, [0002]. **Ruan’s** mobile station 271 “includes quality calculation module 255,” “generat[ing] an association quality for a corresponding access point,” such as “access point 205” communicating via “IEEE 802.11,” based on “one or more inputs,” such as a measurement of the signal strength of the current access point. Ruan, [0043], [0048]-[0049]. Lanning, ¶205.

Ruan’s “[q]uality calculation module 255 compares the current quality association value to quality threshold value 254,” and “[w]hen the retrieved current quality association value is greater than or equal to quality threshold value 254, current association 293 is viewed as being sufficient.” Ruan, [0060]. But “when the current quality association value is less than quality threshold value 254, current association 293 is viewed as being insufficient,” and “station 271 may roam to attempt to associate with a different access point.” Ruan, [0061]. Lanning, ¶206.

When roaming, **Ruan’s** mobile station 271 “generat[es] a ranked candidate list” of access points by “identify[ing] any access points...that have an association quality value equal to or greater than the quality threshold value” (“sufficient access points”) and “append[s] any access points...that have an association quality value

less than the quality threshold value” (“insufficient access points”). Ruan, [0076]-[0077]. Thereafter, the mobile station “select[s] a ranked access point from the ranked candidate list,” “attempt[s] to associate with the selected ranked access point,” and once successful, “communicates with resources included in network 201 through access point.” Ruan, [0082]-[0083]. Lanning, ¶207.

Ruan teaches “it may be that no other access point has an association quality value greater than the association quality value for access point 205” of the existing connection, then “station 271 may maintain current association 293 (even if current association 293 is insufficient).” Ruan, [0068]. Lanning, ¶208.

2. Motivation to Apply Ruan’s Teachings to Chaskar as modified by Willhoff

Like **Chaskar** and **Willhoff**, **Ruan** is analogous art, in the same field as the ’281, which includes wireless communications, and reasonably pertinent to alleged problems addressed by the ’281 of switching between wireless communication networks. *See, e.g.*, Ruan, [0082]-[0083]. Lanning, ¶209.

A POSITA would have been motivated to apply **Ruan**’s alternative Wi-Fi search and connection teachings to **Chaskar**’s mobile device to advantageously continue a call using Wi-Fi instead of switching to cellular, which has higher service fees, increases power consumption, and is slower. Lanning, ¶210; *see also* Chaskar [0004] (“[I]t is supposed that the user has chosen WLAN as the preferred access to

the IP network...because WLAN access it typically cheaper and faster than cellular access.”). Lanning, ¶210. In implementing **Ruan’s** Wi-Fi search teachings in **Chaskar’s** system, a POSITA would have understood or at least found obvious that the mobile node would search for the alternative Wi-Fi signals after the mobile node determines that the WLAN signal strength has fallen below Th2, before initiating phase 1 of a handoff procedure. *See* Chaskar, [0072]; Ruan, [0061]. This would avoid unnecessarily using cellular if another Wi-Fi signal is available, predictably allowing the WLAN communication module to perform operations without interruption until it is determined that no WLAN signal is sufficient, and a switch to cellular communications is necessary. Lanning, ¶210.

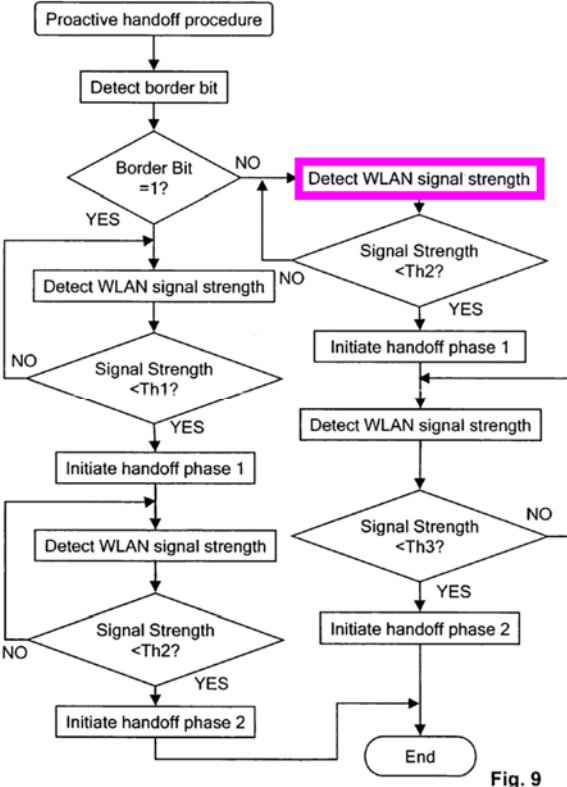
Accordingly, a POSITA would have had a reasonable expectation of success applying **Ruan’s** teachings of searching for alternative Wi-Fi networks to **Chaskar’s** handoff procedure (as modified by **Willhoff**), and would have known such a combination (yielding the claimed limitations) would predictably work and provide the expected functionality. Lanning, ¶211.

3. Claim Chart

’281	Chaskar in view of Willhoff and Ruan
[31.pre] A method comprising:	<i>See</i> [12.pre] (§IX.A.6). Lanning, ¶¶214-215.

'281	Chaskar in view of Willhoff and Ruan
[31.a] determining, with a server, a first signal level;	Chaskar renders obvious determining (<i>e.g.</i>, “detect[ing]”), with a server (<i>e.g.</i>, “mobile node”), a first signal level (<i>e.g.</i>, “WLAN signal strength”). <u>E.g., Chaskar:</u> See [12.e] (§IX.A.6). Chaskar further discloses the mobile node’s handover procedure that detects whether the “WLAN signal strength” is larger than Th2. [0072]; Lanning, ¶¶216-219. A POSITA would have found it obvious to implement Chaskar’s mobile node as the well-known concept of a server to advantageously allow portable service of data between devices, <i>e.g.</i>, to allow one user to download information from another user’s portable device.⁵ Lanning, ¶220. • Fig. 9:

⁵ See **Deanna**, [0022] (disclosing implementing a portable wireless device as a server to allow “sharing and processing of data throughout a distributed organization”).

'281	Chaskar in view of Willhoff and Ruan
	 Fig. 9 [0072]: “In case the detected border bit is equal to 0...<i>while a detected WLAN signal strength is larger than Th2</i>, the mobile node waits. <i>After the signal strength has fallen below Th2</i>, in order to be proactive, handoff phase 1 is initiated.”
[31.b] activating, with the server, a timer to establish a first time window of a first predefined size T1 if the detected first signal level is greater than a first predefined threshold value;	Chaskar renders obvious with the server (see [31.a.]), establishing a first time window of a predefined size T1 (e.g., “signal strength averaging window[]” of a “width[]”) if the detected first signal level is greater than a first predetermined threshold value (e.g., “while a detected WLAN signal strength is larger than Th2”), and determining (e.g., “measur[ing]”), with the server, a second signal level during the first time window (e.g., “detect[ing] WLAN signal strength” a second time during “signal strength averaging window[]”).

'281	Chaskar in view of Willhoff and Ruan
[31.c] determining, with the server, a second signal level during the first time window;	<u>E.g., Chaskar:</u> See [1.c], [12.b] (§IX.A.6). Chaskar further discloses, if the mobile node detects the WLAN signal strength is larger than Th2, the mobile node repeats this process, and detects the WLAN signal strength within another “signal strength averaging window” for comparison with Th2. [0072], [0076], Fig. 9. Lanning, ¶¶221-224. Fig. 9: <pre> graph TD Start([Proactive handoff procedure]) --> DetectBorder[Detect border bit] DetectBorder --> BorderBit{Border Bit = 1?} BorderBit -- YES --> DetectWLAN1[Detect WLAN signal strength] DetectWLAN1 --> Th1{Signal Strength < Th1?} Th1 -- YES --> InitPhase1_1[Initiate handoff phase 1] InitPhase1_1 --> DetectWLAN2_1[Detect WLAN signal strength] DetectWLAN2_1 --> Th2_1{Signal Strength < Th2?} Th2_1 -- YES --> InitPhase2_1[Initiate handoff phase 2] InitPhase2_1 --> End([End]) Th2_1 -- NO --> DetectWLAN3[Detect WLAN signal strength] DetectWLAN3 --> Th2_2{Signal Strength < Th2?} Th2_2 -- YES --> DetectWLAN4[Detect WLAN signal strength] DetectWLAN4 --> Th3{Signal Strength < Th3?} Th3 -- YES --> InitPhase2_2[Initiate handoff phase 2] InitPhase2_2 --> End Th3 -- NO --> DetectWLAN3 BorderBit -- NO --> DetectWLAN3 </pre> Fig. 9 Willhoff discloses activating a timer (e.g., starting timer measuring “window of time”) to establish a first time window of a first predefined size T1 (e.g., “window of time” of longer “width”). <u>E.g., Willhoff:</u> See [1.c] (§IX.A.6). Lanning, ¶¶225-226.

'281	Chaskar in view of Willhoff and Ruan
	As explained in §IX.A.5, a POSITA would have been motivated to apply Willhoff's teaching of using a timer to compute signal strength in implementing Chaskar's mobile node. Lanning, ¶227.
[31.d] if the second detected signal level falls below the first predefined threshold value, then searching for alternative Wi-Fi signals having signal level above the first predefined threshold value, with the server;	Chaskar renders obvious the second detected signal level falls below the first predefined threshold value (<i>e.g.</i>, “detected WLAN signal strength...fall[s] below Th2”) and the server (<i>e.g.</i>, “mobile node”; see [31.a]). <u>E.g., Chaskar:</u> See [31.a]-[31.c]. Chaskar further discloses detecting whether WLAN signal strength has fallen below Th2. [0072]. Lanning, ¶¶228-231. • [0072]: “In case the detected border bit is equal to 0...while a detected WLAN signal strength is larger than Th2, the mobile node waits. After the signal strength has fallen below Th2, in order to be proactive, handoff phase 1 is initiated.” Ruan discloses searching for alternative Wi-Fi signals (<i>e.g.</i>, “802.11” signals from “different access point[s]”) having signal level above a predefined threshold value (<i>e.g.</i>, signals from “access points” with “an association quality value equal to or greater than the quality threshold value”). <u>E.g., Ruan:</u> Ruan discloses mobile station 271 includes “quality calculation module 255” that “generate[s] an association quality for a corresponding access point,” such as “access point 205” communicating via “IEEE 802.11,” based on “one or more inputs,” such as a signal strength measurement of the current access point. [0043], [0048]-[0049], [0053]. When the signal strength “is less than quality threshold value 254,” station 271 “attempt[s] to

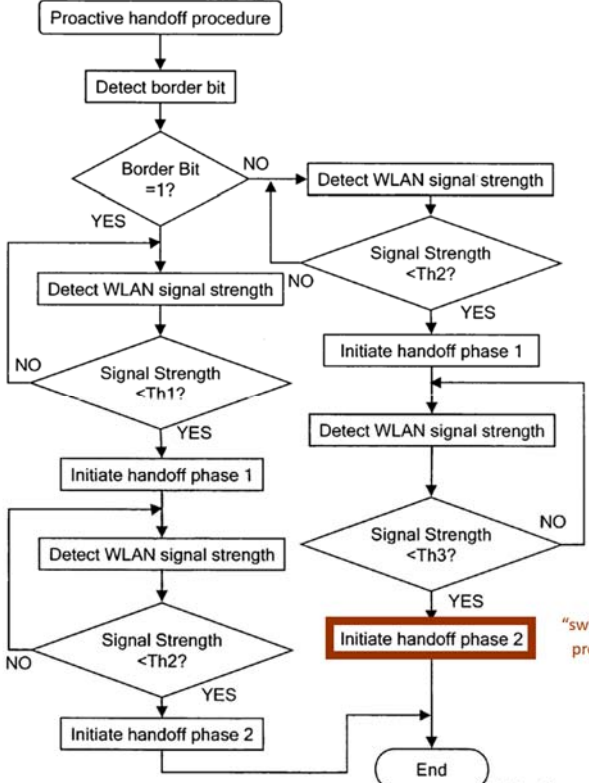
'281	Chaskar in view of Willhoff and Ruan
	associate with a different access point” with sufficient quality based on a stored access point list. [0061]-[0065]. The station “send[s] a probe request packet to an access point,” such as access point 207, to “measure the signal strength” and updates the access point list accordingly. [0065]-[0066]. The station then “identif[ies] any access points...that have an association quality value equal to or greater than the quality threshold value.” [0076]. Lanning, ¶¶232-233. As explained in §IX.C.2, a POSITA would have been motivated to apply Ruan’s alternative Wi-Fi search teachings to Chaskar’s mobile node, and, in doing so, a POSITA would have understood or at least found obvious that the mobile node would search for alternative Wi-Fi signals exceeding Th2 after the mobile node determines that the WLAN signal strength has fallen below Th2, before initiating phase 1 of a handoff procedure. Lanning, ¶234. • [0043]: “...<i>Station 271 includes quality calculation module 255. Quality calculation module 255 can receive one or more inputs corresponding to an association with an access point....From received inputs, quality calculation module 255 can generate an association quality for a corresponding access point.</i>” • [0048]: “...[S]tation 271 can calculate an association quality for access point 205 based on parameters relevant to the quality of current association 293....” • [0049]: “For example, signal strength measurement module 252 can measure the <i>signal strength</i> associated with packets, such as, for example, data packet 231 and beacon packet 274, <i>received from access point 205.</i>”

'281	Chaskar in view of Willhoff and Ruan
	• [0053]: "...AP workload module 245 can measure RF usage of the underlying wireless channel (e.g., an IEEE 802.11 channel in the 2.4 GHz or 5 GHz spectrum)...." • [0061]: "...[W]hen the current quality association value is less than quality threshold value 254, current association 293 is viewed as being insufficient. When current association 293 is insufficient, station 271 may roam to attempt to associate with a different access point...." • [0062]: "The method 300 includes a functional, result-oriented step for identifying a least one other wireless access point that has a sufficient association quality (step 306). Step 306 can include any corresponding acts for identifying a least one other access point that has a sufficient association quality...." • [0063]: "...Station 271 can receive beacon and/or probe response packets that contain AP availability parameters (and potentially one or more AP configuration parameters) from other access points. Upon receiving beacon and/or probe response packets, signal strength measurement module 252 can measure a signal strength associated with the received beacon and/or probe response packets. For example, signal strength measurement module 252 can measure the signal strength associated with access point 206 when beacon packet 282 is received at station 271...." • [0065]: "...For example, station 271 can send probe request packet 291 to access point 207. In response, access point 207 can send probe response packet 284, which contains AP availability parameter 286 (and potentially one or

'281	Chaskar in view of Willhoff and Ruan
	more AP configuration parameters), back to station 271. Signal strength measurement module 252 can measure the signal strength associated with access point 207 when probe response packet 284 is received at station 271. Accordingly, <i>probe request packet 284 may provide station 271 with all the information for calculating an association quality value for access point 206.</i> • [0076]: “For example, access point selection module 257 can <i>identify any access points</i> from among access points 205, 206, and 207 <i>that have an association quality value equal to or greater than the quality threshold value</i> (hereinafter referred to as ‘sufficient access points’).” • See also, [0064], [0066].
[31.e] if an alternative signal level is above the first predefined threshold value, then switching a Wi-Fi communication in progress to a source of the alternative Wi-Fi signal, with the server; and	Chaskar renders obvious the first predefined threshold value (e.g., “WLAN signal strength is larger than Th2”; see [31.b]), a Wi-Fi communication in progress (e.g., “voice call[]” using “802.11” communications) and the server (e.g., “mobile node”; see [31.a]). <u>E.g., Chaskar:</u> See [1.d] (§IX.A.6), [31.a]-[31.c]. Chaskar further discloses the call in progress is over a Wi-Fi WLAN. [0015], [0043]. Lanning, ¶¶235-238. • [0015]: “The invention enables smart detection of hot spot (such as 802.11 WLAN or HiperLAN) border crossing.” • [0043]: “The handoff policies as described above can be simultaneously applied to different applications. For example, policy 1 for voice calls....”

'281	Chaskar in view of Willhoff and Ruan
	Ruan discloses if an alternative signal level is above a predefined threshold value (<i>e.g.</i>, a signal from another “access point” has “an association quality value equal to or greater than the quality threshold value”), then switching a communication to a source of the alternative Wi-Fi signal (<i>e.g.</i>, “associate with the...wireless access point”). <u>E.g., Ruan:</u> See [31.d]. Ruan further discloses the identified “sufficient access points” having “an association quality value equal to or greater than the quality threshold value” are “ranked” and an access point is “select[ed].” [0076], [0082]. The mobile station “attempt[s] to associate with the selected ranked wireless access point,” and upon success, communicates with another device via the new access point. [0083]. Lanning, ¶¶239-241. As explained in §IX.C.2, a POSITA would have been motivated to apply Ruan’s teachings of switching to an alternative Wi-Fi signal to Chaskar’s mobile device, such that if Th2 is exceeded by another W-Fi access point, the device switches to that access point. Lanning, ¶242. • [0076]: “[A]ccess point selection module 257 can identify any access points from among access points 205, 206, and 207 that have an association quality value equal to or greater than the quality threshold value (hereinafter referred to as “sufficient access points”). Ranking module 258 can then randomly rank the sufficient access points relative to one another such that each sufficient access point is ranked differently than the other sufficient access points. Ranking module 258 can arrange the sufficient access points in a ranked candidate list based on rank.”

'281	Chaskar in view of Willhoff and Ruan
	• [0082]: “After the sufficient access points are included in the ranked candidate list, any insufficient access points can be appended to the ranked candidate list. The method 400 includes an act of selecting a ranked access point from the ranked candidate list (act 403). Act 403 can include the wireless access point selecting a ranked wireless access point from the ranked candidate list. For example, access point selection module 257 can select a ranked access point from the ranked candidate list for station 271....” • [0083]: “The method 400 includes an act of attempting to associate with the selected ranked access point (act 404). Act 404 can include the wireless device attempting to associate with the selected ranked wireless access point....” • See also, [0077].
[31.f] if no alternative signal level is above the first predefined threshold value, then switching a Wi-Fi communication in progress to the wireless network, with the server,	Chaskar renders obvious the first predefined threshold value (see [31.e]) and switching a Wi-Fi communication in progress to the wireless network (e.g., “handoff” to “cellular”), with the server (e.g., “mobile node”). <u>E.g., Chaskar:</u> See [1.b] (§IX.A.6), [31.a]-[31.e]. Chaskar further discloses, after initiating handoff phase 1, performing a subsequent measurement of WLAN signal strength to determine if “the signal strength has fallen below Th3,” carrying out handover to a cellular network. [0036]-[0037], [0073]. Lanning, ¶¶243-246. • Fig. 9

'281	Chaskar in view of Willhoff and Ruan
	 Fig. 9 • [0036]: “The idea of the present invention is to control handover between a first technology network and a second technology network.... The first technology network may be a WLAN and the second technology network may be a cellular network.” • [0037]: “Moreover, the handover procedure may be separated in a phase 1 in which handover is prepared and a phase 2 in which handover is carried out.” • [0073]: “After initiation of phase 1, WLAN signal strength is detected again and while the detected WLAN signal strength is larger than a predetermined threshold Th3, the mobile node

'281	Chaskar in view of Willhoff and Ruan
	waits. <i>After the signal strength has fallen below Th3, handoff phase 2 is initiated.</i> Ruan discloses no alternative signal level is above a predefined threshold value (e.g., “no other access points has an association quality value greater than” “the quality threshold value”). <u>E.g., Ruan:</u> See [31.d]-[31.e]. Ruan further discloses a scenario where “current association 293 is insufficient” (i.e., having “an association quality value less than the quality threshold value”) and no other access points could provide increased quality. [0068], [0077]. In this scenario, the connection to the original access point is maintained. [0068], [0077]. Lanning, ¶¶247-249. As explained in §IX.C.2, a POSITA would have been motivated to apply Ruan’s alternative Wi-Fi search teachings to Chaskar’s mobile device. Lanning, ¶250. In implementing Ruan’s alternative signal teachings in Chaskar’s system, a POSITA would have understood or at least found obvious that the mobile device would continue to initiate the handoff process, compare the signal strength of the current WLAN connection against Th3 and then complete handoff only if the WLAN signal strength is below Th3, as taught by Chaskar. See Chaskar, [0073], Fig. 9. Lanning, ¶251. • [0068]: “Based on association quality value comparisons, <i>station 271 may determine that station 271 should not attempt to associate with a different access point. For example, it may be that no other access point has an association quality value greater than the association quality value for access point 205. Accordingly, station 271 may maintain current association 293 (even</i>

'281	Chaskar in view of Willhoff and Ruan
	if current association 293 is insufficient) when no other access points could provide increased quality.” • [0077]: “Ranking module 258 can then append any access points from among access points 205, 206, and 207 that have an association quality value less than the quality threshold value (hereinafter referred to as ‘insufficient access points’) to the ranked candidate list.”
[31.g] wherein if a signal monitor detects that the alternative signal level is below a second predefined threshold value, a timer is activated to establish a second time window of a second predefined size,	Chaskar discloses wherein if a signal monitor (e.g., monitor for detecting “WLAN signal strength”) detects that a WLAN signal level is below a second predefined threshold value (e.g., “WLAN signal strength...has fallen below Th2”), establishing a second time window of a second predefined size (e.g., “signal strength averaging window[]” having a “width[]” to determine if “the signal strength has fallen below Th3”). <u>E.g., Chaskar:</u> See [1.d] (§IX.A.6). Lanning, ¶¶252-254. Ruan discloses the alternative signal level (e.g., a signal from another “access point” with which the mobile station “associate[d]”; see [31.e]). <u>E.g., Ruan:</u> See [31.d]-[31.e]. This limitation is rendered obvious regardless of whether “the alternative signal level” refers to “an alternative signal level” of [31.e] or to “no alternative signal level” of [31.f]. Lanning, ¶255-57. If it refers to “an alternative signal level,” this limitation is met because a POSITA would have understood when applying Ruan’s teachings of connecting to an alternative Wi-Fi signal to Chaskar’s mobile device,

'281	Chaskar in view of Willhoff and Ruan
	after the device switches to the alternative Wi-Fi signal (see [31.e]), the mobile device would perform Chaskar's algorithm for switching (see [1.d]), except based on the detected signal strength of the alternative Wi-Fi signal. Lanning, ¶258. If “the alternative signal level” refers to “no alternative signal level” of [31.g], this limitation is met because a POSITA would have understood when applying Ruan's teachings of not connecting to an alternative Wi-Fi signal to Chaskar's mobile device, the mobile device would perform Chaskar's algorithm for switching (see [1.d]) based on the original Wi-Fi signal. Lanning, ¶259. Willhoff discloses activating a timer (e.g., starting timer measuring “window of time”) to establish a first time window of a first predefined size T1 (e.g., “window of time” of shorter “width”). <u>E.g., Willhoff:</u> See [1.d] (§IX.A.6), [31.c]. As explained in IX.A.5, a POSITA would have been motivated to apply Willhoff's teaching of using a timer to compute signal strength in implementing Chaskar's mobile node. Lanning, ¶¶260-262. Moreover, as explained in [1.d], a POSITA would have been motivated to use a longer window of time, such as several seconds as taught by Willhoff for Chaskar's measurement of signal strength for comparison against Th2 to avoid premature handoff. This reasoning applies also when Chaskar's mobile device is modified by Ruan, as Ruan's applied teachings would have no impact on how signal measurements are performed. Lanning, ¶262.
[31.h] wherein a third predefined threshold	See [1.d], [1.e] (§IX.A.6). Lanning, ¶¶263-264.

'281	Chaskar in view of Willhoff and Ruan
value is smaller than a second predefined threshold value.	

D. Ground 4: Deanna in view of Ground 3 (Chaskar, Willhoff and Ruan) (Claim 31)

Claim 31 requires “a server” for handover. If it is argued that **Chaskar** does not render obvious a server based on the knowledge of a POSITA, **DeAnna discloses a “ZeoSphere server”**—“a lightweight server operable on portable devices such as remote, wireless and handheld hardware devices.” DeAnna, [0022]. **DeAnna’s** server allows devices to “make” and “process[]” requests on wireless networks, e.g., connected to a “Radio Tower.” [0026], [0114], [0120], [0124], Figs. 1-2A. Moreover, **DeAnna** teaches its server is handheld. DeAnna, [0007], [0121]. Lanning, ¶265.

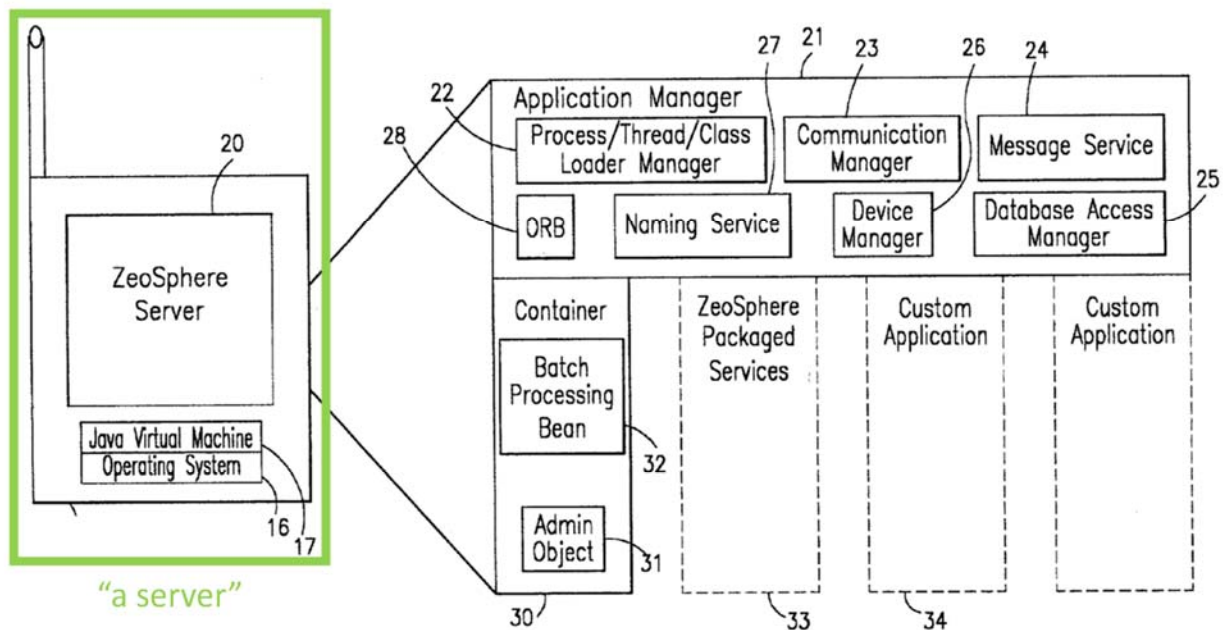
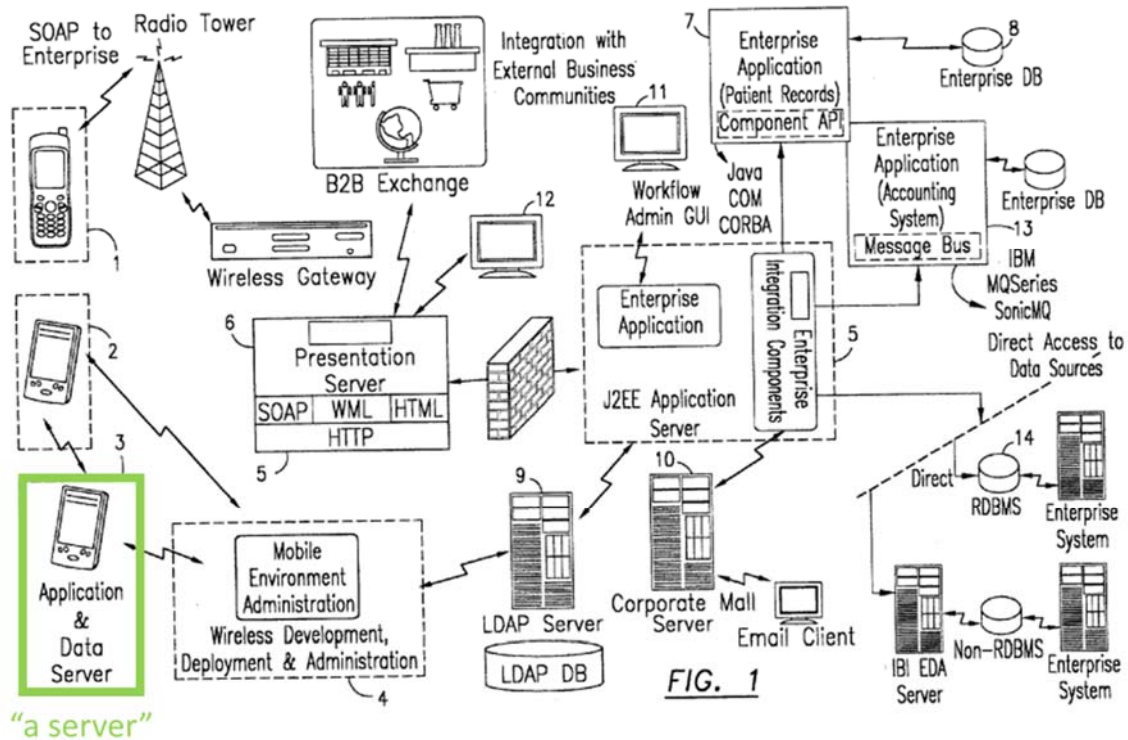


FIG. 2A

Like **Chaskar**, **Willhoff**, and **Ruan**, **DeAnna** is in the same field as the

'281—which includes wireless communications—and is reasonably pertinent to the problems purportedly addressed by the '281—e.g., maintaining a strong network connection. See DeAnna, Abstract, [0022], [0024], [0121]; see §§IX.A.5, IX.C.2. For example, DeAnna teaches that “a platoon could stay tightly linked carrying ZeoSphere-enabled wireless PDAs, and rescue parties or firefighters in remote areas could use a variety of platforms like 3G cell phones and PDAs with ZeoSphere servers and GPS-enabled mapping apps to carry out their mission with previously unattainable speed and accuracy of information sharing.” DeAnna, [0121]. Lanning, ¶266.

A POSITA would have been motivated to apply **Chaskar's** teachings (as modified by **Willhoff** and **Ruan**) to **DeAnna's** handheld wireless server to advantageously create a seamless transfer between networks. A POSITA would have recognized that advantages of fast transition between WAN and WLAN networks to maintain connectivity would be applicable when implementing **DeAnna's** server. DeAnna, [0121] (describing use cases for “rescue parties” and “firefighters” where network transfer must be fast and accurate with no interruption); Chaskar, [0018]-[0020] (explaining that disclosed handoff procedure “can reduce the number of spurious handoff triggers,” “reduce the number of false starts (of handoff preparation) in proactive handoff schemes,” and “make the implementation of proactive handoff schemes efficient”). Lanning, ¶267.

A POSITA would have had a reasonable expectation of success applying **Chaskars's** teachings (as modified by **Willhoff** and **Ruan**) to **DeAnna's** handheld wireless server to perform network switching. DeAnna's handheld wireless server is a standard wireless device, operable to use known WAN or WLAN networks and associated technology, such that any known WAN and WLAN techniques—like the switching techniques of **Chaskar** (as modified by **Willhoff** and **Ruan**)—would be applicable to DeAnna's handheld wireless server. For example, **DeAnna's** server is implemented in “3G cell phones and PDAs,” and **Chaskar's** mobile node is implemented on a “cellular [WAN] network.” DeAnna, [0121]; Chaskar, [0036]. *See also* DeAnna, [0024]. Thus, **Chaskar's** handover procedure between from a “WLAN” to a “cellular” network is directly applicable to DeAnna's server. Chaskar, [0036]. Lanning, ¶268. And **Chaskar** discloses its system is implementable using “[m]obile nodes or mobile terminals.” Chaskar, [0048]. Lanning, ¶268.

Accordingly, a POSITA would have had a reasonable expectation of success applying **Chaskar's** handoff teachings (as modified by **Willhoff** and **Ruan**) to **DeAnna's** handheld wireless server, and would have known such a combination (yielding the claimed limitations) would predictably work and provide the expected functionality. Lanning, ¶¶269.

X. SECONDARY CONSIDERATIONS

The Claims of the '281 are demonstrated as obvious by the grounds presented

herein. The strength of these grounds cannot be overcome by any alleged objective indicia.

Although PO raises allegations of secondary considerations in the district court litigation (Ex.1015, 36-47; Ex.1016, 11-12), those allegations are unavailing at least because PO cannot demonstrate the required nexus between its allegations and the purported invention.

In addition, PO's allegations are conclusory and ostensibly relate to four patents, providing no explanation as to any nexus to any particular claim of the four patents, let alone the '281 claims. Lanning ¶¶270-278.

If these general arguments can be understood as being particular to the '281, PO's conclusory allegations additionally fail for the reasons set forth below.

Commercial success: PO provides no evidence of commercial success. While PO asserts such success "will be shown" based on Samsung's own products (Ex.1015 at 37), the success of Samsung's own products has no nexus to the Claims at least because Samsung does not infringe and because the accused phone and tablet products include many unrelated features that drive their success.

Long-felt need: PO cites portions of U.S Patent No. 8,886,181 as purported evidence of long-felt need, but such explanations are conclusory and self-serving, and regardless do not show any alleged need was "long-felt." Ex.1015, 38-39.

Industry recognition: PO cites an award Samsung received for Wi-Fi

Innovation, but PO has not shown the requisite nexus between that award and the Claims. *Id.*, 39. PO also argues praise and recognition is shown by Vasu patents being cited during prosecution of other patents, but PO does not explain how mere citation during prosecution is praise or recognition, and PO has not shown any such citation would have the requisite nexus to the Claims. *Id.*, 40-47.

Skepticism in the industry: PO argues unidentified contemporaneous publications acknowledged the difficulty of developing the claimed invention, but PO does explain how purported challenges show “skepticism” and also does not even attempt to explain the requisite nexus the Claims. *Id.*, 47.

Copying: PO argues Samsung copied PO’s technology, but PO’s argument is conclusory and based only on alleged knowledge of “patents and application that Vasu had filed because they were cited as prior art against [Samsung’s] own patent applications”—PO does not even allege Samsung was aware of the ’281 specifically, as opposed to other Vasu patents and applications, and does not allege knowledge of the ’281 before Samsung developed its products. Ex.1015, 37, 47-53; Ex.1014, 21-26, 76-77; Ex.1016 at 11-12. In addition, there is no nexus because Samsung does not infringe.

XI. CONCLUSION

Substantial, new, and noncumulative technical teachings have been presented for each Challenged Claim, which are rendered obvious for the reasons set forth

above. Lanning, ¶¶60-284. There is a reasonable likelihood Petitioners will prevail as to each of these Claims. IPR of Claims 1, 12, 31, and 37 of the '281 is accordingly requested.

Dated: January 24, 2025

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(a) and (d), the undersigned hereby certify that the Petition For *Inter Partes* Review complies with the type-volume limitation of 37 C.F.R. § 42.24(a)(i) because, exclusive of the exempted portions, it contains 13,990 words as counted by the word processing program used to prepare the paper.

Dated: January 24, 2025

/James L. Davis, Jr./

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ROPES & GRAY LLP

CERTIFICATE OF SERVICE

The undersigned certifies service pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(b) on the Patent Owner by FedEx of a copy of this Petition for Inter Partes Review and supporting materials at the correspondence address of record for the '281 patent:

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