

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TESLA, INC.

Petitioner,

v.

INTELLECTUAL VENTURES II LLC,

Patent Owner.

Case No. IPR2025-00220
U.S. Patent No. 11,206,670

PATENT OWNER'S RESPONSE

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PATENT OWNER’S EXHIBIT LIST

Ex. 2001	Petitioner’s Answer to Complaint and Counterclaim, dated June 20, 2024, in <i>Intellectual Ventures II LLC v. Tesla, Inc.</i> , C.A. 1:24-cv-00884-ADA (W.D. Tex.)
Ex. 2002	Docket from District Court Litigation, <i>Intellectual Ventures II LLC v. Tesla, Inc.</i> , C.A. 1:24-cv-00884-ADA (W.D. Tex.)
Ex. 2003	Scheduling Order from District Court Litigation, <i>Intellectual Ventures II LLC v. Tesla, Inc.</i> , C.A. 1:24-cv-00884-ADA (W.D. Tex.)
Ex. 2004	Defendant’s Second Supplemental Preliminary Invalidity Contentions, dated January 9, 2025, in District Court Litigation, <i>Intellectual Ventures II LLC v. Tesla, Inc.</i> , C.A. 1:24-cv-00884-ADA (W.D. Tex.)
Ex. 2005	File History of U.S. Patent Appl. 14/372,363
Ex. 2006	Declaration of Todor V. Cooklev, Ph.D.
Ex. 2007	Curriculum Vitae of Todor V. Cooklev, Ph.D.
Ex. 2008	<i>Modern Communications Systems: A First Course</i> Cooklev et al. (Michigan Publishing 2024)
Ex. 2009	<i>LTE – The UMTS Long Term Evolution From Theory to Practice</i> (Second Edition) Sessia et al. (John Wiley & Sons Ltd. 2011)
Ex. 2010	Declaration of Gary R. Lomp, Ph.D.
Ex. 2011	Curriculum Vitae of Gary R. Lomp, Ph.D.

I. INTRODUCTION

The Petition for *Inter Partes* Review of U.S. Patent No. 11,206,670 (“Petition,” Paper #2) challenges claims 1-18 (“Challenged Claims”) of U.S. Patent No. 11,206,670 (“‘670 Patent,” Ex. 1001) under a single statutory ground. [See Petition, 16]. The Board should find that the Petition has failed to carry its burden to demonstrate by a preponderance of the evidence that any of the Challenged Claims are unpatentable.

The Petitioner’s challenge to the ‘670 Patent rests on a single asserted ground of obviousness over the combination of Wallen and Berggren. Yet despite extensive citations and repetition of conclusory statements, the Petition fails to establish that the cited art teaches or suggests key claim limitations, including “...control information for use by the UE to acquire a system information block 1...” as in claims 1, 7, and 13.

Petitioner’s reading of Wallen is not only inconsistent with the actual disclosures of that reference, but also relies on selective quotations and omissions that obscure the absence of the claimed functionality.

Further, critical sections of Wallen cited by Petitioner are not entitled to the priority date of its corresponding provisional application, and are thus, not prior art.

Moreover, Petitioner offers no plausible rationale for combining Wallen with Berggren to supply the missing claim elements. In fact, Berggren is not cited in

connection with the relevant limitations ([1.4] and [1.6], and corresponding [7.4], [7.6], [13.4], and [13.6]¹) and cannot fill the gaps in Wallen’s disclosure. Nor does the expert declaration submitted with the Petition cure these deficiencies; it merely restates the Petition’s arguments in slightly modified form and fails to provide any independent technical analysis supporting the asserted combination.

In sum, the Petition fails to meet its burden of demonstrating that the challenged claims are unpatentable. The cited art does not teach or suggest each and every element of the claims, and the Petition’s theory of obviousness is both legally and factually unsupported.

For these reasons, and as explained more fully below, the patentability of the Challenged Claims should be confirmed.

II. THE ‘670 PATENT

The ‘670 Patent presents a novel and practical solution to a real-world problem faced by low-complexity, low-power wireless devices—such as smart meters and other machine-type communication (MTC) devices—attempting to operate over third and fourth generation mobile networks. These networks, originally optimized for high-throughput devices like smartphones, often prove unnecessarily complex and resource-intensive for MTC devices that transmit only small amounts of data at infrequent intervals. The ‘670 Patent solves this disconnect

¹ The numbering of claim limitations corresponds to the numbering in the Petition (Paper 2).

by enabling such devices to communicate over a defined “subordinate carrier” embedded within a broader host carrier, using minimal bandwidth and well-defined, accessible system information, while maintaining compatibility with legacy network infrastructure.

As described in the specification, and confirmed during prosecution, the claimed invention addresses a specific technical problem that arises when low-capability devices are unable to receive essential system information transmitted over bandwidths exceeding their reception capabilities. To overcome this, the ‘670 Patent discloses mechanisms for signaling the presence of an MTC subordinate carrier. The invention further introduces a structured method for allocating subordinate carrier resources using a subset of predefined subframe patterns (e.g., MBSFN subframes), and provides flexible ways to scale those allocations according to network conditions and device needs.

Importantly, the Patent Office considered the same prior art now relied upon by Petitioner—including the Wallen reference—and still found the claimed invention to be novel and nonobvious. During prosecution, the applicant not only disclosed Wallen but directed the Examiner to Office Actions in the parent application that substantively addressed Wallen. The Examiner, after evaluating the arguments and prior art—including Wallen, Xu, Axmon, and Petrovic—allowed the claims based on clear distinctions, including the limitation that the indicated

frequency and time resources “include control information for use by the UE to acquire a system information block 1.” That limitation was added by Examiner’s Amendment and was central to allowance. Petitioner now re-asserts Wallen without meaningfully addressing this material distinction—one already considered and resolved during prosecution.

A. Background

The ‘670 Patent is focused on problems related to devices and applications which, rather than taking advantage of the high data rates available in third and fourth generation networks, instead take advantage of the robust radio interface and increasing ubiquity of the coverage area. [See Ex. 1001, 1:54-59]. Examples include so-called machine type communication (MTC) applications, also known as machine-to-machine (M2M) communications, some of which are in some respects typified by semi-autonomous or autonomous wireless communication devices (i.e. MTC devices) communicating small amounts of data on a relatively infrequent basis. [See Ex. 1001, 1:59-65]. Examples include so-called smart meters which, for example, are located in a customer’s home and periodically transmit data back to a central MTC server relating to the customer’s consumption of a utility such as gas, water, electricity and so on. [See Ex. 1001, 1:65-2:2].

While it can be convenient for a terminal such as an MTC-type terminal to take advantage of the wide coverage area provided by a third or fourth generation

mobile telecommunication network there are at present disadvantages. [See Ex. 1001, 2:3-6].

Unlike a conventional third or fourth generation mobile terminal such as a smartphone, a primary driver for MTC-type terminals will be a desire for such terminals to be relatively simple and inexpensive. [See Ex. 1001, 2:7-10]. The type of functions typically performed by a MTC-type terminal (e.g. simple collection and reporting of relatively small amounts of data) do not require particularly complex processing to perform, for example, compared to a smartphone supporting video streaming. [See Ex. 1001, 2:7-15]. However, third and fourth generation mobile telecommunication networks typically employ advanced data modulation techniques and support wide bandwidth usage on the radio interface which can require more complex and expensive radio transceivers to implement. [See Ex. 1001, 2:15-19]. It is usually justified to include such complex transceivers in a smartphone as a smartphone will typically require a powerful processor to perform typical smartphone type functions. However, as indicated above, there is now a desire to use relatively inexpensive and less complex devices to communicate using LTE type networks. [See Ex. 1001, 2:19-25].

B. Detailed Description

The '670 Patent discusses embodiments which relate to two classes of device. [See Ex. 1001, 7:33]. A first class of device is configured to communicate via a host

carrier, and a second class of device, which may include MTC devices, is configured to communicate via a subordinate carrier. [See Ex. 1001, 7:33-8:3].

The ‘670 Patent recognizes that a problem can arise if essential control signaling from the base station is transmitted outside of the frequency range which can be received by a low-capability device, such as the MTC devices. [See Ex. 1001, 12:54-57]. For example, the ‘670 Patent notes that further system information, carried in System Information Blocks (SIBs), and the associated control signaling may be transmitted at a frequency which cannot be received by the low-capability device. [See Ex. 1001, 12:62-65]. The ‘670 Patent notes that this would cause problems, potentially preventing the low-capability device from being able to camp on the network. [See Ex. 1001, 12:65-67].

The ‘670 Patent notes that not all host carriers will necessarily support a subordinate carrier. [See Ex. 1001, 12:67-13:1]. If a low-capability device attempts to camp-on to a network which does not support a subordinate carrier then the camp-on procedure will ultimately fail. [See Ex. 1001, 13:1-4]. This is a waste of time and power for the low-capability device. [See Ex. 1001, 13:4-5].

The ‘670 Patent recognizes that it would be desirable to signal the presence of an MTC subordinate carrier, within a larger bandwidth LTE carrier accessible to legacy devices (LTE Rel. 8/9/10 UEs), to an MTC device which has restricted reception bandwidth. [See Ex. 1001, 13:6-9].

The '670 Patent notes that for all LTE bandwidths (Rel. 8/9/10) the basic physical layer synchronization signals and the most important system information (Master Information Block) is transmitted using only the central 6 resource blocks (72 subcarriers). [See Ex. 1001, 13:10-14].

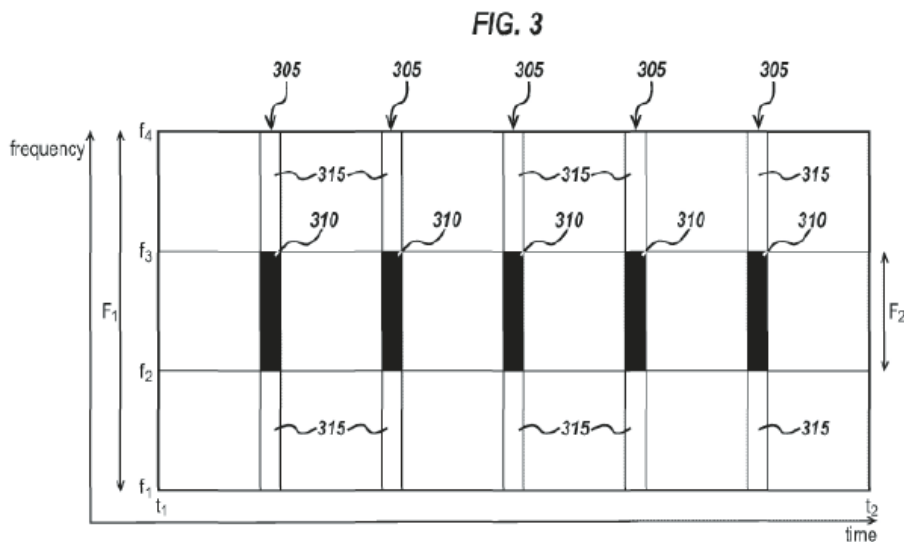
The '670 Patent notes that the Master Information Block (MIB) is transmitted in the Physical Broadcast Channel (PBCH) which is allocated to the central 72 subcarriers and to just the first 4 OFDMA symbols of the second slot of every 10 ms radio frame. [See Ex. 1001, 13:14-18].

The '670 Patent notes that, assuming that the low bandwidth MT UE is able to receive at least 6 resource blocks in the frequency domain, then the PBCH (for example the MIB transmitted on PBCH) may be used to signal the presence of an MTC subordinate carrier. [See Ex. 1001, 13:18-22].

The '670 Patent describes an example embodiment which includes a method of conveying a subordinate carrier for low bandwidth devices within a portion of a larger host carrier. [See Ex. 1001, 18:1-3].

As described in relation to FIG. 3, the subordinate carrier resources (for use by MTC devices) may be defined by a certain bandwidth in the frequency domain (frequency band F2 in FIG. 3 for example) and a certain pattern of time periods in the time domain. [See Ex. 1001, 10:14-20]. In some implementations, the

subordinate carrier may be delineated by scheduling a pattern of subframes. [See Ex. 1001, 10:25-28].



FIGS. 5A to 5D illustrate examples of such subframe patterns. Each of FIGS. 5A to 5D shows a portion of a repeating pattern which could be specified by mbsfn-SubframeConfigList or by a similar pattern specifying function. Four radio frames having ten subframes each are shown in FIGS. 5A to 5D. The subframes are labelled from 0 (zero) to 9 (nine). The shaded subframes are those allocated to the subordinate carrier, with the unshaded subframes being retained for use on the host carrier. [See Ex. 1001, 11:19-27].

FIG. 5A schematically illustrates an FDD pattern in which radioFrameAllocationPeriod is set to n2 (MBSFN subframes present in every other radio frame) ... FIG. 5B schematically illustrates a TDD pattern based on the same parameters as FIG. 5A. Specifically, radioFrameAllocationPeriod is set to n2

(MBSFN subframes present in every other radio frame) ... FIG. 5C schematically illustrates an FDD pattern in which radioFrameAllocationPeriod is set to n1 (MBSFN subframes present in every radio frame) ... FIG. 5D schematically illustrates a TDD pattern based on the same parameters as FIG. 5A. Specifically, radioFrameAllocationPeriod is set to n1 (MBSFN subframes present in every radio frame) ... A sub-set of the allocation patterns could be used to define the subordinate [carrier]. [See Ex. 1001, 11:27-29, 11:37-40, 11:47-50, 11:56-59, 12:2-3].

FIG. 5A



FIG. 5B

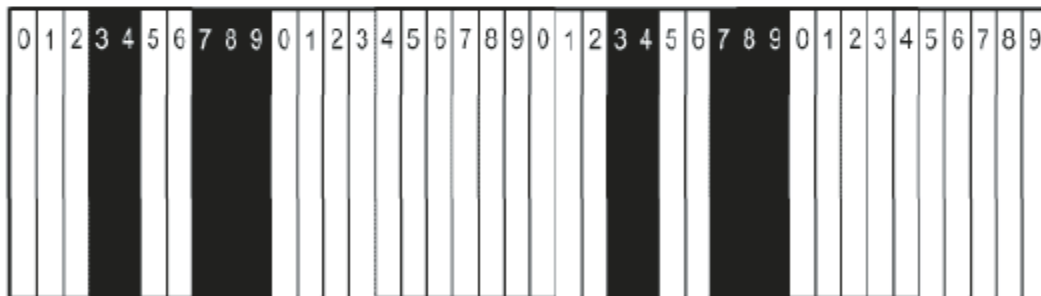


FIG. 5C

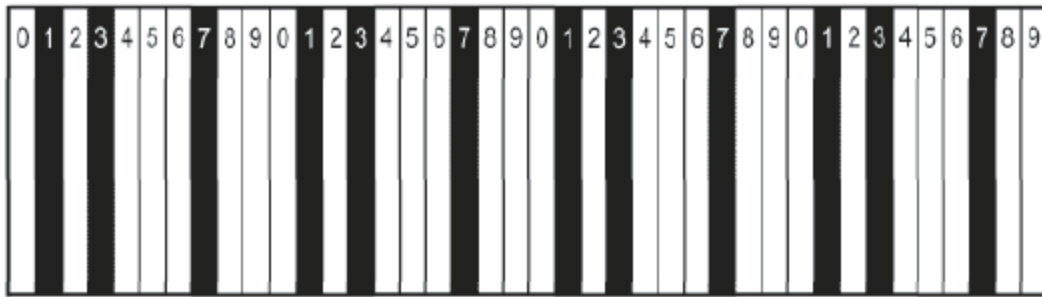
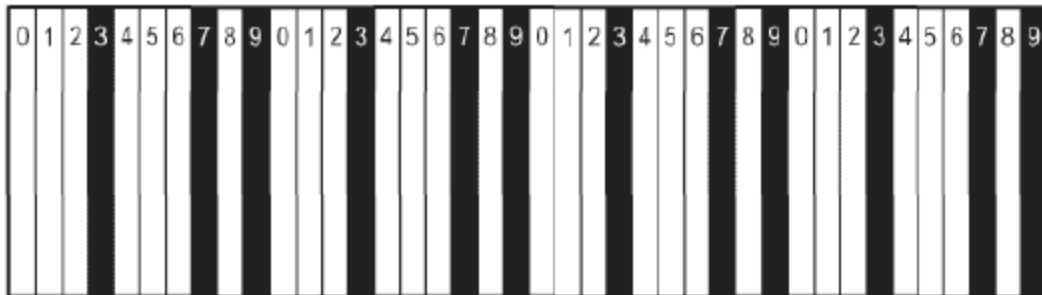


FIG. 5D



An increase in the amount of resources allocated to the subordinate carrier could be achieved either by altering the parameters of an existing subframe allocation as defined above, or by adding a new subframe allocation according to the principles set out above. A decrease in the amount of resources allocated to the subordinate carrier could be achieved either by altering the parameters of an existing subframe allocation as defined above, or by removing an existing subframe allocation. [See Ex. 1001, 12:27-35].

In other words, it is possible to use multiple subframe allocations to achieve allocation patterns which would not be possible with a single subframe allocation, and to provide a simple way of increasing (or decreasing, if one of multiple subframe

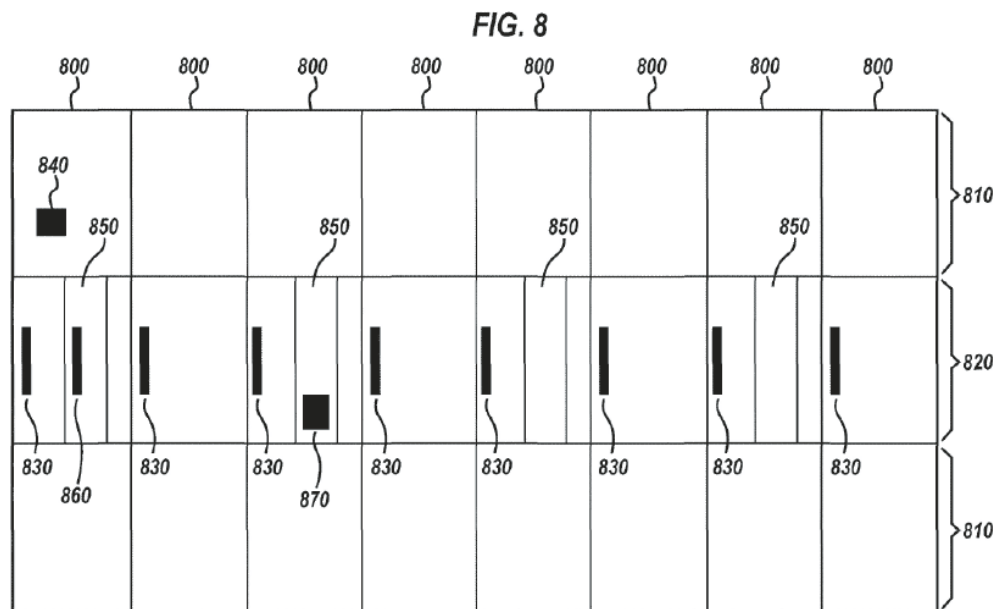
allocations is removed) the amount of resources allocated to the subordinate carrier. [See Ex. 1001, 12:36-41].

In signaling the presence of the subordinate carrier, certain resource blocks may be used to carry control signaling including synchronization signals and system information. As explained above, a problem can therefore arise if essential control signaling from the base station is transmitted outside of the frequency range which can be received by a low-capability device. Fortunately, as described above, the synchronization signals and the Master Information Block (MIB) of the system information are present within a frequency range which is likely to be receivable by a low-capability device. [See Ex. 1001, 12:51-57].

The '670 Patent describes methods of determining the downlink bandwidth of an MTC subordinate carrier by an MTC UE which involve signaling the downlink bandwidth in a Master Information Block of the subordinate carrier itself. A Master Information Block may be regarded as collection of parameters giving values to configurable characteristics of the carrier and other information to achieve/maintain radio frame synchronization. [See Ex. 1001, 14:37-47].

For example, a single pattern comprising a single subframe allocation once per radio frame allocation period of 32 frames and with an offset value of zero may be considered adequate to convey the MIB dependent upon other details of the subordinate carrier design. [See Ex. 1001, 15:65-16:3].

In FIG. 8, example signaling on the host carrier and the subordinate carrier is schematically illustrated. [See Ex. 1001, 16:64-66].



In FIG. 8, eight radio frames 800 are shown, each having a central frequency portion 820 usable by both the host carrier and the subordinate carrier, and outer frequency portions 810 usable only by the host carrier. [See Ex. 1001, 16:66-17:3].

In each radio frame, a MIB 830 is provided in the central frequency portion 820. [See Ex. 1001, 17:3-4]. The MIB 830 is readable by devices using both the host carrier and the subordinate carrier. [See Ex. 1001, 17:4-6].

In an outer frequency portion 810, system information 840 is provided for use by devices served by the host carrier. [See Ex. 1001, 17:3-4]. The system information 840 is shown to be outside of the central frequency portion 820 and is thus not available to the kind of low-capability devices intending to use the subordinate

carrier. [See Ex. 1001, 17:3-4]. The system information 840 is provided in the form of System Information Blocks (SIBs). [See Ex. 1001, 17:3-4]. Generally, the Master Information Block 830 provides sufficient information to gain access to the first of the System Information Blocks (SIB1). [See Ex. 1001, 17:3-4].

C. Relevant Prosecution History of the ‘670 Patent

The ‘670 Patent is based on U.S. Patent App. No. 17/184,127 (the ‘127 Application), which was filed February 24, 2021 with a Track 1 request, and issued on December 21, 2021. [See Ex. 1002, pp. 1, 127, 187-189].

The ‘127 Application is a continuation of U.S. Pat. App. No. 16/190,420, filed on November 14, 2018, now US Pat. No. 10,939,446, which is a continuation of US Pat. App. No. 14/372,363 (the ‘363 Application), which was filed as PCT App. No. PCT/GB2013/050126 on Jan. 21, 2013. [See Ex. 1002, p. 119]. These applications claim priority of GB Pat. App. No. 1201000, Filed Jan. 20, 2012. [See Ex. 1002, p. 119].

Notably, as detailed in Patent Owner’s Brief in Support of Motion for Discretionary Denial filed April 7, 2025, the ‘363 application cites and discusses Wallen in great detail:

For example, regarding Wallen, petitioner argues that “[a]lthough Wallen is listed on the face of the ‘670 patent, it was not relied upon during prosecution to reject the pending claims.” Petition, 73.

Petitioner correctly states that Wallen is listed on the face of the ‘670 Patent:

Related U.S. Application Data					
continuation of application No. 14/372,363, filed as application No. PCT/GB2013/050126 on Jan. 21, 2013, now abandoned.		2012/0213143	A1	8/2012	Zhang et al.
		2012/0250564	A1	10/2012	Marque-Pucheu et al.
		2012/0263093	A1	10/2012	Roessel et al.
		2012/0289286	A1	11/2012	Miki
		2012/0327894	A1*	12/2012	Axmon H04W 48/16 370/330
(51)	Int. CL H04L 5/00 (2006.01) H04W 72/12 (2009.01)	2012/0327895	A1	12/2012	Wallen et al.
		2013/0064119	A1	3/2013	Krontopf et al.
		2013/0083749	A1*	4/2013	Xu H04W 74/004 370/329
(52)	U.S. CL CPC H04L 5/0092 (2013.01); H04W 4/70 (2018.02); H04W 72/1263 (2013.01)	2013/0088986	A1	4/2013	Xiao et al.
		2013/0114555	A1	5/2013	Sato
		2013/0242821	A1	9/2013	Wei et al.
		2014/0036851	A1	2/2014	Seo et al.
		2014/0094183	A1	4/2014	Gao et al.
(56)	References Cited	2014/0307697	A1	10/2014	Beale
U.S. PATENT DOCUMENTS		OTHER PUBLICATIONS			

However, Petitioner misleadingly states that Wallen was not relied upon during prosecution to reject the pending claims. See Petition, 73. This is not the standard for discretionary denial under § 325(d). Under § 325(d) “...the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office. (emphasis added) which is incontrovertibly true in this case.

Further to Wallen being listed on the face of the ‘670 Patent, there is unambiguous evidence that the Examiner was not only aware of, but expressly considered Wallen during prosecution.

For example, Patent Owner expressly cited Wallen in an IDS filed May 28, 2021. See Ex.1002, 28-36, 76-84.

Petitioner acknowledges that “Wallen was submitted in an Information Disclosure Statement (IDS) along with over 50 other references, see Ex.1002, 76-84”, but argues that “...there is no Examiner signature on the IDS, see id., 82.” Petition, 73. This statement by Petitioner is both misleading and false for several reasons.

First, Petitioner’s statement that the IDS filed May 28, 2021 was unsigned is entirely false. Petitioner misleadingly cites to an as-filed, unsigned version of the IDS at Ex.1002, 76-84. However, the signed copy of this same IDS, attesting that the Examiner duly considered all of the listed references, appears in Petitioner’s own exhibit at Ex.1002, 28-36. Thus, it is clear that Wallen was presented to the Office, and that the Examiner acknowledged having considered this reference by signing the IDS.

Receipt date: 05/28/2021

17/184,127 - GAU: 2415

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17184127
	Filing Date	2021-02-24
	First Named Inventor	Young
	Art Unit	2415
	Examiner Name	Sulaiman Nooristany
Attorney Docket Number		IPW2-USCN213451

24	20120213143	A1	08-23-2012	Zhang et al.	
25	20120250564	A1	10-04-2012	Marque-Pucheu et al.	
26	20120263093	A1	10-18-2012	Roessel et al.	
27	20120289286	A1	11-15-2012	Miki	
28	20120327894	A1	12-27-2012	Axmon et al.	
29	20120327895	A1	12-27-2012	Wallén et al.	
30	20130064119	A1	03-14-2013	Montejo et al.	
31	20130088986	A1	04-11-2013	Xiao et al.	
32	20130114555	A1	05-09-2013	Sato	
33	20130242821	A1	09-19-2013	Wei et al.	
34	20140094183	A1	04-03-2014	Gao et al.	

EFS Web 2.1.18

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /s.N/

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TESLA, INC.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17184127
	Filing Date	2021-02-24
	First Named Inventor	Young
	Art Unit	2415
	Examiner Name	Sulaiman Nooristany
	Attorney Docket Number	IPW2-USCN213451

12	J.S. Patent Application No. 17/184,234, Non-Final Rejection, mailed May 17, 2021.
13	J.S. Patent Application No. 17/185,442, Non-Final Rejection, mailed May 3, 2021.
14	J.S. Patent Application No. 17/185,533, Non-Final Rejection, mailed May 3, 2021.

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE	
Examiner Signature	/SULAIMAN NOORISTANY/
Date Considered	08/20/2021

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

Second, Petitioner attempts to minimize the significance of Wallen by implying that Patent Owner buried the Wallen reference among many other references cited in the IDS filed May 28, 2021. See Petition, 73. However, contrary to this insinuation, the evidence clearly shows that the Office had retrieved and considered Wallen several times, and in great detail, well before Wallen was cited by Patent Owner in the IDS filed May 28, 2021.

For example, Wallen appears clearly, and individually, in the EAST search history² for the ‘670 patent, which is also a part of Petitioner’s own exhibit at Ex.1002, 37-44, at 37 and 41, and 109-116 at 110 and 113:

² The EAST Search history is a record of patent search queries run by Examiners during patent examination using the Examiners’ Automated Search Tool (EAST), and is of record in the file wrapper of the ‘670 patent.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"16190420"	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:30
S2	134,943	Young.in.	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:31
S3	0	Young.in. and (SSS same PSSS same PBCH same MIB).clm.	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:31
S4	5	Young.in. and (PBCH same MIB).clm.	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:32
S5	0	Young.in. and (PBCH same MIB same restrict\$3).clm.	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:32
S6	0	Young.in. and (MIB same restrict\$3).clm.	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:32
S7	0	Young.in. and (MIB same restrict\$3 near6 bandwidth).clm.	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:32
S8	6	Young.in. and (restrict\$3 near6 bandwidth).clm.	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:32
S9	5	(MIB near6 restrict\$3 near6 bandwidth)	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:45
S10	5	(MIB near10 restrict\$3 near6 bandwidth)	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:46
S11	26	(MIB same restrict\$3 near6 bandwidth)	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:46
S12	2	"20120327895"	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:55
S13	2	"20100015969"	US-PGPUB; USPAT	OR	OFF	2019/08/13 17:16
S14	34	(MIB same restrict\$3 near6 (bandwidth band))	US-PGPUB; USPAT	OR	OFF	2019/08/13 17:35
S15	0	(MIB same restrict\$3 near6 (bandwidth band)) same less	US-PGPUB; USPAT	OR	OFF	2019/08/13 17:36
S16	4,537	H04W72/048.cpc.	US-PGPUB; USPAT	OR	OFF	2019/08/15 17:31
S17	7	H04W72/048.cpc. and (MIB same restricted near3 (bandwidth band))	US-PGPUB; USPAT	OR	OFF	2019/08/15 17:33
S18	0	TELECOMMUNICATIONS SYSTEMS AND METHODS FOR MACHINE TYPE COMMUNICATION	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO;	ADJ	OFF	2019/12/09 20:35

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TESLA, INC.

S12	2	"20120327895"	US-PGPUB; USPAT	OR	OFF	2019/08/13 16:55
S13	2	"20100015969"	US-PGPUB; USPAT	OR	OFF	2019/08/13 17:16
S14	34	(MIB same restrict\$3 near6 (bandwidth band))	US-PGPUB; USPAT	OR	OFF	2019/08/13 17:35
S15	0	(MIB same restrict\$3 near6 (bandwidth band)) same less	US-PGPUB; USPAT	OR	OFF	2019/08/13 17:36
S16	4,537	H04W72/048.cpc.	US-PGPUB; USPAT	OR	OFF	2019/08/15 17:31
S17	7	H04W72/048.cpc. and (MIB same restricted near3 (bandwidth band))	US-PGPUB; USPAT	OR	OFF	2019/08/15 17:33
S18	0	TELECOMMUNICATIONS SYSTEMS AND METHODS FOR MACHINE TYPE COMMUNICATION	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2019/12/09 20:35
S19	0	SYSTEMS AND METHODS FOR MACHINE TYPE COMMUNICATION	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2019/12/09 20:35
S20	229	Beale.in. and MACHINE TYPE COMMUNICATION	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2019/12/09 20:36
S21	50	Beale.in. and (restricted frequency)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2019/12/09 20:37
S22	11	Beale.in. and (restricted frequency)clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2019/12/09 20:37
S23	12	"2013093436"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2019/12/09 20:38

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TESLA. INC.

This clearly evidences that not only was the Examiner aware of Wallen, but that Wallen was individually selected for retrieval via the EAST system at least on August 13, 2019.

In fact, before Patent Owner cited Wallen in the IDS filed May 28, 2021, Wallen was first cited by the Office during prosecution of US Pat. App. No. 14/372,363, ("the '363 Application"), of which the '670 Patent is a continuation, in Office Actions dated August 18, 2017 and June 14, 2018. See Ex. 2005 at 72-86, at 86, and 97-111, at 111.

US 11,206,670 B2

Page 2

Related U.S. Application Data		2012/0213143 A1		8/2012	Zhang et al.
continuation of application No. 14/372,363, filed as		2012/0250564 A1		10/2012	Marque-Pucheu et al.
application No. PC 1/0152013/050126 on Jan. 21,		2012/0263093 A1		10/2012	Roessel et al.
2013, now abandoned.		2012/0289286 A1		11/2012	Miki
		2012/0327894 A1 *		12/2012	Axmon H04W 48/16 370/330
		2012/0327895 A1		12/2012	Wallén et al.
(51) Int. Cl.		2013/0064119 A1		3/2013	Montejo et al.
H04L 5/00 (2006.01)		2013/0083749 A1 *		4/2013	Xu H04W 74/004 370/329
H04W 72/12 (2009.01)		2013/0088986 A1		4/2013	Xiao et al.
(52) U.S. Cl.		2013/0114555 A1		5/2013	Sato
CPC H04L 5/0092 (2013.01); H04W 4/70		2013/0242821 A1		9/2013	Wei et al.
(2018.02); H04W 72/1263 (2013.01)		2014/0036851 A1		2/2014	Seo et al.
		2014/0094183 A1		4/2014	Gao et al.
		2014/0307697 A1		10/2014	Beale
(56) References Cited					
U.S. PATENT DOCUMENTS		OTHER PUBLICATIONS			

Notice of References Cited		Application/Control No. 14/372,363	Applicant(s)/Patent Under Reexamination YOUNG, PHILIP	
		Examiner JONATHAN B. WOOD	Art Unit 2415	Page 1 of 1

U.S. PATENT DOCUMENTS					
*		Document Number Country Code-Number-Kind Code	Date MM/YYYY	Name	CPC Classification US Classification
*	A	US-2010/0029283 A1	02-2010	Iwamura; Mikio	H04J11/0069 455/437
*	B	US-2010/0130218 A1	05-2010	Zhang; Guodong	H04W48/12 455/450
*	C	US-2010/0323633 A1	12-2010	Panl; Diana	H04W24/10 455/67.14
*	D	US-2011/0085467 A1	04-2011	Chen; Wanhui	H04L1/1812 370/252
*	E	US-2011/0194515 A1	08-2011	Nakao; Seigo	H04L5/0053 370/329
*	F	US-2011/0317581 A1	12-2011	Hoshino; Masayuki	H04L1/0026 370/252
*	G	US-2012/0128928 A1	11-2012	Miki; Nobuhiko	H04W48/12 455/552.1
*	H	US-2012/0327895 A1	12-2012	Wallén; Anders	H04W48/12 370/330
*	I	US-2012/0194214 A1	12-2012	Wang; Yiping	H04L1/08 370/351
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS					
*		Document Number Country Code-Number-Kind Code	Date MM/YYYY	Country	Name CPC Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

NON-PATENT DOCUMENTS	
*	Include as applicable: Author, Title Date, Publisher, Editor or Volume, Pertinent Page(s)
	U
	V
	W
	X

*A copy of this reference is not being furnished with this Office action. (See MPEP § 107.85(a).)
Dates in MM/YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20170791

Further, there is clear evidence that not only was Wallen presented to the Office and considered by the Examiner during prosecution, but that Wallen was in fact treated in great depth by the Office in several Office Actions during prosecution of the '363 Application. See Ex. 2005 72-86, at 75-83, and 97-111, at 100-108.

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Page 3

Art Unit: 2415

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 40, 45, 46 and 51** are rejected under pre-AIA 35 U.S.C. 102(e) as being anticipated by Wallen et al. USPG-Pub 2012/0327895-A1 (hereinafter Wallen).

Art Unit: 2415

Therefore, the specification and drawings of the instant application fail to provide support for the full scope of the newly recited limitation regarding subordinate bandwidth resource elements being based on the length of the scMIB. Thus, the limitation is construed to be new subject matter, and is rejected under 35 USC 112 Second paragraph.

6. Dependent **claims 41-45 and 47-51** fail to correct the deficiencies of parent **claims 40 and 46**, and are likewise rejected.

Claim Rejections - 35 USC § 103

7. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 40, 45, 46 and 51** are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over **Wallen et al. USPG-Pub 2012/0327895-A1 (hereinafter Wallen)**, in view of Lee et al. USPG-Pub 2010/0015969-A1 (hereinafter Lee).

For example, in the Office Action of August 18, 2017, the Office provided detailed arguments directly regarding aspects of Wallen that were relied upon heavily in the Petition, such as, *inter alia*, the Master Information Block (MIB), System Information Blocks (SIBs), M-PDCCH, and Figure 9 of Wallen. See e.g., See Ex. 2005 97-111, at 100-108. These arguments span nine pages of the Office Action of August 18, 2017. See *id.* Later, the Office again provided similarly detailed arguments in the Office Action of June 14, 2018. See Ex. 2005 72-86, at 75-83.

Still further, in addition to citing Wallen in the IDS filed May 28, 2021, Patent Owner in fact cited these specific Office Actions

themselves in the IDS filed May 28, 2021. See Ex.1002, 28-36 at 33. It is noted that regardless of the IDS, while the specific Examiner changed from prosecution of the ‘363 Application to prosecution of the ‘670 Patent, “The Examiner will consider information which has been considered by the Office in a parent application ... when examining ... a continuation application... [and] a listing of the information need not be resubmitted in the continuing application...” MPEP 609.2 II. A. 2. However, by signing the IDS, the Examiner expressly acknowledged both having considered Wallen when examining the Contested Claims, and having also considered these Office Actions and the detailed arguments involving Wallen therein when examining the Contested Claims. See Ex.1002, 28-36 at 33.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	17184127
	Filing Date	2021-02-24
	First Named Inventor	Young
	Art Unit	2415
	Examiner Name	Sulaiman Nooristany
	Attorney Docket Number	IPW2-USCN213451

1	DAHLMAN ET AL., "Access Procedures (Chapter 14)," 4G LTE/LTE-Advanced for Mobile Broadband, Academic Press in Elsevier, p. 301-321 (March 2011).
2	HUAWEI ET AL., "Considerations on the bandwidth reduction for low cost MTC UE," 3GPP TSG RAN WG1#67, R1-113659, San Francisco, USA (November 14-18, 2011).
3	NTT DOCOMO, "Issues Regarding LTE Network for Low Cost MTC," 3GPP TSG RAN WG1 Meeting #67, R1-114082, San Francisco, USA (November 14-18, 2011).
4	U.S. Patent Application No. 14/372,363, Non-Final Rejection, mailed March 11, 2016.
5	U.S. Patent Application No. 14/372,363, Non-Final Rejection, mailed August 18, 2017.
6	U.S. Patent Application No. 14/372,363, Final Rejection, mailed December 16, 2016.
7	U.S. Patent Application No. 14/372,363, Final Rejection, mailed June 14, 2018.
8	U.S. Patent Application No. 16/190,420, Non-Final Rejection, mailed August 20, 2019.
9	U.S. Patent Application No. 16/190,420, Final Rejection, mailed February 3, 2020.
10	U.S. Patent Application No. 16/190,420, Non-Final Rejection, mailed June 17, 2020.
11	U.S. Patent Application No. 16/190,420, Notice of Allowance, mailed October 26, 2020.

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /S.N/

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TESLA, INC.

From the foregoing, it is clear that the Office was entirely aware of Wallen, that the Office engaged in a detailed analysis of Wallen, that Wallen was neither obscured by Patent Owner nor glossed over by the Office during prosecution of the '670 Patent, and that Wallen was explicitly acknowledged as considered by the Office during prosecution of the Contested Claims.

Paper 6, pp. 14-27.

During the course of examination of the ‘127 application, the Examiner rejected the pending claims over several references, including Xu, Axmon, and Petrovic, in a single Office Action dated May 17, 2021. [See Ex. 1002, pp. 93-116].

Applicant filed a Response to the Office Action dated May 17, 2021, and filed an Information Disclosure Statement (IDS), on May 28, 2021. [See Ex. 1002, pp. 28-35, 56-74, 76-89]. In the IDS, Applicant directed the Examiner to numerous references, including the Wallen reference that was cited during prosecution of the parent ‘363 application, and specific Office Actions issued during prosecution of the parent ‘363 application which treated Wallen in detail. [See Ex. 1002, pp. 28-35, 76-89].

Following an Examiner interview on August 20, 2021, the Examiner signed the IDS on August 20, 2021 and a Notice of Allowance issued, which was dated September 22, 2021, and reflected an Examiner’s Amendment adding “...wherein the indicated frequency resources and the time resources include control information for use by the UE to acquire a system information block 1” to the independent claims 1, 8, and 15. [See Ex. 1002, pp. 7-26, 28-35].

In this context, having considered Wallen and specific Office Actions applying Wallen during examination of the ‘363 application, it is clear that the Examiner did not consider Wallen to disclose or teach “...wherein the indicated

frequency resources and the time resources include control information for use by the UE to acquire a system information block 1.” [See Ex. 1002, pp. 28-35 and Paper #6].

This treatment of Wallen during prosecution makes clear that the Office did not interpret Wallen as disclosing or teaching “...wherein the indicated frequency resources and the time resources include control information for use by the UE to acquire a system information block 1...” in the manner argued by Petitioner. [See Ex. 1002, pp. 15-20 and Paper #6].

III. CHALLENGED CLAIMS OF THE ‘670 PATENT

Independent claim 1 is representative of the Challenged Claims, and recites:

1. A user equipment (UE) comprising:
a transceiver; and
a processor, operatively coupled to the transceiver;
wherein the transceiver and the processor are configured to receive
a primary synchronization signal (PSS), a secondary synchronization signal (SSS), and a physical broadcast channel (PBCH) including a master information block (MIB), the PSS, SSS and PBCH are in a first bandwidth of a cell having a cell bandwidth, wherein the first bandwidth is a first portion of the cell bandwidth, wherein the MIB includes an indication of frequency resources and time resources for use in acquiring additional system information; and

the transceiver and the processor are configured to acquire the additional system information using the indication of the frequency resources and the time resources, wherein the indicated frequency resources and the time resources include control information for use by the UE to acquire a system information block 1.³

Claim 1 captures the aspects of the system information block 1 that is emphasized above. [See *Infra* § II.B]. For example, claim 1 expressly recites “...wherein the **MIB includes an indication of frequency resources and time resources** for use in acquiring additional system information ... **wherein the indicated frequency resources and time resources include control information** for use by the UE **to acquire a system information block 1.**” [See Ex. 1001, claim 1].

IV. CLAIM CONSTRUCTION

The claim limitations at issue must be construed under *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Claim language is not read in isolation. *Phillips*, 415 F.3d at 1315. Rather, it is read in light of the specification and the prosecution history.

³ Elements of the claims are referred to using the numbering of claim limitations as in the Petition (Paper 2).

A. “...the MIB includes an indication of ... resources for use in acquiring additional system information ... the indicated ... resources include control information for use by the UE to acquire a system information block 1” (claims 1, 7, and 13)

Claim 1 recites a MIB that “...includes an indication of ... resources for use in acquiring additional system information ... the indicated ... resources include control information for use by the UE to acquire a system information block 1.” Claims 7 and 13 recite similar limitations. This claim language requires information for use by the UE to acquire a system information block 1. Under its plain and ordinary meaning, System information block 1 (SIB1) is an ordinary, legacy SIB, is not an MTC-specific SIB, and is not intended for an MTC device. Ex. 2010 ¶ 40.

V. REFERENCES AND EXPERT REPORT RELIED ON IN PETITION

The Petition advances a single ground, citing two alleged prior art references with the gaps in the reference being impermissibly filled by an expert report.

A. Wallen

U.S. Pat. Pub. No. 2012/0327895 to Wallen et al. (“Wallen”) was based on US Pat. App. No. 13/398,787 filed Feb. 16, 2012, and claims the benefit of US Prov. App. No. 61/501,547 (“Wallen-Prov”) filed Jun 27, 2011. [See Ex. 1005, cover]. Patent Owner does not acquiesce that the claimed priority date of Wallen-Prov applies to the aspects of Wallen cited by Petitioner, and contests this claim as described in more detail herein.

Like the '670 Patent, Wallen relates to MTC devices which may not be able to receive information transmitted outside of a particular frequency range. [See Ex. 1005 ¶¶ [0014]-[0016], Ex. 2010 ¶¶ 41-43].

However, unlike the '670 Patent, where subordinate carrier resources for use by MTC devices may be defined by a certain bandwidth and pattern of time periods, for example, Wallen addresses the problem by operating on specific cells referred to as M-Cells, and by using a separate physical downlink control channel (PDCCH) for MTC devices, which Wallen refers to as M-PDCCH. [See Ex. 1005 ¶[0024], Ex. 2010 ¶¶ 56-58]. The M-PDCCH may be transmitted in a different symbol position from the host cell's PDCCH, or may be transmitted in a reserved subframe that would otherwise be occupied by the PDCCH. [See Ex. 1005 ¶ [0044], Fig. 3, Ex. 2010 ¶ 56].

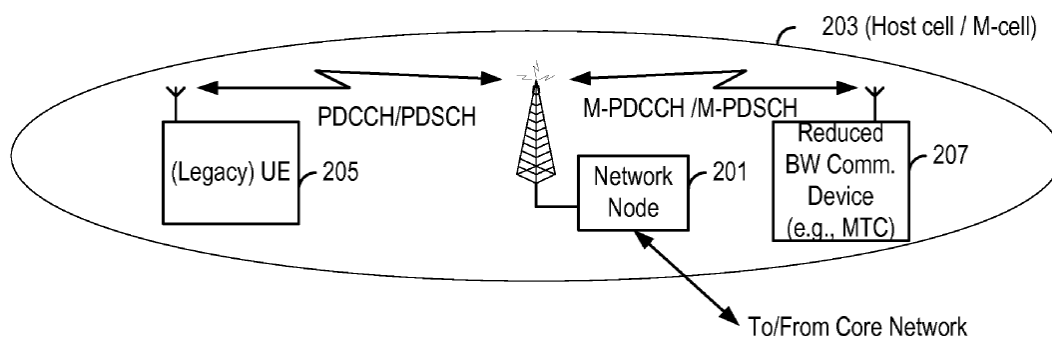


FIG. 2

Wallen can use spare bits in a MIB to indicate resources for connecting to the M-Cell. In particular, the MIB of Wallen can be used to identify resource blocks,

reference signal sequence, or search space allocated to the M-PDCCH. [See Ex. 1005 [0072], Ex. 2010 ¶¶ 56-58]. The M-PDCCH, in turn, includes MTC-specific SIBs, or includes downlink assignments for SIBs intended for the MTC device. [See Ex. 1005 [0072], Fig. 3, Ex. 2010 ¶ 58].

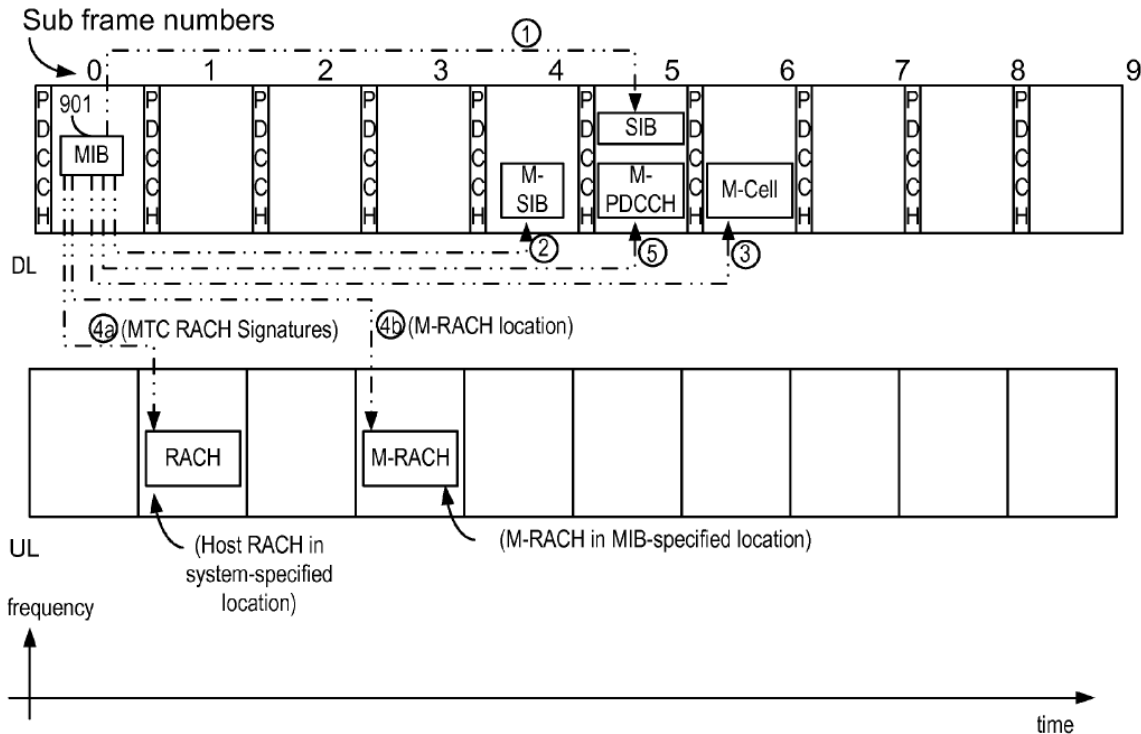


FIG. 9

However, the M-PDCCH of Wallen does not indicate control information for use by the UE to acquire a system information block 1. [See Ex. 1005 ¶¶ [0068]-[0072], Ex. 2010 ¶¶ 66-68].

Thus, unlike the ‘670 Patent, the M-PDCCH of Wallen does not include “...control information for use by the UE to acquire a system information block 1...” as in the independent claims of the ‘670 Patent. [See Ex. 1005 ¶¶ [0068]-[0072], Ex.

2010 ¶¶ 66-68]. This is not surprising, because Wallen, unlike the ‘670 Patent, is entirely unconcerned with delineating a subordinate carrier for use by MTC devices by scheduling a pattern of subframes – at best, Wallen simply indicates the specific resources of the SIB and/or M-PDCCH. [See Ex. 1005 ¶¶[0068]-[0072], Ex. 2010 ¶ 68].

B. Berggren

U.S. Pat. Pub. No. 2011/0269475 to Berggren et al. (“Berggren”) was based on US Pat. App. No. 13/175,529 filed July 1, 2011, which claims to be a continuation of PCT Application PCT/CN2010/070009, Filed January 4, 2010, and claims the benefit of Chinese Patent Application PCT/CN2009/070010 filed January 4, 2009. [See Ex. 1007, p. 1].

Berggren relates to synchronization signals in the context of an LTE system. [See Ex. 1007 ¶[0074], Ex. 2010 ¶¶59-60]. Berggren does not relate to devices having narrower bandwidths than LTE devices, such as MTC devices, but rather, to devices having wider bandwidths than legacy LTE devices. [See Ex. 1007 ¶[0006], [0086], Ex. 2010 ¶¶59-60]. Berggren does not relate to, nor was Berggren argued to relate to, an indication of control information, such as a pattern of subframes, for use by a UE to acquire a system information block 1. [See Ex. 2010 ¶¶59-60]. Berggren was cited in the Petition solely for the purpose of arguing that it would be obvious

to carry the MIB of Wallen on a physical broadcast channel (PBCH). [See Paper #2 pp. 32-33, 36, 42-45, Ex. 2010 ¶¶59-60].

C. Declaration of Zhi Ding, PH.D

The expert declaration submitted by Dr. Zhi Ding, Ph.D., [Ex. 1003] should be afforded little weight because it offers no meaningful analysis beyond what is already stated in the Petition. A significant portion of Dr. Ding’s Declaration merely parrots the Petition nearly verbatim, with only cosmetic differences such as the inclusion of direct quotations in place of pinpoint citations. [See, e.g., Ex. 1003, ¶¶ 29-45, 50-143, 145]. The differences between the wording of these paragraphs, from the Declaration (which make up nearly the entire substantive portion) and the corresponding paragraphs of the Petition are insubstantial. [Compare, e.g., Ex. 1003 ¶¶ 29-46, 52-55, 56-64, 65-143 and Petition pp. 7-15, 30-32, 33-38, 38-73].

For example, in many cases where the Petition provides a point citation to a given reference, the Declaration includes a quotation from the reference corresponding to the point citation. Such repetition does not constitute expert analysis and fails to provide the type of independent technical reasoning that might assist the Board. Consistent with *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 at 15-17 (PTAB Aug. 24, 2022) (precedential), expert declarations that do little more than restate a petitioner’s conclusory assertions—without additional technical rationale—are entitled to little or no weight.

This is especially true here, where the explanation is not used to explain the prior art, but to impermissibly fill gaps in the disclosure of Wallen.

For instance, to support its flawed mapping of the claimed “...control information for use by the UE to acquire a system information block 1...” to Wallen’s “...downlink assignments pointing to the SIBs that are intended for this MTC device...”, the Petition and Dr. Ding’s Declaration present nearly identical assertions, as illustrated by the following table:

Petition [Paper #2, pp. 50-53]	Dr. Ding’s declaration [Ex. 1003 ¶¶ 90-92]
Wallen discloses or renders obvious limitation [1.6]. Ex.1003, ¶90.	90. Wallen discloses or renders obvious limitation [1.6].
As explained in the analysis of limitation [1.4], Wallen’s MIB indicates the frequency and time locations of “resource blocks” (<i>the indicated frequency resources and the time resources</i>) “allocated to a specific M-PDCCH” which, in turn, includes “control information” (<i>control information</i>) such as “downlink assignments pointing to the SIBs” (<i>for use by the UE to acquire a system information block</i>). Ex.1005, [0072] (“M-PDCCH supplies control information to the MTC device including... downlink assignments	91. As explained in the analysis of limitation [1.4], Wallen’s MIB indicates the frequency and time locations of “resource blocks” (<i>the indicated frequency resources and the time resources</i>) “allocated to a specific M-PDCCH” which, in turn, includes “control information” (<i>control information</i>) such as “downlink assignments pointing to the SIBs that are intended for this MTC device [UE].” Wallen’s “ <i>control information</i> ” is thus “ <i>for use by the UE [MTC device] to acquire a system information block [SIBs].</i> ”

pointing to the SIBs that are intended for this MTC device.”); Ex.1006, 9.

In another aspect (represented by the number ‘5’ enclosed in a circle), the MIB 901 indicates the resource blocks, reference signal sequence, or search space allocated to a specific M-PDCCH, which should occupy regions of the host system’s radiofrequency spectrum that are different from the host system’s own (legacy) PDCCH locations. The M-PDCCH supplies control information to the MTC device, including MTC specific SIBs or downlink assignments pointing to the SIBs that are intended for this MTC device.

Wallen’s MIB that provides the location in frequency and time of the M-PDCCH is illustrated in Figure 9.

Wallen, [0072]; Wallen-Prov, p. 9. Wallen’s MIB that provides the location in frequency and time of the M-PDCCH is illustrated in Figure 9.

MIB indicates the time/frequency location of M-PDCCH, which in turn has “control information” such as downlink assignments pointing to SIBs (not shown)

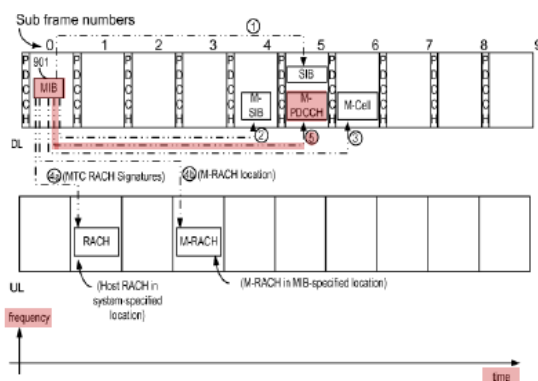


FIG. 9

Ex.1005, Figure 9 (annotated); Ex.1006, Figure 1; Ex.1003, ¶91

MIB indicates the time/frequency location of M-PDCCH, which in turn has “control information” such as downlink assignments pointing to SIBs (not shown)

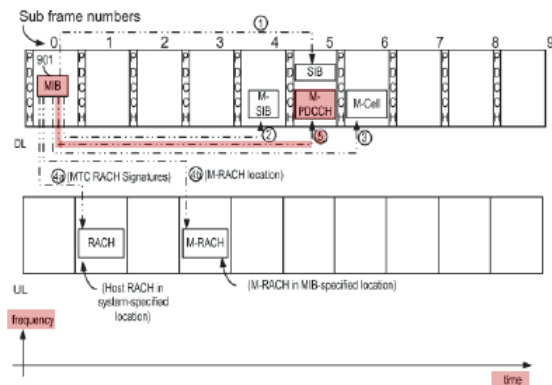


FIG. 9

Wallen, Figure 9 (annotated); Wallen-Prov, Figure 1

An example of one of Wallen’s “SIBs” is SIB1, as disclosed in Wallen. Ex.1005, [0068] (“[T]he MIB 901 ... includes time/frequency information ... that informs the MTC device of a location of the resource blocks ... allocated to the first system information block (SIB 1)”); Ex.1006, 9. In fact, SIB1 is the only specific LTE SIB disclosed in Wallen. Ex.1003, ¶91. Moreover, it would have been obvious that one of Wallen’s “SIBs” that are received includes the disclosed system information block 1 (SIB1) because SIB1 was known in LTE to carry information essential to connecting to a cell. Ex.1003, ¶91 (citing Ex.1009, pp. 2-3 (describing SIB1 as “essential” for connecting to a cell)). Therefore, the indication of SIB1 represents simply specifying an implementation detail of which of the known “SIBs” to indicate by Wallen’s M-PDCCH, and it was obvious, predictable, and beneficial that one of the “SIBs” is a known and essential SIB in LTE, namely, SIB1, the only specific SIB disclosed in Wallen. Ex.1003, ¶91.	An example of one of the “SIBs” that may be received is SIB1, as disclosed in Wallen. Wallen, [0068] ([T]he MIB 901 ... includes time/frequency information ... that informs the MTC device of a location of the resource blocks ... allocated to the first system information block (SIB 1)”); Wallen-Prov, 9. In fact, SIB1 is the only specific LTE SIB disclosed in Wallen. Moreover, it would have been obvious that one of the “SIBs” that are received includes the disclosed system information block 1 (SIB1) because SIB1 was known in LTE to carry information “essential” to connecting to a cell. Ex.1009, p. 2, line 34-p. 3, line 2 (LTE defines thirteen SIBs, including SIB1); p. 3, lines 19-21 (“SIB1 ...must be present in every cell... A user equipment considers the cell as ‘barred’ in case it cannot find this essential system information.”). Therefore, the indication of SIB1 represents simply specifying an implementation detail of which of the known “SIBs” to indicate by Wallen’s M-PDCCH, and it was obvious, predictable, and beneficial that one of the “SIBs” to be indicated is a known and essential SIB in LTE, namely, SIB1, the only specific SIB disclosed in Wallen.
In summary, Wallen discloses or renders obvious <i>the indicated frequency resources and the time resources</i> (Wallen’s MIB indicates the	92. In summary, the MIB indicates the time/frequency location of resource blocks allocated to M-PDCCH, which in turn provides time/frequency

time/frequency location of resource blocks allocated to M-PDCCH) <i>include control information for use by the UE</i> (“M-PDCCH supplies control information... intended for this MTC device ”) <i>to acquire a system information block 1</i> (the “control information” includes “downlink assignments pointing to the [system information blocks] SIBs ,” such as Wallen’s “first system information block (SIB1)”), thereby disclosing or rendering obvious limitation [1.6]. Ex.1003, ¶¶91-92.	locations of SIBs, and it would have been obvious that the “SIBs” include Wallen’s SIB1 because SIB1 is a known LTE SIB that carries essential system information, thereby rendering obvious <i>the indicated frequency resources and the time resources</i> (indicated frequency and time locations of resource blocks for the M-PDCCH) <i>include control information</i> (include control information of downlink assignments pointing to SIBs, such as SIB1) <i>for use by the UE to acquire a system information block 1</i> (the first system information block, SIB1).
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Yet the declaration offers no technical arguments supporting this assertion. This omission is telling because the M-PDCCH of Wallen clearly does not include “...control information for use by the UE to acquire a system information block 1...” as in the independent claims (with claim 1 being representative). To the contrary, as identified by Dr. Lomp, a POSITA would understand that “...MTC specific SIBs or downlink assignments pointing to the SIBs that are intended for this MTC device...” as in paragraph [0072] of Wallen do not refer to SIB1 as argued by Petitioner. [See Petition, p. 47, See also Supra, §, II. B, and Ex. 2010 ¶¶ 66-75].

As in *Facebook, Inc. v. Windy City Innovations, LLC*, 973 F.3d 1321, 1340-41 (Fed. Cir. 2020), where the Federal Circuit affirmed that expert testimony should be discounted when it merely repeats unpersuasive attorney argument without

substantiating analysis, the Board should accord little weight to Dr. Ding's conclusory statements.

Ultimately, Petitioner's expert is not interpreting Wallen but is, instead, re-writing it to conform to the claim limitations—precisely the kind of improper hindsight reconstruction prohibited under § 311(b). The declaration's failure to offer independent analysis, combined with its unsupported assertions that contradict the cited reference, confirms that it should be afforded little, if any, probative value.

VI. THE PETITION FAILS TO CARRY ITS BURDEN

The Petition presents a single ground of unpatentability, alleging that claims 1–18 of the '670 Patent are obvious over the combination of Wallen and Berggren. [See Petition, p. 16]. This sole ground is fundamentally deficient.

As detailed below, Petitioner's challenge relies on an internally inconsistent and unsupported interpretation of the '670 Patent's claim language, mischaracterizations of the teachings of the prior art, and conclusory assertions that fail to satisfy the evidentiary burden under 35 U.S.C. § 103. In particular, the Petition fails to establish that the combination of Wallen and Berggren teaches or suggests the claim limitations requiring that the *Master Information Block (MIB) includes an indication of frequency resources and time resources for use in acquiring additional system information ... wherein the indicated frequency resources and time resources*

include control information for use by the UE to acquire a system information block 1, as explicitly required by independent claim 1.

Moreover, Petitioner’s reliance on Wallen’s M-PDCCH to satisfy these claim elements is misplaced. Even if the M-PDCCH were considered to include downlink assignments to SIBs—as Petitioner asserts—there is no showing that those assignments constitute “...control information for use by the UE to acquire a system information block 1...,” as that term is used in the ‘670 Patent and understood by a person of ordinary skill in the art. Petitioner further compounds this error by selectively quoting and omitting qualifying language from Wallen that undercuts its own position.

Finally, Petitioner fails to explain how Berggren remedies any of these critical deficiencies. Berggren is not cited in connection with the contested limitations ([1.4] and [1.6], and corresponding elements [7.4], [7.6], [13.4], and [13.6]) and offers no teaching of the required MIB structure or the specific control information claimed. At most, Petitioner asserts that Berggren supports carrying a MIB on a PBCH—but that assertion is irrelevant to the claim language at issue.

For these reasons, and as further explained below, Ground 1 of the Petition fails to present a prima facie case of obviousness, and the Petition should be denied.

A. The proposed combination of Wallen and Berggren does not teach each and every element of the claims

Ground 1 is deficient in that Wallen does not disclose or teach, alone or in combination with Berggren, “...wherein the MIB includes an indication of frequency resources and time resources for use in acquiring additional system information ... **wherein the indicated frequency resources and time resources include control information** for use by the UE **to acquire a system information block 1.**” as required by claim 1 (emphasis added). The Petition refers to these aspects of claim 1 as [1.4] and [1.6], and corresponding [7.4], [7.6], [13.4], and [13.6]. [See Petition, pp. 46, 50].

1. The Petition Proposes Combining Aspects Of Alternative Embodiments In Wallen That Are Inconsistent With Each Other

The Petition’s mappings of Wallen to the elements of claim 1 attempt to combine disparate aspects of Wallen in a manner that cannot be reconciled with the teachings of Wallen. [See Ex. 2010, ¶¶ 56,70].

As outlined in paragraphs [0067]-[0072] and shown in Figure 9, Wallen sets forth five *different alternatives* for the MIB to “suppl[y] an MTC device with information that is useful for enabling the MTC device to *locate an M-cell and/or to locate an M-PDCCH and/or to locate an M-SI, and/or to know how it can perform an M-RACH procedure.*” Ex. 1005, [0067] (emphasis added).

In purporting to map Wallen to elements [1.4] and [1.6] of claim 1 (and corresponding elements [7.4], [7.6], [13.4], and [13.6]), the Petition attempts to combine different aspects of Wallen’s *first* and *fifth alternatives* in a manner that contradicts other aspects of these alternatives. *Id.*, [0068] (disclosing first alternative) and [0072] (disclosing fifth alternative).

Starting with element [1.4], the Petition maps the requirement that the “MIB includes an indication of frequency resources and time resources for use in acquiring additional system information,” to the aspect of Wallen’s fifth alternative where the MIB “indicates the...resource blocks allocated to a *specific M-PDCCH*.” Petition, 47, citing Ex. 1005, [0072] (emphasis added). In context, Wallen describes this aspect of the fifth alternative as follows:

In another aspect (represented by the number “5” enclosed in a circle), the MIB 901 indicates *the resource blocks, reference signal sequence, or search space allocated to a specific M-PDCCH*, which should occupy regions of the host system’s radiofrequency spectrum that are *different from the host system’s own (legacy) PDCCH locations*. *The M-PDCCH supplies control information to the MTC device, including MTC specific SIBs or downlink assignments pointing to the SIBs that are intended for this MTC device*. ... Ex. 1005, [0072] (emphasis added).

Thus, in Wallen’s fifth alternative, the MIB first directs an MTC device to an *M-PDCCH* which is a special physical downlink control channel used by MTC devices. *Id.*, [0024] (“In some but not necessarily all of these embodiments, ... the

extended broadcast information is any one of ... a special physical downlink control channel (M-PDCCH) adapted for use by the second type of communication device”). See Ex. 2010, ¶ 72].

This special downlink control channel in turn supplies control information including “MTC specific SIBs” or downlink assignments pointing to the “SIBs that are intended for this MTC device.” See Ex. 2010, ¶ 72]. Thus, the SIBs discussed in Wallen’s fifth alternative are SIBs specific to MTC devices (or even a specific MTC device), and are accessed through a special physical control channel used by MTC devices. See Ex. 2010, ¶ 67].

Element [1.6] of claim 1 requires that “the frequency resources and time resources” introduced in Element [1.4] “include control information for use by the UE to acquire a system information block 1.” The “frequency resources and time resources” in Wallen’s fifth alternative do not point to “a system information block 1,” but rather to SIBs specific to MTC devices. See Ex. 2010, ¶¶ 67-68]. In order to bridge this gap, the Petition attempts to combine Wallen’s fifth alternative with aspects of Wallen’s first alternative in a manner that is contradictory. See Ex. 2010, ¶¶ 72-76].

Incongruously, for the requirement in Element [1.6] that the “frequency resources and time resources” be used “to acquire a system information block 1,” the Petition shifts to aspects of Wallen’s first alternative where “[T]he MIB 901 ...

includes time/frequency information ... that informs the MTC device of a location of the resource blocks ... allocated to **the first system information block (SIB 1)**”).

Petition, 51-52 (emphasis in original). In context, Wallen describes this separate, first alternative as follows:

In one aspect, the MIB 901 (which occupies its standard location in the host cell) includes time/frequency information (represented by the number ‘1’ enclosed in a circle) that informs the MTC device of a location of the resource blocks and/or modulation and coding scheme (MCS) allocated to the first system information block (SIB1) that is transmitted in a system standardized location (e.g., in subframe 5 in an LTE system). The first SIB, which is a legacy SIB, is allocated frequency resources such that it can be read by an MTC device. Ex. 1005, [0068] (emphasis added).

Wallen labels “legacy” communication devices as “the first type of communication devices” and contrasts them with “MTC devices” which are “a second type of communication device ... capable of receiving a signal no larger than a second bandwidth, wherein the second bandwidth is smaller than the first bandwidth.” *Id.*, [0042]-[0043], See Ex. 2010, ¶ 72].

In contrast to the “MTC specific SIBs” that were the subject of Wallen’s fifth alternative, the “legacy SIB” that is the subject of Wallen’s first alternative is not accessed through a special physical downlink control channel (M-PDCCH) adapted for use by MTC devices. See Ex. 2010, ¶ 71]. Further, the “legacy SIB” is read by

both legacy device and MTC devices, and is therefore not an “*MTC specific SIB*” as described in Wallen’s fifth alternative. See Ex. 2010, ¶ 71.

This combination of aspects of Wallen’s first and fifth alternatives, proposed in the Petition, is inconsistent with the teachings of Wallen. See Ex. 2010, ¶ 72. It is clear (and would have been clear to POSITA) that Wallen’s *special* physical downlink control channel (*M-PDCCH*) is adapted for use by *MTCs* to acquire “*MTC specific SIBs*” (as disclosed in Wallen’s fifth alternative) rather than a “*legacy MIB*” such as the first system information block (SIB1) (as discussed in Wallen’s first alternative). See Ex. 2010, ¶ 72.

Moreover, it would be nonsensical for a POSITA to use a *special* physical downlink control channel (*M-PDCCH*) adapted for use by *MTCs* to acquire “*MTC specific SIBs*” for the purpose of acquiring a “*legacy MIB*,” and there would be no motivation for a POSITA to take such an approach. See Ex. 2010, ¶ 74. The Petition’s proposed use of Wallen’s *special* physical downlink control channel (*M-PDCCH*) to acquire a *legacy SIB* is driven by hindsight, and would never have been adopted by a POSITA. See Ex. 2010, ¶ 74].

The Petition’s argument that “SIB1 is the only LTE specific LTE SIB disclosed in Wallen” misses the mark. Petition, 52. It is undisputable that Wallen discloses both “*MTC specific SIBs*” and a “*legacy MIB*,” and the Petition has failed to provide any explanation why a POSITA would have used Wallen’s *M-PDCCH*

designed for acquiring “MTC specific SIBs” for the purpose of acquiring a “legacy MIB.” See Ex. 2010, ¶ 75].

Accordingly, the Petition has failed to carry its burden of demonstrating that Elements [1.4] and [1.6] (and corresponding elements [7.4], [7.6], [13.4], and [13.6]) are met by Wallen as alleged in the Petition.

B. Wallen is not prior art

Wallen is not prior art because the filing date of Wallen is after the priority date of the ‘670 patent whereas critical aspects of Wallen lack support in Wallen-Prov and are not entitled to its filing date. The ‘670 patent is entitled to its priority date. Among other things, “A reference patent is only entitled to claim the benefit of the filing date of its provisional application if the disclosure of the provisional application provides support,” in compliance with § 112 for both the claims in the reference patent and the disclosures from the reference patent relied upon for invalidity. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1382 (Fed. Cir. 2015); *In re Riggs*, 131 F.4th 1377, 1384 (emphasis added).

1. The filing date of Wallen is after the priority date of the ‘670 patent

The actual filing date of Wallen is February 16, 2012. [See Ex. 1005, cover]. This date is after the priority date of the ‘670 patent, which is January 20, 2012. [See Ex. 1001, cover]. Thus, the only way that Wallen could be prior art to the ‘670 patent is if all of those portions of Wallen cited as disclosing or teaching aspects of

the challenged claims are entitled to the priority date of Wallen-Prov. However, critical aspects of Wallen are not entitled to the priority date of Wallen-Prov, as discussed further below.

2. Critical Aspects Of Wallen Relied On In The Petition Lack Written Description Support In Wallen-Prov

a) The Disclosure Corresponding To Figure 13 Of Wallen Is Not Supported In Wallen-Prov

Wallen-Prov begins with a technical overview of existing cellular systems, including the requirements of “current LTE terminals” at that time which included, *inter alia*, cellular telephones. Ex. 1006, 7. Wallen-Prov thereafter describes “machine type communication (MTC) devices” such as “sensors”, which typically require only a “low data rate for signaling of small amount[s] of data.” *Id.*, 8. Toward its end, Wallen-Prov states that “the described solutions may be implemented in any appropriate type of telecommunication system ... such as that illustrated in Figure 5,” which depicts a block diagram of a standard LTE system (reproduced below with coloring added) comprised of three cellular telephones (red boxes) and three base stations (blue boxes):

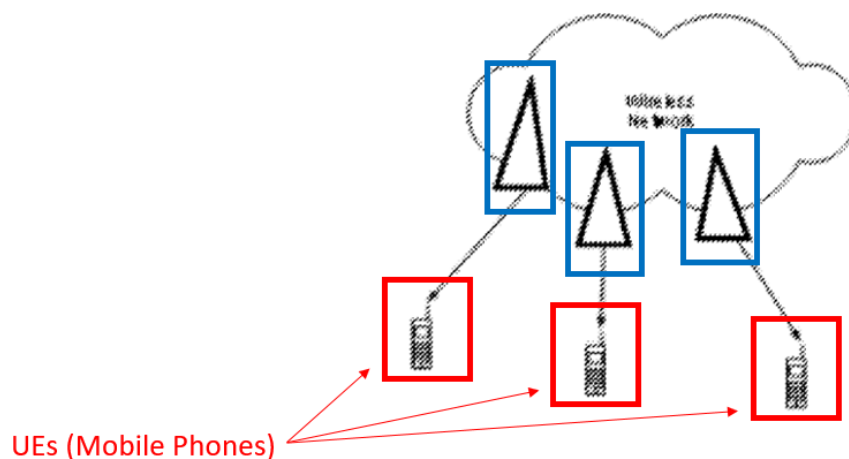


Figure 5: Example Communication System

Id., 12, 16. Wallen-Prov states that the “example network” shown in Figure 5 includes “one or more instances of user equipment (UEs) and one or more base stations.” Ex. 1006, 12. While Wallen-Prov arguably disclosed that its MTC devices (e.g., sensors) “could be implemented” in the network shown in Figure 5, Figure 5 does not depict any MTC devices and instead is limited to depicting UEs in the form of cellular telephones. See Ex. 2010, ¶ 84].

In Figure 6, Wallen-Prov depicts in greater detail an example of one of the UEs from Figure 5 which were cellular telephones. Ex. 1006, 12, See Ex. 2010, ¶ 84].

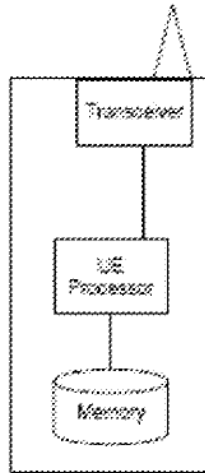


Figure 6: Example User Equipment (UE)

Absent from Wallen-Prov is any depiction or other description of an exemplary implementation of an MTC device disclosing, e.g., the hardware components of an MTC device (other than perhaps a sensor). See Ex. 2010, ¶ 86-87].

In contrast to Wallen-Prov, Wallen (i.e., the Wallen Utility Application) includes a new Figure 13 “depicting a block diagram of a limited bandwidth communication device” such as an MTC device. Ex. 1005, [0013]. Among other hardware elements, new Figure 13 (reproduced below with coloring added) depicts “sensor circuitry 1311” [red box] which is consistent with Wallen’s prior disclosure of “sensors” as examples of MTC devices. Ex. 1006, 8, See Ex. 2010, ¶¶ 83-90].

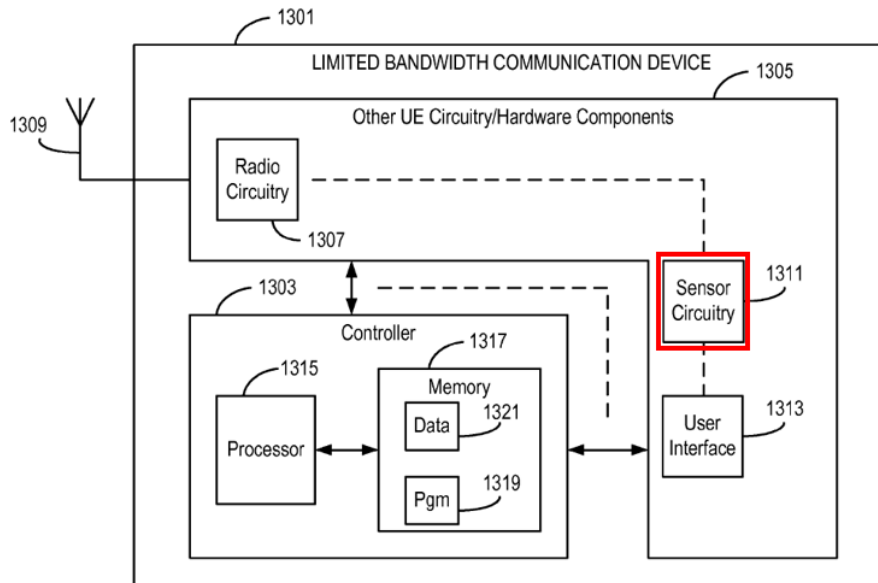


FIG. 13

However, simply put, there is no written description support for Wallen’s new Figure 13 in Wallen-Prov. See Ex. 2010, ¶¶ 83-90]. Rather than depicting an example of an MTC device, Figures 5 and 6 of Wallen-Prov only depicted UEs in the form of cellular telephones. See Ex. 2010, ¶¶ 83-90].

- b) Paragraph [0072] of Wallen, describing aspect “5,” includes additional text which must either have the same meaning as its corresponding passage in Wallen-Prov, or must not be prior art, due to lack of support.**

Paragraph [0072] of Wallen, which is heavily and critically relied upon in the Petition as allegedly teaching elements [1.4] and [1.6] (and corresponding elements [7.4], [7.6], [13.4], and [13.6]) of the challenged claims, reads as follows:

[0072] In another aspect (represented by the number “5” enclosed in a circle), the MIB 901 indicates the resource blocks, reference signal sequence, or search space allocated to a specific

M-PDCCH, which should occupy regions of the host system's radiofrequency spectrum that are different from the host system's own (legacy) PDCCH locations. The M-PDCCH supplies control information to the MTC device, **including MTC specific SIBs or downlink assignments pointing to the SIBs that are intended for this MTC device.** The M-PDCCH may comply with the legacy PDCCH format for the MTC device's lower bandwidth, or it may alternatively be encoded using a new format (e.g., Relay Physical Downlink Control Channel—"R-PDCCH").

The "dual citation" to paragraph [0072] of Wallen referenced in the Petition is "Ex. 1006, 9" or, page 9 of Wallen-Prov. The portion of page 9 of Wallen-Prov which corresponds to the portion of paragraph [0072] of Wallen emphasized above reads as follows:

5. The RBs, reference signal sequence or search space allocated to a specific MTC-PDCCH, which should be different than the legacy PDCCH locations, where an MTC can receive and detect control information, **including the MTC specific SIBs or downlink assignments pointing to the SIBs.**

Ex. 1006, 9 (emphasis added). As can be seen, the text "...that are intended for this MTC device..." in paragraph [0072] of Wallen is absent in the allegedly supporting passage from page 9 of Wallen-Prov.

It is clear from the text that both "the SIBs that are intended for this MTC device..." as in paragraph [0072] of Wallen and "...the SIBs..." as in page 9 of Wallen-Prov refer to the MTC specific SIBs referenced in the first part of these sentences. See Ex. 2006, ¶¶ 58, 66-67]. Nevertheless, even if it were assumed for

the sake of argument only (and Patent Owner does not concede this) that “the SIBs that are intended for this MTC device...” as in paragraph [0072] of Wallen could be construed as referring to a legacy SIB, this language would be unsupported by Wallen-Prov, and accordingly would not be prior art, being only be entitled to the actual filing date of Wallen.

c) In Order For Wallen To Qualify As Prior Art, Wallen-Prov Must Provide Written Description Support For The Specific Portions Of Wallen Relied On In The Petition To Map Wallen To The Challenged Claims

While the Petition purported to establish that at least one claim of Wallen was supported by Wallen-Prov (Petition, 18-29), such a showing is *insufficient* by itself to establish that the aspects of Wallen relied on in the Petition are entitled to the benefit of the filing date of Wallen-Prov. As the Court explained in *In re Riggs*, 131 F.4th 1377, 1384 (Fed. Cir. 2025):

... While we have explained that a prior art patent or published application cannot be accorded the benefit of its provisional application’s filing date absent a showing that the provisional application provides support for the claims of the patent or published application, *Dynamic Drinkware*, 800 F.3d at 1381–82; *Amgen*, 872 F.3d at 1380, we have not addressed the scenario at issue here. Specifically, we have not addressed whether the Board’s test is sufficient where, as here, the Examiner (or *any party challenging the validity of a patent*) demonstrated support for one claim and then relied on other portions of the specification (e.g., the Summary of the Invention or Detailed Description, or even other claims) to support its rejection. We conclude it is not. Even if one demonstrates that a provisional application provides written description support for one claim of the non-provisional application or patent, the provisional application must also provide written description support for the

specific portions of the patent specification identified and relied on in the prior art rejection. In other words, to claim priority to the provisional filing date, the portion of the application relied on by the examiner as prior art must be supported by the provisional application. It makes no sense to suggest that if a single claim is supported by the provisional application, then everything in the later filed application gets the benefit of the provisional date whether supported or not. (emphasis added).

In the present case, the Petition itself only contained an analysis that claim 1 of Wallen was supported by Wallen-Prov (Petition, 18-29). With respect to the requirement that the provisional application “provide written description support for the specific portions of the patent specification identified and relied on” in the Petition, the Petition instead referred to a comparison chart between Wallen and Wallen-Prov set forth in the expert declaration and “dual citations” to Wallen and Wallen-Prov, both of which will be discussed later. Petition, 29, *citing*, Ex. 1003, Section IX.

d) The Standard For Written Description Support Is Exacting And Is Not Satisfied By A Disclosure That Merely Renders The Subject Matter Obvious

As explained by the Federal Circuit, “A reference patent is only entitled to claim the benefit of the filing date of its provisional application if the disclosure of the provisional application provides support,” in compliance with § 112 for both the claims in the reference patent and the disclosures from the reference patent relied upon for invalidity. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375,

1382 (Fed. Cir. 2015); *In re Riggs*, 131 F.4th 1377, 1384. In order to satisfy the written description requirement of §112, “one skilled in the art, reading the original disclosure, must immediately discern” the material at issue. *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000) (emphasis added). “[A] description that merely renders the invention obvious does not satisfy the [written description] requirement.” *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (en banc); see also, *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1571-72 (Fed. Cir. 1997).

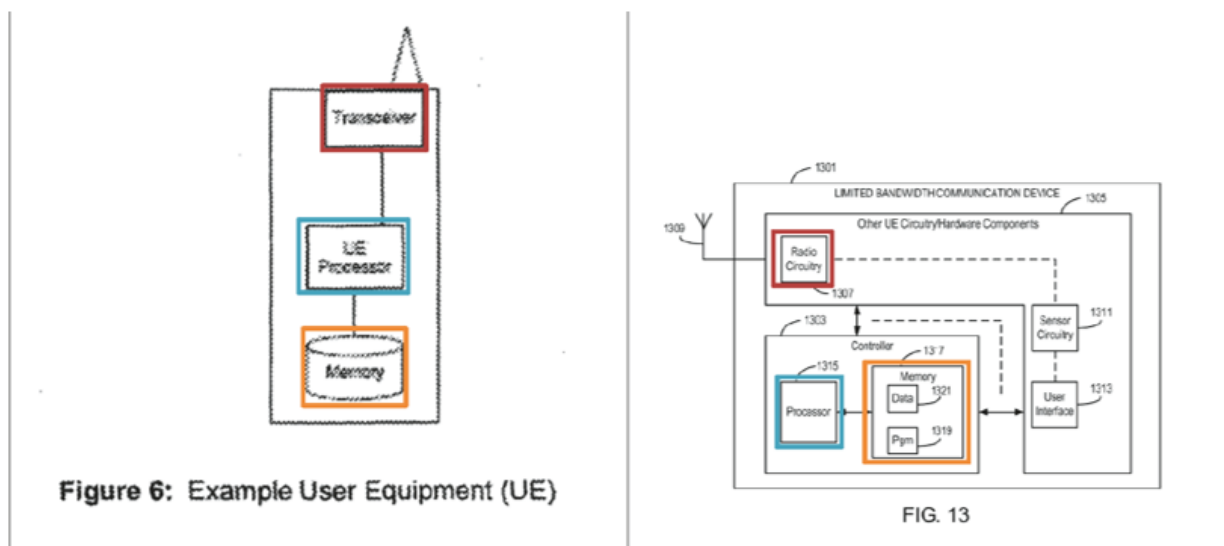
Thus, the Petition cannot rely on an obviousness analysis to demonstrate that the disclosure of the components of an MTC Device corresponding to Figure 13 of Wallen is supported by the disclosure of the components of a cellular telephone in Wallen-Prov.

e) The Petition Fails To Demonstrate That The Disclosure Corresponding To Figure 13 Of Wallen Has Written Description Support In Wallen-Prov

As detailed above, Figure 5 of Wallen-Prov depicted a block diagram of a “standard” LTE system comprised of three cellular telephones and three base stations. See Ex. 2010, ¶¶ 82-91]. Figure 5 did not depict any MTC devices and instead was limited to depicting UEs in the form of cellular telephones. See Ex. 2010, ¶¶ 82-91]. Figure 6 of Wallen-Prov depicted in greater detail an example of one of the UEs from Figure 5 which were cellular telephones. Ex. 1006, 12. [See

Ex. 2010, ¶¶ 82-91]. Absent from Wallen-Prov was any depiction or other description of an exemplary implementation of an MTC device disclosing, e.g., the hardware components of an MTC device. [See Ex. 2010, ¶¶ 82-91]. The Wallen Utility Application supplemented the disclosure of Wallen-Prov with a new Figure 13 (not included in Wallen-Prov) “depicting a block diagram of a limited bandwidth communication device” such as an MTC device. [Ex. 1005, [0013]]. [See Ex. 2010, ¶¶ 82-91]. Among other hardware elements, new Figure 13 depicts “sensor circuitry 1311” which is consistent with Wallen’s prior disclosure of “sensors” as examples of MTC devices. Ex. 1006, 8. [See Ex. 2010, ¶¶ 82-91].

An excerpt from the “comparison chart” set forth in the declaration of Petitioner’s expert is reproduced below. On the left side, the chart depicts Figure 6 of Wallen-Prov which depicts one of the UEs from Figure 5 which were all cellular telephones. Ex. 1006, 12. On the right side, the chart depicts new Figure 13 added in the Wallen utility application, “depicting a block diagram of a limited bandwidth communication device,” i.e., an MTC device. [Ex. 1005, [0013]].



Ex. 1003, 90. However, this aspect of the “comparison chart” is comparing ‘apples and oranges.’ The diagram on the left depicts a cellular telephone and the diagram on the right depicts a block diagram of a “limited bandwidth communication device,” i.e., an MTC device. [See Ex. 2010, ¶¶ 82-91]. The diagrams look different because they are depicting different devices. [See Ex. 2010, ¶¶ 82-91].

In connection with the side-by-side depictions of Figure 6 of Wallen-Prov and Figure 13 of Wallen, the “comparison chart” shows text from Wallen-Prov describing the hardware components of the cellular telephones shown in the Figures 5 and 6 of Wallen-Prov depicted side-by-side with a description of new Figure 13 added in the Wallen utility application describing the hardware components of a limited bandwidth communication device,” i.e., an MTC device. [Ex. 1005, [0013]]. The side-by-side positioning of these descriptions does not change the underlying

fact that the text on left side is describing components of a cellular telephone and the text on the right side is describing components of a “limited bandwidth communication device,” i.e., an MTC device. [See Ex. 2010, ¶¶ 82-91]].

The “dual citations” to Wallen and Wallen-Prov included throughout the Petition suffer from the same defects as the “comparison chart” described above, namely, they all erroneously rely on disclosures concerning standard cellular telephones in Wallen-Prov as alleged support for the hardware components of a “limited bandwidth communication device,” i.e., an MTC device. [See Ex. 2010, ¶¶ 82-91]].

f) The Petition Exhaustively Relies On The Disclosure Corresponding To Figure 13 Of Wallen In Its Mappings Of Wallen To The Challenged Claims

The Petition exhaustively relies on the disclosures corresponding to Figure 13 of Wallen in its mappings of Wallen to the Challenged Claims.

For example, the Petition’s mappings with respect to Element 1.0 rely exclusively on components depicted in Figure 13 of Wallen (e.g., device 1300, components 1305, radio circuitry 1307, antennas 1309 and processor 1315) and the corresponding description of such components in Wallen. From the Petition:

Wallen discloses an “MTC device” having “user equipment (UE) circuitry/hardware” that includes “radio circuitry,” which is an example of the claimed “*transceiver*,” and the UE circuitry/hardware is coupled to a “processor,” which is an example of the claimed “*processor*.” Ex.1005, [0083]-[0084] (describing “an exemplary limited bandwidth communication device 1300, such as the MTC device used in the

examples described above” having “radio circuitry 1307” and “a processor 1315”); Ex.1006, 12. As illustrated in Figure 13 below, Wallen’s “radio circuitry 1307 [is] coupled to one or more antennas 1309,” and radio circuitry 1307 is part of the “other UE circuitry/hardware components 1305 that enable the...communication device 1301...to operate as a communication device (e.g., to be able to communicate sensor data to a server, and possibly also receive instructions),” Ex.1005, [0083]; Ex.1006, 12. Therefore, radio circuitry 1307 enables communication to and from a UE (e.g., to communicate “data to a server” and also “receive” instructions), demonstrating that “radio circuitry 1307” is an example “transceiver.” Wallen discloses that the “processor 1315 [] control[s] the other UE circuitry/hardware components 1305,” which includes “radio circuitry 1307,” thereby disclosing that the processor 1315 (processor) and radio circuitry 1307 (transceiver) are *operatively coupled*. Ex.1003, ¶66. ...

Thus, Wallen discloses or renders obvious “*A user equipment (UE) (“MTC device” having “user equipment (UE) circuitry/hardware”) comprising: a transceiver (radio circuitry 1307); and a processor (processor 1315), operatively coupled to the transceiver (radio circuitry 1307).*” Ex.1003, ¶69. Petition, 39-41 (emphasis added).

The Petition’s mappings with respect to Element 1.1 also rely heavily on components depicted in Figure 13 of Wallen (e.g., radio circuitry 1307 and processor 1315). From the Petition:

Wallen’s MTC device (including radio circuitry 1307 (transceiver) and a processor 1315 (processor)) is configured to receive a *primary synchronization signal (PSS)*, [and] a *secondary synchronization signal (SSS)*. Ex.1005, [0076]. ...

Wallen further explains that its processor 1315 “control[s]” the components of the UE to “carry out any of the MTC device-related aspects” described in Wallen, such as the receiving functionality described above. Ex.1005, [0084] (Wallen’s MTC device has a memory

device storing “a set of processor instructions[] configured to cause the processor 1315 to control the other UE circuitry/hardware components 1305 so as to carry out any of the MTC device-related aspects described above.”); Ex.1006, 12. The “UE circuitry/hardware components 1305” include “radio circuitry 1307.” Ex.1005, [0083]; Ex.1006, 12. ...

Thus, Wallen discloses that its *transceiver (radio circuitry 1307)* and *processor (processor 1315)* are configured to *receive a primary synchronization signal (PSS), a secondary synchronization signal (SSS),* (the primary and secondary synchronization signals, ‘PSS’ and ‘SSS’) *and ... a master information block (MIB) (MIB),* as claimed. ...

Thus, Wallen’s MTC device having a processor 1315 (*processor*) and radio circuitry 1307 (*transceiver*), disclosed as receiving a PSS and a SSS, and an MIB that is broadcast, with Berggren confirming that LTE’s broadcast MIB is carried on the PBCH, renders obvious *the transceiver (radio circuitry 1307) and the processor (processor 1315) are configured to receive a primary synchronization signal (PSS), a secondary synchronization signal (SSS),* (the primary and secondary synchronization signals, ‘PSS’ and ‘SSS’) *and a physical broadcast channel (PBCH) including a master information block (MIB) (MIB transmitted on PBCH).* Ex.1003, ¶75. Petition, 41-43 (emphasis added).

The Petition’s mappings with respect to Element 1.5 similarly rely on components depicted in Figure 13 of Wallen (e.g., components 1305, radio circuitry 1307, processor 1315 and devices 1319). From the Petition:

Wallen discloses that its *UE* (MTC device) includes a *processor (processor 1315)* and *transceiver (radio circuitry 1307)* that provide the functionality described in the previous claim elements. Ex.1005, [0084] (“The memory device(s) store program means 1319 (e.g., a set of processor instructions) configured to cause the processor 1315 to control the other UE circuitry/hardware components 1305 [including radio circuitry 1307] so as to carry out any of the MTC device-related aspects described above.”), Figure 13; Ex.1006, 12, Figure 6; Ex.1003, ¶88.

As further discussed in the analysis of limitation [1.4], Wallen's *transceiver* and *processor* (MTC device, having radio circuitry 1307 and a processor 1315, Ex.1005, [0083]-[0084]; Ex.1006, 12), *are configured to acquire the additional system information* (are configured to cause the processor 1315 to control radio circuitry 1307 to receive SIBs) ... Petition, 49-50 (emphasis added).

3. The Petition Erroneously Argues That The '670 Patent Is Not Entitled To The Benefit Of Its Priority Claim

The Wallen reference (Ex. 1005) was filed on February 16, 2012, which is *after* the priority date of the '670 Patent on January 20, 2012. As shown on the face of the '670 Patent, the '670 Patent claims priority to GB 1201000 (Ex. 1018), filed on January 20, 2012. The Petition advances only the following argument (in a footnote) that the '670 Patent is not entitled to claim the benefit of priority to GB 1201000:

Wallen is also prior art under pre-AIA 35 U.S.C. § 102(e) as of its non-provisional filing date of February 16, 2012 because the '670 patent is not entitled to claim the benefit of GB 1201000 due to its lack of written description support of the Challenged Claims under pre-AIA 35 U.S.C. §112, first paragraph, such as lack of written description of the limitation wherein the indicated frequency resources and the time resources include control information for use by the UE to acquire a system information block 1. Petition, 17, note 3 (emphasis added).

This argument lacks merit. As set forth below, GB 1201000 expressly discloses a system information block 1 (SIB1):

... In each radio frame, a MIB 830 is provided in the central frequency portion 820. The MIB 830 is readable by devices using both the host carrier and the subordinate carrier. ... Generally, the Master Information Block 830 provides sufficient information to gain access to the first of the System Information Blocks (SIB1), which in turn provides sufficient information to gain access to SIB2 et seq. SIB2 includes parameters relating to the reservation of MBSFN subframes (as described above). Ex. 1018, 25 (emphasis added).

C. The Petition Has Failed To Meet Its Burden To Establish That The Challenged Claims Are Obvious Because The Petition Has Failed To Demonstrate That Aspects Of Wallen Relied On In The Petition Are Entitled To The Benefit Of The Filing Date Of Wallen-Prov

The Wallen reference was filed on February 16, 2012, which is after the priority date of '670 Patent on January 20, 2012. As explained above, the Petition relies on numerous aspects of Wallen which are not prior art, because they lack written description support in Wallen-Prov. Simply put, since numerous aspects of Wallen relied on in the Petition for obviousness do not qualify as prior art, the Petition has failed to carry its burden of demonstrating that the Challenged Claims are obvious.

Accordingly, the Petition has failed to carry its burden to demonstrate by a preponderance of the evidence that any of the Challenged Claims are unpatentable, and the Board should deny the Petition in its entirety and confirm the patentability of all of the Challenged Claims.

VII. CONCLUSION

The Petition fails to meet the burden of establishing that any challenged claim of the '670 Patent is unpatentable. The Petitioner has not shown that either Wallen or Berggren—individually or in combination—teaches or suggests all limitations of the independent claims, particularly the critical limitation requiring that the *Master Information Block (MIB) includes an indication of frequency resources and time resources for use in acquiring additional system information ... wherein the indicated frequency resources and time resources include control information for use by the UE to acquire a system information block 1.*

Rather than identifying teachings in the cited references that satisfy this limitation, the Petitioner improperly attempts to shift the claimed functionality to unrelated components, such as the M-PDCCH, and relies on mischaracterizations and selective citations that do not withstand scrutiny. The Patent Office already considered Wallen during prosecution—along with related references—and allowed the claims based on distinctions that the Petitioner fails to overcome here. Petitioner's reliance on conclusory assertions, unsupported expert testimony, and speculative interpretations only reinforces that no prima facie case of unpatentability has been presented.

Because the Petition does not demonstrate that the asserted prior art teaches or suggests each and every element of the challenged claims, and fails to present a

legally or technically coherent theory of obviousness, the Board should therefore deny the Petition in its entirety and confirm the patentability of all of the Challenged Claims.

Respectfully submitted,

Dated: October 14, 2025

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CERTIFICATE OF COMPLIANCE WITH WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), I certify that this Patent Owner Response complies with the type-volume limits of 37 C.F.R. § 42.24(b)(1) because it contains 11,418 words, excluding the parts of this Patent Owner's Preliminary Response that are exempted by 37 C.F.R. § 42.24(a), according to the word processing system used to prepare this Patent Owner's Preliminary Response.

Respectfully submitted,

Dated: October 14, 2025

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CERTIFICATE OF SERVICE

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a copy of the foregoing **PATENT OWNER'S RESPONSE** was served via email (as consented to by counsel) on October 14, 2025 to lead and backup counsel of record for Petitioners as follows:

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