

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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GOOGLE LLC,  
Petitioner

v.

GEOSCOPE TECHNOLOGIES PTE. LTD.  
Owner

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Case No. IPR2023-01212  
Patent 8,406,753

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**PETITION FOR INTER PARTES REVIEW  
OF U.S. PATENT NO. 8,406,753**

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## I. INTRODUCTION

Google LLC (“Petitioner”) respectfully requests *inter partes* review of Claims 1, 7, 9, 32, 38, and 40 (the “Challenged Claims”) of U.S. Patent No. 8,406,753 (“the ’753 Patent”) (EX1001) under 35 U.S.C. §§311-319 and 37 C.F.R. §42.100 *et seq.*

The Challenged Claims address a technique for estimating a location of a mobile device with information from one or more Network Measurement Reports (“NMRs”) using a grid-based pattern matching system. In the Related Litigation Patent Owner’s claim construction brief characterizes the ’753 Patent as determining “the location of a mobile device using information related to wireless networks and what it refers to as ‘grid points.’ The claimed invention involves generating grid points based on calibration data and then using those grid points to determine the location of the mobile device. . . . [The ’753 Patent] addressed problems in the prior art related to having a sparse set of locations to use for geolocation of a mobile device, which could result in reduced accuracy, and enabled more efficient handling of the data used for geolocation.” EX1023, p.3.

The USPTO erred in granting the ’753 Patent because the asserted novelty of the Challenged Claims was disclosed in prior art not formally considered during prosecution. U.S. Patent Publication No. 2003/0064735 (Spain) discloses a technique for locating a mobile device using radio frequency (RF) fingerprints based on network measurements reported from the mobile device in a grid-based pattern

matching method. Spain generates grid points and selects a set of grid points based on signal strength “closeness,” to determine a mobile phone location. The grid-based pattern matching of Spain is intended to reduce data processing with more efficient management of vast amounts of data. *See* EX1006 in its entirety.

## **II. MANDATORY NOTICES PURSUANT TO 37 C.F.R. §42.8(a)(1)**

### **A. Real Party-In-Interest**

Pursuant to 37 C.F.R. §42.8(b)(1), Petitioner certifies that Google LLC is the real party-in-interest. Google LLC is a subsidiary of XXVI Holdings Inc. which is a subsidiary of Alphabet Inc. XXVI Holdings Inc. and Alphabet Inc. are not real parties-in-interest to this proceeding.

### **B. Identification of Related Matters Under 37 C.F.R. §42.8(b)(2)**

The following is a list of any judicial or administrative matters that would affect, or be affected by, a decision in this proceeding:

#### Related District Court and PTAB Matters

1. *Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc.*, Civ. Action No. 1:22-cv-01331 (EDVA) filed on November 22, 2022 (pending) (the “Related Litigation”); and

2. *Geoscope Technologies Pte. Ltd. v. Apple Inc.*, Civ. Action No. 1:22-cv-01373 (EDVA) filed on December 1, 2022 (pending).

Related Applications

The '753 Patent issued from U.S. Patent Application No. 12/026,480, filed on February 5, 2008, claiming priority to U.S. Provisional Application No. 60/899,379, filed on February 5, 2007.

**C. Lead and Backup Counsel**

Pursuant to 37 C.F.R. §42.8(b)(3) and §42.10(a), Petitioner hereby identifies its lead and backup counsel as follows:

|                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b><u>Lead Counsel:</u></b><br/> Patrick C. Keane, Esq.<br/> Registration No. 32,858<br/> BUCHANAN INGERSOLL &amp; ROONEY PC<br/> 1737 King Street, Suite 500<br/> Alexandria, VA 22314<br/> Direct Telephone (703) 838-6522<br/> Main Facsimile (703) 836-2021<br/> patrick.keane@bipc.com</p>                             | <p><b><u>Backup Counsel:</u></b><br/> Roger H. Lee, Esq.<br/> Registration No. 46,317<br/> BUCHANAN INGERSOLL &amp; ROONEY PC<br/> 1737 King Street, Suite 500<br/> Alexandria, VA 22314<br/> Direct Telephone (703) 838-6545<br/> Main Facsimile (703) 836-2021<br/> roger.lee@bipc.com</p>                                |
| <p><b><u>Backup Counsel:</u></b><br/> Matthew L. Fedowitz, Esq.<br/> Registration No. 61,386<br/> BUCHANAN INGERSOLL &amp; ROONEY PC<br/> 1700 K Street, NW, Suite 300<br/> Washington, DC 20006<br/> Direct Telephone (202) 452-7306<br/> Main Facsimile (202) 452-7989<br/> matthew.fedowitz@bipc.com</p>                    | <p><b><u>Backup Counsel:</u></b><br/> Andrew R. Cheslock, Esq.<br/> Registration No. 68,577<br/> BUCHANAN INGERSOLL &amp; ROONEY PC<br/> 1737 King Street, Suite 500<br/> Alexandria, VA 22314<br/> Direct Telephone (703) 838-6523<br/> Main Facsimile (703) 836-2021<br/> andrew.cheslock@bipc.com</p>                    |
| <p><b><u>Backup Counsel:</u></b><br/> Mythili Markowski, Ph.D., Esq.<br/> Registration No. 67,063<br/> BUCHANAN INGERSOLL &amp; ROONEY PC<br/> 1700 K Street, N.W., Suite 300<br/> Washington, DC 20006<br/> Direct Telephone (202) 452-7314<br/> Main Facsimile (202) 452-7989<br/> mythili.markowski@bipc.com</p>            | <p><b><u>Backup Counsel:</u></b><br/> Samuel Harrod, Esq.<br/> Registration No. 79,148<br/> BUCHANAN INGERSOLL &amp; ROONEY PC<br/> Union Trust Building<br/> 501 Grant Street, Suite 200<br/> Pittsburgh, PA 15219<br/> Direct Telephone (412) 562-8805<br/> Main Facsimile (412) 562-1041<br/> samuel.harrod@bipc.com</p> |
| <p><b><u>Backup Counsel:</u></b><br/> Ralph G. Fischer, Esq.<br/> Registration No. 55,179<br/> BUCHANAN INGERSOLL &amp; ROONEY PC<br/> Union Trust Building<br/> 501 Grant Street, Suite 200<br/> Pittsburgh, PA 15219<br/> Direct Telephone (412) 392-2121<br/> Main Facsimile (412) 562-1041<br/> ralph.fischer@bipc.com</p> |                                                                                                                                                                                                                                                                                                                             |

A Power of Attorney is being filed concurrently herewith in accordance with 37 C.F.R. §42.10(b).

**D. Service Information Under 37 C.F.R. §42.8(b)(4)**

Petitioner consents to e-mail service at BIR-GoogleGeoscope@bipc.com.

**III. PAYMENT OF FEES**

The undersigned authorizes the Office to charge Deposit Account No. 02-4800 for fees required by 37 C.F.R. §42.15(a).

**IV. REQUIREMENTS UNDER 37 C.F.R. §42.104**

**A. Grounds for Standing**

Petitioner hereby certifies that the '753 Patent is available for *inter partes* review in accordance with 37 C.F.R. §42.102(a)(2). Petitioner is not barred or estopped from requesting *inter partes* review challenging the claims of the '753 Patent on the grounds identified herein.

This Petition is filed within one year from the date on which Petitioner was served a Complaint by Owner in the Related Litigation, which asserted infringement of the '753 Patent.

Neither Petitioner nor its privies have received a final written decision under 35 U.S.C. §318(a) regarding any claim of the '753 Patent on any ground that was raised or could have been raised by Petitioner or its privies in any *inter partes* review, post grant review, or covered business method patent review.

**B. Identification of Challenges and Precise Relief Requested**

Petitioner challenges Claims 1, 7, 9, 32, 38, and 40 of the '753 Patent and requests that these claims be found unpatentable<sup>1</sup> based on the Ground as follows:

| Ground | Reference(s)                                                                                         | Basis     | Claims              |
|--------|------------------------------------------------------------------------------------------------------|-----------|---------------------|
| 1      | U.S. Patent Publication No. 2003/0064735 (“Spain”) (EX1006), as evidenced by:<br><br>Agiwal (EX1005) | §§102/103 | 1, 7, 9, 32, 38, 40 |

Petitioner also relies upon evidence listed in the Exhibit List, including the Declaration and *Curriculum Vitae* of Dr. David Hilliard Williams (EX1008, ¶¶1-12, and *see generally*, ¶¶13-143; EX1009).

**C. Prior Art Qualification of Asserted References**

For this Petition, Petitioner assumes the earliest effective filing date of the '753 Patent is February 5, 2007—the filing date of priority U.S. Provisional Application No. 60/899,379 (EX1003).<sup>2</sup>

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<sup>1</sup> Owner asserts infringement of Claims 1 and 32 of the '753 Patent in the Related Litigation.

<sup>2</sup> In the Related Litigation, Owner asserts that “each asserted claim of the '753 Patent is entitled to a priority date of February 5, 2007.” EX1013. Petitioner does not

All prior art cited herein consists of U.S. patents and publications of established publishers, made publicly available before the critical date of November 21, 2002 pursuant pre-AIA 35 U.S.C. §102(b). *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29, pp.19-20 (PTAB Dec. 20, 2019) (precedential). Petitioner submits a confirmatory Declaration/*Curriculum Vitae* of Dr. Sylvia D. Hall-Ellis (EX1010/1011), an expert in the field of library cataloging and classification.

U.S. Patent Publication No. 2003/0064735 (“Spain”) (EX1006), published April 3, 2003, is prior art under 35 U.S.C. §102(b).

Agiwal (EX1005), published on or around February 22, 2005, is prior art under 35 U.S.C. §102(b). As explained by Dr. Sylvia D. Hall-Ellis, various MARC records, its existence in the *ACM Digital Library*, and a registration with the U.S. Copyright Office support the conclusion that Agiwal was published on or around February 22, 2005. *See* EX1010, ¶¶50-58.

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concede that any challenged claim is entitled to an effective filing date of February 5, 2007.

## V. BACKGROUND

### A. The '753 Patent

The '753 Patent describes determining location of a mobile device whose location is unknown using “network measurement reports” received from the mobile device and containing “calibration data” (such as signal strength data of wireless signals transmitted from various transmitters) to perform Grid-Based Pattern Matching for a geographic region. *See, e.g.*, EX1001, Abs. The '753 Patent explains that such “network measurement reports” are “known in the art” and the “calibration data” within such a report may include, for example, “signal strengths observed for signals transmitted by a set of transmitters of known location within or in proximity to the region R.” EX1001, 9:53-63; EX1008, ¶24.

“Network measurement reports” are used in the '753 Patent’s system to contain “calibration data” obtained at specific “calibration points” as known points in a geographic region. *See, e.g.*, EX1001, 9:53-59; 10:23-28. Once stored, analyzed and associated with generated “grid points,” the originally observed “calibration data” is evaluated against similar data transmitted from a mobile device – also in a “Network Measurement Report” – and observed during location determination. *See, e.g.*, Abs.; 2:36-39; EX1008, ¶25.

The '753 Patent discloses the system is “useful in certain situations [but] there is a need to *streamline the process* in order to efficiently and effectively *handle the*

*vast amount of data* being sent between the wireless communications network and the large number of mobile devices for which locations are to be determined.” EX1001, 2:21-26 (emphasis added). The problem identified in the ’753 Patent is a significant volume of data that needs to be searched during geolocation, and the need to perform such searching efficiently. EX1008, ¶26.

The ’753 Patent’s proffered solution is to: (1) **provide “calibration data” for each of one or more “calibration points” in a geographic region**, as known in the art, (2) **generate one or more sets of “grid points” for the “calibration data”**, (3) **evaluate “network measurement report” “calibration data” received from a mobile device at an unknown location with the generated “sets of grid points”**, (4) **to select “a set of grid points” using a predetermined criteria**, and lastly (5) **to determine the mobile device location as a function of the selected “set of grid points”** – all with a

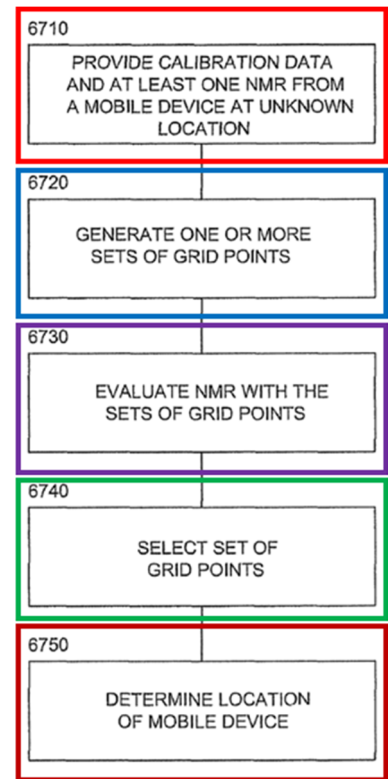


FIG. 67

grid-based pattern matching system. *See, e.g.*, EX1001, 2:26-50; Claim 1. EX1008, ¶27.

The ’753 Patent states: “The performance of a *grid-based pattern matching system such as that disclosed herein* is typically dependent on stored received signal

level measurements that accurately reflect the levels that are likely to be reported by the mobile device to be located.” EX1001, 2:39-50 (emphasis added); EX1008, ¶28.

The ’753 Patent solution relies on the alleged novelty of “generating one or more sets of grid points” for observed calibration data. *See infra*, Section V.B.2 (Points 1 and 2); EX1002, p.50 (“no grid points are generated within any geographic region in Zeng that is associated with a particular set or sets of calibration data”); *see also* EX1012, ¶¶60-61. EX1008, ¶29.

Owner has advanced an interpretation that involves generating a random grid point such as a non-uniform grid point (NUG). Owner characterizes this as “fill[ing] in the map between cell towers.” EX1012, ¶61; EX1008, ¶30.

Geolocation techniques involving such generated “sets of grid points” were well known at the time of the ’753 Patent, as shown in the Ground below. EX1008, ¶31.

## **B. Examination History**

The ’753 Patent issued from U.S. Patent Application No. 12/026,480, filed February 5, 2008, claiming priority to U.S. Provisional Application No. 60/899,379, filed February 5, 2007.

**1. September 20, 2011 Office Action**

The USPTO rejected all pending claims except 11, 18-28, and 49-54 over U.S. Pat. Pub. No. 2005/0266855 (“Zeng”)<sup>3</sup> alone or in combination with other references for certain dependent claims. EX1002, pp.50-57.<sup>4</sup> The rejection focused on the Zeng reference’s “radio map”. EX1002, p.50. Zeng’s radio map is a data structure of signal strength value entries for “seen” and specific reference devices (*e.g.*, WiFi access points) at calibration points (*e.g.*, specific geographic locations). *See* EX1014, ¶108 and Fig. 1. Zeng discloses reliance on a traditional radio map. *Id.* EX1008, ¶33.

For the claimed calibration data for calibration points,<sup>5</sup> the rejection focused on Zeng’s multiple measurements of signal strength data for reference devices (*e.g.*, WiFi access points). EX1002, p.50. The Examiner understood this to be raw signal strength data, where multiple measurements are obtained at each calibration point (*e.g.*, a specific geographic location)—as explained in Zeng. EX1002, pp.50

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<sup>3</sup> The Examiner mistakenly referred to U.S. Patent No. 6,564,065 to Chang when intending to refer to Zeng.

<sup>4</sup> No Amendments were entered after filing, and the rejected claims match the issued claims.

<sup>5</sup> (limitation (a) of claim 1 and (i) of claim 32)

(“**survey** at each calibration point”) (emphasis added); EX1014 at ¶108 (“The signal strength from each reference device 104 heard at that calibration point can be recorded. ***This process can be repeated several times*** and the signal strength values are typically averaged.”) (emphasis added). EX1008, ¶34.

For generating one or more sets of grid points,<sup>6</sup> the rejection focused on the ***averaging*** of obtained signal strengths at each calibration point. EX1002, p.50. EX1008, ¶35.

For the claimed selection of a set of grid points,<sup>7</sup> the rejection focused on Zeng’s on-the-fly/at runtime filtering of its radio map to select only those calibration points that include a signal strength value for a specific set of reference devices. EX1002, p.51. This runtime filtering is performed on-the-fly during Zeng’s location determination to select only those radio map calibration points where the same reference devices were “seen” as in the current scan (*i.e.*, the live measurement taken for location determination). *Id.* (“calibration points that contain exactly the same reference devices that were seen in the current scan”); *see also* EX1014 at ¶37 (forming sets each time a location determination is performed). EX1008 ¶36.

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<sup>6</sup> (limitation (b) of claim 1 and (ii) of claim 32)

<sup>7</sup> (limitation (e) of claim 1 and (iii) of claim 32)

The Examiner applied U.S. Pat. No. 7,167,714 (“Dressler”) (EX1015) to pending claims 13 and 44. The Examiner focused on those claims relating to “omitting a first location estimate having an error greater than a predetermined threshold.” EX1002, p.56. Dressler is related to Spain through a common application, but Spain has additional relevant disclosure. *See* EX1006 (discussing continuity chain, including priority to 09/158,296 to which Dressler also claims priority); EX1016 (difference comparison). The Examiner’s rejection focused on aspects of Dressler that do not form any part of this Petition’s Ground of invalidity, and the Examiner materially erred in granting the ‘753 Patent. EX1008, ¶37.

## **2. December 20, 2011 Applicant Response**

Applicant’s Response made three salient points to distinguish Zeng.

**Point 1:** Concerning the claimed grid points and generation of one or more sets of grid points, Applicant stated that “no grid points are generated within any geographic region in Zeng that is associated with a particular set or sets of calibration data. The claim specifically requires both calibration points and grid points; the Office has not made this distinction in its rejection and has thus misread the reference of record.” EX1002, pp.42-43 (emphasis in original). EX1008, ¶¶38-39.

Zeng’s signal strengths are averaged at a known calibration point where that data was obtained, and then inserted into Zeng’s radio map. *See, e.g.*, EX1014 at ¶37. Averaging collected signal strength, at a given point was therefore distinguished

from generating a new point. EX1002, p.56. No set of calibration points is generated in advance. *See, e.g.*, EX1014 at ¶37.

The Ground of this Petition specifically teaches generation and selection of grid points. EX1008, ¶40.

**Point 2:** Applicant explained that Zeng’s filtering operation does not teach selection of “grid points” because there are no such grid points (EX1002 at 42) and that “no sets of grid points (or even Zeng’s calibration points) are ever selected...”). EX1002 at 43.

The Ground of this Petition specifically teaches generation and selection of grid points. EX1008, ¶41.

**Point 3:** Applicant argued that the Examiner’s application of Zeng was deficient because mere receipt of signal strengths from a mobile device was an inherency argument for a “network measurement report.” EX1002 at 42.

The Ground of this Petition expressly discloses network measurement reports containing signal strengths. EX1008, ¶42.

### **3. January 29, 2013 Allowance**

A Notice of Allowance was mailed referencing Applicant’s response. EX1002 at 13. EX1008, ¶43.

**C. The Prior Art**

**1. Spain (EX1006)**

Spain describes locating a mobile device using radio frequency (RF) fingerprints based on measured signal strengths. EX1006, Abs. ll. 1-3. The RF fingerprints in Spain are stored in a database. *Id.*, EX1006, [0047]:2-5; [0048]; Fig. 3, Step 307; Figs. 9/10 (and associated disclosure at [0098]-[0099]). The RF Fingerprint database is used for geolocating a mobile device at an unknown location based on live network measurements reported from the mobile device. *Id.* at Abs.; [0048]; EX1008, ¶60.

Spain discloses an initial approximate location-based search using the identity of a serving cell transmitted from the mobile device. EX1006, [0066]; [0082]; Fig. 12, Step 1204; Fig. 15. To support this approximate location-based search, Spain provides disclosure concerning storing the “possible serving cell site(s)” (*i.e.*, the identity of a serving cell) with each fingerprint entry. *See* [0070]-[0072]. Using its initial approximate location-based search “the number of possible locations [may be reduced] by a factor of one thousand or more.” *Id.* at [0066]. Spain also discloses generating sets of grid points wherein each set includes newly interpolated grid points. *Id.*, [0101]:1-4; [0054]:1-3; [0055]:1-6; [0055]:6-9; EX1008, ¶61.

In Spain, a set of grid points is selected based on signal strength “closeness,” and a location is determined as a function of those selected grid points. EX1006, [0047]:11-15; EX1008, ¶62.

Spain discloses the ’753 Patent’s Figure 67 as demonstrated by an annotated Figure 3 of Spain wherein a common color scheme is applied. Petitioner has added steps that occur before location determination with citations, and added a specific way Spain teaches ultimate location determination in connection with Step 309. EX1008, ¶63.

## '753 Patent

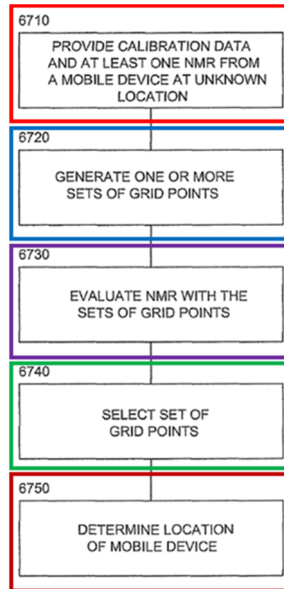
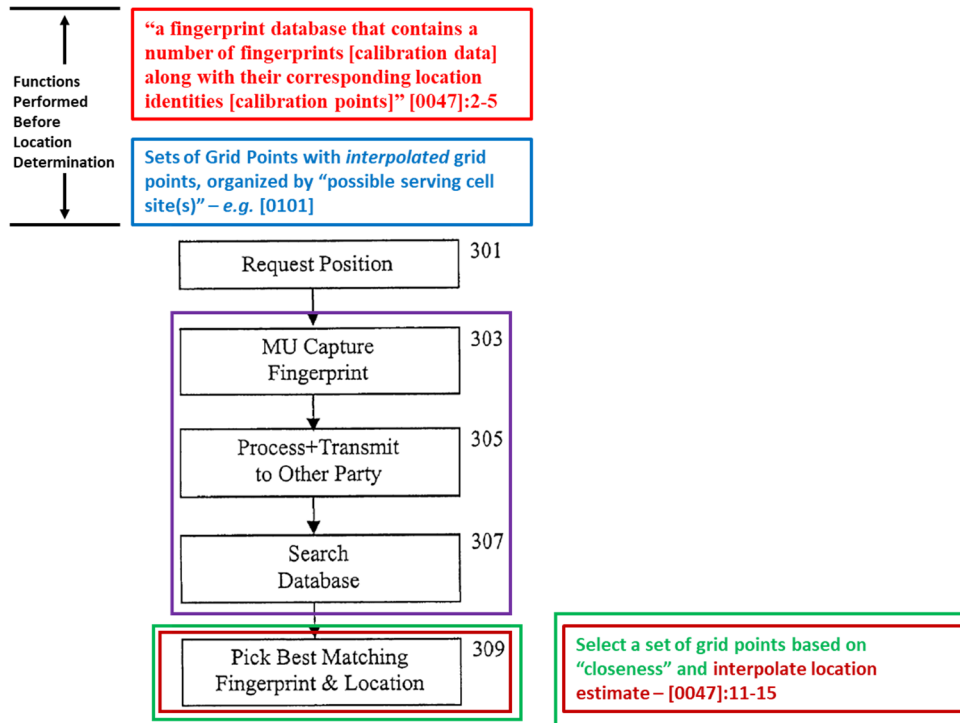


FIG. 67

## Spain



## **2. Agiwal (EX1005)**

Agiwal describes locating a mobile device using radio frequency (RF) fingerprints. *See* Agiwal, p.102, Abs. ll. 1-9. Agiwal uses an RF fingerprint database, and comparison of live measurements to data in that database during geolocation. *Id.*, p.103, Section 3.1. EX1008, ¶64.

Like Spain, Agiwal discloses an initial approximate location-based search of its database using live measurement data transmitted from a mobile device. Agiwal, p.104, Section 3.1.2. Following its initial approximate location-based search, Agiwal first identifies a set of grid points using signal strength based on “closeness” through a k-best search, and then generates a location estimation as a function of those grid points. *Id.* p.105, *Id.*, at.105, Section 3.2.1 (k-best search); pp.105-106, Section 3.2.2 (clustering of k-best) and Section 3.2.3/3.2.4 (location estimation following k-best clustering); EX1008, ¶65.

### **D. Person of Ordinary Skill in the Art (“POSITA”)**

A POSITA would have been someone knowledgeable in wireless networks, cellular radio systems, mobile communication devices and radio navigation systems. That person would have at least a bachelor’s degree in electrical engineering, with a background in radio frequency communications and/or navigation system technology as well as approximately two years of industry experience working on radio communication and/or navigation systems. EX1008, ¶44.

## VI. CLAIM CONSTRUCTION

The Board only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015-00633, Paper 11 at 16 (PTAB Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Other than the terms addressed below, Petitioner believes that no express constructions of the claims are necessary.

Claim terms are interpreted according to *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*), and its progeny. Some of the terms of the '753 Patent are in dispute and a Markman Order (EX1028) issued in Related Litigation addressing those disputes construing claim terms. Any claim terms not addressed below should be interpreted consistent with the *Phillips* standard. The Challenged Claims are unpatentable under the constructions below.

### A. “calibration data” (Claims 1, 7, 32, and 38)

The phrase “calibration data” should be construed as:

**modified or unmodified network measurement data associated with a geographic location**

Petitioner’s construction is consistent with the Markman Order. *See* EX1028, p.8.

### B. “calibration points” (Claims 1 and 32)

The phrase “calibration point” should be construed as:

**geographic points with which calibration data is associated**

In Related Litigation, Petitioner and Owner have stipulated that “calibration points” should be construed as “geographic points with which calibration data is associated.” EX1024, p.1.

**C. “grid point” (Claims 1, 9, 32, and 40)**

The phrase “grid point” should be construed as:

**a point associated with representative calibration data for an area**

Petitioner’s construction is consistent with the Markman Order. *See* EX1028, p.20.

**D. “network measurement report” (Claims 1, 7, 32, and 38)**

The phrase “network measurement report” should be construed as:

**a report used in cellular networks which provides the results of a measurement from a mobile device on one or more cells**

Petitioner’s construction is consistent with the Markman Order. *See* EX1028, p.18.

Owner may argue that the claimed “network measurement report” must have a defined data structure. *See* Section V.B.2 (Point 3). The Ground addresses any such data structure requirement.

**E. Order of “providing . . .,” “generating . . .,” “evaluating . . .,” and “selecting . . .” steps.**

In Related Litigation, Petitioner and Owner stipulate that the order of “providing . . .,” “generating . . .,” “evaluating . . .,” and “selecting . . .” steps of

claim 1 of the '753 Patent is construed as “providing has to occur before generating, and generating has to occur before both evaluating and selecting.” EX1024, p.2; EX1008, ¶54.

**F. Related Litigation Indefiniteness Positions**

In Related Litigation, Petitioner has asserted that the following terms are indefinite: “evaluating said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters” (claim 1); “evaluate said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters” (claim 32); and “characterizing parameters” (claims 1, 9, 32, 40). EX1025, pp.18-21.

The District Court has determined these terms are not indefinite, and instead carry their plain and ordinary meaning. EX1028, pp.20-24. Owner may raise Petitioner’s prior indefiniteness arguments as a reason to deny this Petition in view of allegedly inconsistent positions.

However, the Board has consistently held that Petitioners may assert such indefiniteness positions in parallel litigation, while simultaneously arguing that the prior art discloses the elements containing those terms. *See Target Corp. v. Proxicom Wireless, Inc.*, IPR2020-00979, Paper 11 at 16–17 (PTAB Dec. 4, 2020); *Sony Interactive Entertainment LLC v. Bot M8, LLC*, IPR2020-00963, Paper 9 at 11

(PTAB Nov. 20, 2020). And, the Federal Circuit has previously confirmed the Board should consider prior art challenges in view of such litigation indefiniteness positions, provided any “indefiniteness [does not] render[] it impossible to adjudicate the prior-art challenge on its merits.” *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 812-814 (Fed. Cir. 2021).

Under all potential constructions, the Ground below applies a sufficient understanding of the Challenged Claims to “adjudicate the prior-art challenge on its merits.”

## **VII. PETITIONER HAS A REASONABLE LIKELIHOOD OF PREVAILING**

### **A. Claims 1, 7, 9, 32, 38, and 40 Are Anticipated or Rendered Obvious Over Spain (Ground 1)**

Spain teaches using any available technique to reduce search complexity of a database (*see, e.g.*, EX1006, [0066]; [0067]; [0082]-[0084]; [0096]; [0099]:1-4). Spain specifically mentions limiting the search by “[*e*]liminat[ing] *all locations outside the serving area of the cell that is reported as the serving cell*” (EX1006, [0082] (emphasis added); Fig. 15), and suggests additional (multi-level) search strategies may be employed. *See, e.g.*, [0083]-[0084]; [0099]:1-4. EX1008, ¶68.

**1. Claim 1 (Preamble): “A method of determining the location of a mobile device in a geographic region comprising the steps of:”**

Spain discloses “[a] method for determining the location of a mobile unit (mobile unit) in a wireless communication system.” EX1006, Abs. ll. 1-3; EX1008, ¶¶69-70.<sup>8</sup>

**a. Element [1.1]: “(a) providing calibration data for each of one or more calibration points in a geographic region, said calibration data having one or more characterizing parameters;”**

A “fingerprint” in Spain is created by providing a “predetermined *combination* of observable RF spectral parameters” [calibration data having characterizing parameters observed at calibration points], such as “observed signal strengths.” EX1006, [0035]:4-7. Spain describes obtaining the longitude and latitude for each fingerprint entry. *See* Fig. 10 and [0099]:7-9. Spain also discloses providing the “possible serving cell site(s)” (*i.e.*, the identity of a serving cell) for each fingerprint entry, as another “characterizing parameter.” *See* [0070]-[0072] (“Initially, the location server maintains a database that lists all possible locations for the mobile unit”) and Table 1; [0080]:2-3 (definition of “serving cell”). EX1008, ¶¶71-72.

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<sup>8</sup> Petitioner does not concede that any Preamble of the Challenged Claims is limiting.

Spain's fingerprints are provided with (comprise) "modified or unmodified network measurement data associated with a geographic location."<sup>9</sup> See Section VI.A, *supra*. Spain's fingerprints are provided for calibration points, as "geographic points with which calibration data is associated," under the stipulated litigation construction. See Section VI.B, *supra*. EX1008, ¶¶73-74.

**b. Element [1.2]: "(b) generating one or more sets of grid points for said calibration data;"**

The fingerprints of Spain are generated as one or more sets of "grid points". Owner has indicated this limitation requires generating a random grid point such as a non-uniform grid point. See, e.g., EX1012, ¶60 ("generation and use of such non-uniform grid points to create a more robust and denser 'map' of known locations") (citing 10:29-11:21, 12:15-67); ¶61 ("inventive grid points" as non-uniform grid points (NUGs) "to fill in the map"); EX1007, p.3 ("the locations of and strengths of signals from Wi-Fi hotspots and cell towers to find additional locations that can be determined or calculated based on the calibration data and generates grid points

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<sup>9</sup> The "network measurement data" aspect of this construction in relation to cellular network signals is more fully explained with reference to element [1.3] below.

associated with those locations”).<sup>10</sup> Spain discloses generation of sets of grid points wherein each set includes newly interpolated grid points:

In another embodiment, the database is built by taking fingerprint measurements at predetermined locations and using intelligent algorithms that interpolate [generate] the fingerprints at all locations in between the sampled locations [sets of grid points].

EX1006, [0101]:1-4.

To improve the accuracy of the fingerprint database, learning/training techniques and methodologies can be adopted for this problem.

EX1006, [0054]:1-3.

The inputs of the training step are a set of positions matched with the corresponding signal strengths, and the fingerprint measurements whose information should be considered in the learning process are added to the training set. The machine is then re-trained and a new grid is generated for the database, to replace the old one [to include generated “sets” of grid points from actual fingerprint measurements].

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<sup>10</sup> Applicant referred to the same concept during prosecution. *See* Section V.B.2 (Points 1 and 2), *supra*; EX1002 at 50 (“no grid points are generated within any geographic region in Zeng that is associated with a particular set or sets of calibration data.”); *see also* EX1001, 27:45-56; 2:44-50 (general use of such NUGs).

EX1006, [0055]:1-6.

The following list summarizes the major advantages of learning/training techniques: (1) *they offer a way to interpolate between grid points [generating grid points] and reconstruct the grid.*

EX1006, [0055]:6-9 (emphasis added). EX1008, ¶¶75-76.

Here, the two grid points used to interpolate an additional grid point or points and the generated additional grid point or points are collectively a generated “set” of grid points (i.e., a “set” which includes the two calibrated grid points *and* the associated interpolated grid points). EX1008, ¶77.

A POSITA would have understood these additional interpolated grid points are assigned to Spain’s possible serving cell clusters/sets in advance to support its initial location-based searching, as more fully described below. *See* EX1006, [0066]; [0070]-[0072] (“Initially, the location server maintains a database that lists all possible locations for the mobile unit”) and Table 1; [0082]; Fig. 15. These “possible serving cell site” keyed database entries of newly generated “sets of grid points” are later used to limit searching. *Id.*; EX1008, ¶78.

To the extent that “clustering” of grid points *alone* is sufficient to meet this limitation, Spain’s disclosure of how clusters (sets) of grid points are generated during its fingerprint database creation – without newly interpolated grid points –

that are organized around “possible serving cell site(s)” also meets this limitation. EX1008, ¶79.

Concerning the grid points themselves, Spain explains that “[i]n one instance the fingerprint corresponds not to one exact spot on the surface of the earth, *but instead to a small area*. The Lat and Long fields in this embodiment indicate a *position inside the area*, preferably the center point.” EX1006, [0099] (emphasis added). As such, a grid point in Spain is “a point associated with representative calibration data for an area.” *See* Section VI.C, *supra*. EX1008, ¶80.

Lastly, concerning the ordering of the claimed method steps, “providing” occurs before “generating” in Spain. *See* Section VI.E. EX1008, ¶¶81-82.

**c. Element [1.3]: “(c) receiving at least one network measurement report from a mobile device at an unknown location in said geographic region;”**

Spain discloses that a captured fingerprint “is stored in the *fingerprint structure*” [*i.e.*, network measurement report] that includes characterizing parameters as described above with reference to element [1.1]. EX1006, [0097]:1-6; Fig. 9. Spain discloses that “[t]he fingerprint comprises characteristics of received signals at multiple frequencies” which includes signal strength. EX1006, [0098]:1-2; [0098]:24-26. EX1008, ¶¶83-84.

This claim limitation recites that at least one network measurement report is received *from* a mobile device. In one embodiment in Spain “the generated

fingerprint (in the mobile unit) is transmitted to the location server over the wireless link” (EX1006, [0048] (emphasis added)), which expressly includes signal strengths and the identity of the current serving cell for the mobile unit. *See* Fig. 12, Step 1203 (“Receive: (1) the Cell ID of the Cell Site Servicing The Mobile Unit”); [0081] (“the cellular network receives the signal strength report”); [0082]; [0044]:7-10 (“[f]or example, in one instance the location server knows the approximate location of the mobile unit by receiving [the] *identity* of the (wireless communication network) cell that the mobile unit is in at that time.”) (emphasis added); [0057]:4-6; [0066]. Spain’s network measurement report is received by the location server *from* the mobile device. EX1008, ¶¶85-86.

Spain’s fingerprint structure addresses the defined data structure issue present in the prosecution history, which Owner may raise. *See* Section VI.D, *supra*. EX1008, ¶87.

Spain discloses that its fingerprint database for location determination may be comprised of signals obtained from a cellular network. *See, e.g.*, EX1006, [0050] (“To improve the accuracy, as well as viability, of any algorithm for mobile unit location *based on measurements of base station signal strengths*, corrections for channel interference will be required.”) (emphasis added); *see also* [0035] (general discussion of Radio Frequency (RF) spectral fingerprint); [0036] (use of cellular hardware for fingerprint capture); [0042] (discussing filtering when using cellular

signals for fingerprinting); [0050] (discussing design of fingerprint database to compensate for channel interference); [0051] (storage of interference corrected cellular fingerprints); [0076] (“Tasks 1201 though 1203 are normally performed by the cellular network as a part of its operation.”); [0078] (“each receivable signal is a base station control channel”); [0110] (“only minor software changes in the mobile unit (typically a cellular phone) are required”); Fig. 12, Steps 1201-1203 (“Functions Performed by Cellular Network During Normal Operation”). Spain’s database includes one or more sets of grid points, and a fingerprint report transmitted from the mobile device during location determination “provides the results of a measurement from a mobile device on one or more cells”; the corresponding database is constructed from the same cellular signals. *See* Section VI.D, *supra*. EX1008, ¶¶88-89.

**d. Element [1.4]: “(d) evaluating said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters;”**

Spain discloses evaluating as a database search limitation by using a current serving cell as a characterizing parameter transmitted from the mobile unit. The ’753 Patent expressly claims “the identification of a serving cell” as a characterizing parameter in dependent claim 9. Spain evaluates the “fingerprint structure” received from a mobile unit with each of the sets of grid points generated through interpolation (see element [1.2] above) as a function of the identity of a

characterizing parameter, such as the current serving cell. Spain explains this initial search evaluation (narrowing) as follows:

The length of time that the search takes to complete is related to its computational complexity.... Therefore, the length of time that the search takes to complete is related to the number of possible locations of the mobile unit that must be considered.

EX1006, [0064].

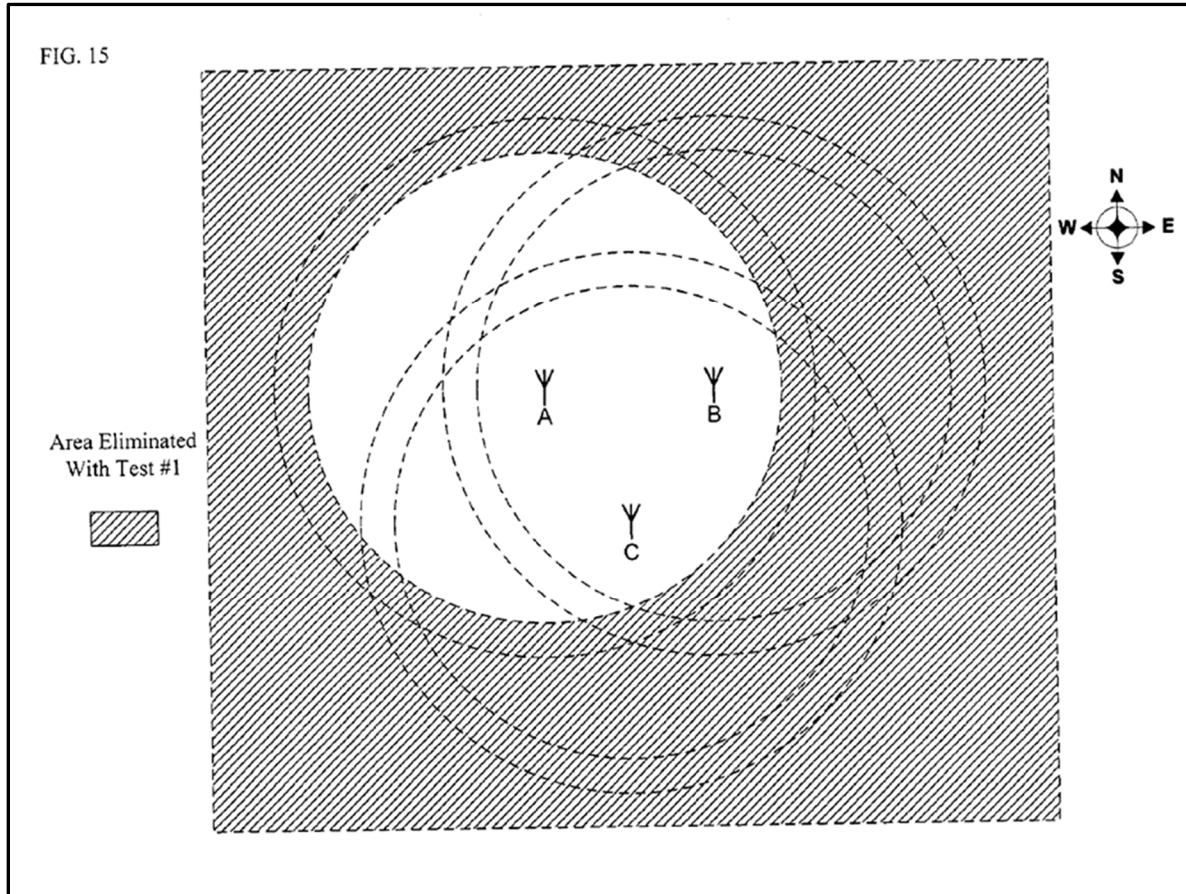
As the number of possible locations to search increases, the length of time to complete the search also increases. Analogously, as the number of possible locations to search decreases, the length of time to complete the search also decreases. Therefore, the illustrative embodiment seeks to reduce the length of time it takes to complete the search by reducing the number of possible locations that must be searched.

EX1006, [0065].

The number of possible locations of the mobile unit that must be searched *can be reduced when an approximate estimate of the mobile unit's location is available*. For example, an approximate estimate of the mobile unit's location *can be determined from the identity of the cell site serving the mobile unit*. This can, for example, reduce the number of possible locations *by a factor of one thousand or more*.

EX1006, [0066] (emphasis added); EX1008, ¶¶90-91.

Spain's "Test #1" "[e]liminates all locations outside the serving area of the cell that is reported as the serving cell." EX1006, [0082] (emphasis added).



EX1006, Fig. 15; EX1008, ¶92.

Lastly, concerning the ordering of the claimed method steps, "generating" occurs before "evaluating" in Spain. *See* Section VI.E, *supra*. EX1008, ¶¶93-94.

**e. Element [1.5]: "(e) selecting a set of grid points as a function of a predetermined criteria; and"**

Following Spain's initial search evaluation (limitation) using a current serving cell as a characterizing parameter, Spain further discloses selecting a set of grid points. EX1008, ¶¶95-96.

After the initial search, Spain selects multiple fingerprints (grid points) from the database as the “closest,” using signal strength as a “predetermined criteria” and applying a separate interpolation step for the location estimation: “In one embodiment, the search algorithm takes more than one fingerprint from the database that are closest to the generated fingerprint and interpolates the most plausible location for the mobile unit from the locations of the chosen fingerprints.” EX1006, [0047]:11-15. (preceding paragraph discussing signal strength). “Closeness” can be the norm, such as the average squared distance. EX1006, [0057]:6-11; EX1008, ¶97.

This is consistent with the ’753 Patent’s recognition that at times a set of candidate grid points that are the “closest” may be used to generate a location estimate. *See* EX1001, 18:54-60. This is consistent with dependent claim 3, in which the “predetermined criteria” is a Euclidean Norm. EX1008, ¶98.

Concerning “closeness” – Spain recognizes there are “many different ways to define ‘closeness’ between two fingerprints.” EX1006, [0057]:12-13. Agiwal (EX1005) provides further evidence of a way a POSITA would consider calculating “closeness” between signal strength fingerprints in the selection of multiple fingerprints in the same two-tiered searching context as Spain. *See* EX1005, p.105, Section 3.2.1 (discussing k-best search); *see also* p.102, Abs. ll. 1-9 (method and system for determining the location); Abs. (use of radio map); p.104, Section 3.1.2 (clustering of radio map in advance to support location search); Abs. ll. 9-13 (receipt

of signal strengths in network measurement report); p.105, Section 3.2.1 (initial estimated location based-search followed by signal strength search). EX1008, ¶99.

Lastly, concerning the ordering of the claimed method steps, “generating” occurs before “selecting” in Spain. *See* Section VI.E, *supra*. EX1008, ¶¶100-101.

**f. Element [1.6]: “(f) determining the location of a mobile device in said geographic region as a function of said selected set of grid points.”**

As discussed for [1.5]/(e), Spain discloses selecting multiple fingerprints (grid points) from the database as the “closest” by signal strength and interpolating for the location: “In one embodiment, the search algorithm takes more than one fingerprint from the database that are closest to the generated fingerprint and *interpolates the most plausible location for the MU from the locations of the chosen fingerprints.*” EX1006, [0047]:11-15 (emphasis added). EX1008, ¶¶102-103.

A POSITA would have appreciated this location-based interpolation determines the location as a mathematical function of the selected closest fingerprints (grid points). This aspect of Spain is also consistent with the ’753 Patent’s discussion concerning accuracy and interpolation between matching grid points. *See* EX1001, 18:54-60 (“An estimate of a mobile device's location may then be given by a grid point having the closest match thereto or a location interpolated between several grid point locations.”); 23:1-15 (“A further aspect of embodiments of the present subject matter may also improve location accuracy by interpolating

between grid point locations when more than one grid point matches the calibration or reported data within a predetermined value... as the actual location of the mobile device is generally not constrained to lie at a grid point location, interpolation between grid points may result in a more accurate location estimate.”); Figs. 33/34 (and accompanying text). EX1008, ¶¶104-105.

**2. Claim 7: “The method of claim 1 wherein said calibration data comprises information from a network measurement report.”**

In Spain, the fingerprint database is built using fingerprints captured and transmitted as reports, just as in location determination. *See* EX1006, [0056]:13-18; [0100], [0098], [0099], Figs. 9/10. EX1008, ¶¶106-108.

3. **Claim 9: “The method of claim 1 wherein said characterizing parameter is selected from the group consisting of: signal strength for a signal transmitted by a transmitter having a known location as received by a receiver at said grid point; signal strength of a signal transmitted by a transmitter located at said grid point as received by a receiver at a known location; round trip time for a signal traveling between said grid point and a known location; timing advance of a signal received by said mobile device at said grid point; time difference of arrival of plural signals at said grid point with respect to a pair of known locations as measured by a receiver at said grid point or at said known locations; the identification of a serving cell or serving sector of said mobile device located at said grid point; a state of a wireless network serving said mobile device, and combinations thereof.”**

*See* discussion above concerning Spain’s inclusion of current serving cell identity when transmitting a network measurement report during location determination. EX1008, ¶¶109-111.

4. **Claim 32 (Preamble): “A system for determining the location of a mobile device in a geographic region comprising”**

*See* Claim 1, preamble discussion above. *See also* EX1006, Abs., Figs. 1/2/11 (Wireless Communication System 1100). EX1008, ¶¶112-114.

**a. Element [32.1]: “a database; and”**

Spain discloses a fingerprint database. EX1006, [0047]:2-5; [0048]; Fig. 3, Step 307; Figs. 9/10 (and associated disclosure at [0098]-[0099]). EX1008, ¶¶115-117.

- b. Element [32.2]: “a processor for receiving calibration data for each of one or more calibration points in a geographic region and receiving at least one network measurement report from a mobile device at an unknown location in said geographic region, said calibration data and network measurement report having at least one characterizing parameter and said processor is programmed to:”**

*See* Claim 1, element [1.1]/(a) and [1.3]/(c) discussions above, as well as Claim 7 concerning receipt of calibration data via a network measurement report. A POSITA would have appreciated that Spain’s “location server” includes a processor configured to receive calibration data which is entered into its database, and to receive a network measurement report from a mobile device at an unknown location. *See, e.g.*, [0100] (“In one embodiment, the database is built by taking off-line snapshots of fingerprints at various locations. The fingerprint information along with the coordinates of the location are entered into the database.”); [0048] (“In another embodiment, the fingerprint database is stored at the location server and the generated fingerprint (in the mobile unit) is transmitted to the location server over the wireless link.”). EX1008, ¶¶118-120.

Further, a POSITA would have appreciated that Spain’s “location server” processor is programmed to perform its location determination method as explained below. *See, e.g.*, [0048] (“The search for the closest fingerprint is then done in the location server from which it determines the location of the mobile unit.”). EX1008, ¶121.

Beyond the POSITA's understanding that Spain's "location server" as a server includes a processor to perform its location determination method, other aspects of Spain confirm the same. *See, e.g.*, [0049] ("The location server has a database into which it executes a search for the closest matching fingerprint, as shown in box 307. Box 309 shows *the process* culminating in the retrieval of the best matching fingerprint along with its corresponding location. In one embodiment the search also returns a confidence measure that depicts the closeness of the match.") (emphasis added). EX1008, ¶122.

The disclosure of Spain in this regard is at least as detailed as that in the '753 Patent. *See, e.g.*, EX1001, 55:18-67; Fig. 70; EX1008, ¶¶123-124.

**i. Element [32.2.1]: "generate one or more sets of grid points for said calibration data,"**

*See* Claim 1, element [1.2]/(b) discussions above. EX1008, ¶¶125-126.

**ii. Element [32.2.2]: "evaluate said at least one network measurement report with each of said sets of grid points as a function of select ones of said characterizing parameters,"**

*See* Claim 1, element [1.4]/(d) discussions above. EX1008, ¶¶127-128.

**iii. Element [32.2.3]: "select a set of grid points as a function of a predetermined criteria, and"**

*See* Claim 1, element [1.5]/(e) discussions above. EX1008, ¶¶129-130.

- iv. **Element [32.2.4]: “determine the location of a mobile device in said geographic region as a function of said selected set.”**

*See* Claim 1, element [1.6]/(f) discussions above. EX1008, ¶¶131-132.

- 5. **Claim 38: “The system of claim 32 wherein said calibration data comprises information from a network measurement report.”**

*See* Claim 7 discussion above. EX1008, ¶¶133-134.

- 6. **Claim 40: “The system of claim 32 wherein said characterizing parameter is selected from the group consisting of: signal strength for a signal transmitted by a transmitter having a known location as received by a receiver at said grid point; signal strength of a signal transmitted by a transmitter located at said grid point as received by a receiver at a known location; round trip time for a signal traveling between said grid point and a known location; timing advance of a signal received by said mobile device at said grid point; time difference of arrival of plural signals at said grid point with respect to a pair of known locations as measured by a receiver at said grid point or at said known locations; the identification of a serving cell or serving sector of said mobile device located at said grid point; a state of a wireless network serving said mobile device, and combinations thereof.”**

*See* Claim 9 discussion above. EX1008, ¶¶135-136.

## **VIII. OTHER CONSIDERATIONS**

- A. **Any Purported Secondary Considerations Evidence Does Not Overcome the Strong Evidence of the Obviousness of the Claims**

Petitioner is not aware of any secondary considerations evidence bearing any nexus to the purported claimed invention. Any purported evidence of secondary considerations that Owner may present in this proceeding would be insufficient to

overcome the strong evidence of obviousness of the Challenged Claims. EX1008, ¶¶137-140.

**B. Discretion to Institute**

**1. The Board should not deny this Petition under §314(a)**

The '753 Patent has not been challenged in any prior AIA trial proceeding, and this Petition is not a “follow-on” petition. Events in the Related Litigation do not warrant denial, and application of the *Fintiv* factors weighs against discretionary denial as explained below.

**a. Factor 1: Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted**

The Related Litigation is ongoing and Petitioner will seek a pre-institution stay. At worst, this factor is neutral because the Board has declined to predict whether the district court will stay the related litigation. *Sand Revolution II v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June. 16, 2020); *Apple Inc. v. Parus Holdings*, IPR2020-00686, Paper 9 at 10 (Sept. 23, 2020).

**b. Factor 2: Proximity of the court’s trial date to the Panel’s projected statutory deadline for a final written decision**

“The PTAB will weigh this factor against exercising discretion to deny institution under *Fintiv* if the median time-to-trial is around the same time or after the projected statutory deadline for the PTAB's final written decision.” Katherine K.

Vidal, *Interim Procedure for Discretionary Denials in AIA-Post Grant Proceedings with Parallel District Court Litigation*, USPTO, at 8-9 (June 21, 2022). Such is the case here and trial has not yet been scheduled. Thus, this factor favors institution or at worst is neutral. See *Microsoft Corporation v. D3D Technologies, Inc.*, IPR2021-00703, Paper 10 at 12 (PTAB Oct. 12, 2021) (concluding that although the final written decision is projected to issue about a month after the trial date, *Fintiv* Factor 2 is neutral); *Laboratory Corporation of America Holdings v. Ravgen, Inc.*, IPR2021-01054, Paper 11 at 17 (Nov. 5, 2021) (“Given the present uncertainty on this record about when trial in the district court might occur for the Labcorp lawsuit, we determine that this factor does not weigh in favor of discretionary denial.”).

**c. Factor 3: Investment in the parallel proceeding by the court and the parties**

Discovery in the Related Litigation is ongoing. The parties have exchanged preliminary infringement disclosures, invalidity contentions, and opening expert reports. Contention discovery has been completed; however expert discovery is incomplete. A Markman order issued on July 19, 2023 (EX1028), which only marginally, if at all, weighs in favor of denial. See *Fintiv*, Paper 15 at 14-15 (finding that a *Markman* order, completed contention discovery, incomplete expert discovery and lack of substantive motion practice weighted somewhat in favor of denying institution); *Sand Revolution II*, Paper 24 at 11 (holding that *Fintiv* Factor 3 weighs only marginally, if at all, in favor of exercising discretion to deny institution.).

Petitioner’s diligence in filing its Petition outweighs any investment. *See Fintiv* at 11 (“If the evidence shows that the petitioner filed the petition expeditiously ... this fact has weighed against [denial]”). The preliminary identification of asserted claims occurred on March 27, 2023, which was subsequently amended on May 10, 2023 and June 12, 2023. Petitioner filed its Petition less than three months after being made aware of the full set of asserted claims. *Dish Network LLC v. Broadband iTV, Inc.*, IPR2020-01332, Paper 14 at 29 (Jan. 27, 2021) (finding that Petitioner diligently filed its Petition less than three months after receiving Owner’s full set of asserted claims). This factor is neutral.

**d. Factor 4: Overlap between issues raised in the petition and in the parallel proceeding**

Petitioner has not filed a stipulation in Related Litigation. However, Petitioner reserves the right to file such a stipulation based on the contents of Owner’s Preliminary Response.

**e. Factor 5: Whether the petitioner and the defendant in the parallel proceeding are the same party**

Petitioner is the defendant in the district court proceeding. The PTAB has noted “it is far from an unusual circumstance that a petitioner in inter partes review and a defendant in a parallel district court proceeding are the same” *Sand Revolution II*, IPR2019-01393, Paper 24 at 12-13. This factor is neutral.

**f. Factor 6: Other circumstances that impact the Panel's exercise of discretion, including the merits**

“[W]here the PTAB determines that the information presented at the institution stage presents a compelling unpatentability challenge, that determination alone demonstrates that the PTAB should not discretionarily deny institution under Fintiv”. Interim Procedure at 4-5. Such is the case here. It is highly likely that Petitioner would prevail with respect to at least one challenged claim for the reasons explained in the above Grounds, and this favors institution under *OpenSky*. Thus, trial should be instituted given the compelling merits.

**2. The Board should not deny this Petition under §325(d)**

The factors recited in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17 (PTAB Dec. 15, 2017) (precedential) weigh in favor of institution. *Id.* at 4. In the present Petition, aspects of the prior art and arguments not considered by the USPTO due to material error during prosecution warrant institution. *See Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8-9 (PTAB Feb. 13, 2020) (precedential).

In evaluating discretion under §325(d) for this Petition, the non-exclusive *Becton* factors favor institution:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated

during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of prior art or arguments.

*Becton*, Paper 8 at 17–18 (precedential).

Under the first prong of the *Becton* Factors (a), (b), and (d), Spain is the same prior art that the Examiner initialed in an Information Disclosure Statement. EX1002, p.18 (initialing U.S. Patent No. 6,944,465, which is the issued patent stemming from Spain). The Board has found such consideration without further analysis to be insufficient to exercise its discretion to not institute. *See, e.g., Amgen Inc. v. Alexion Pharm., Inc.*, IPR2019-00740, Paper 15 (PTAB August 30, 2019) (“The Board has consistently declined exercising its discretion under Section 325(d) when the only fact a Patent Owner can point to is that a reference was disclosed to the Examiner during the prosecution” and citing numerous other opinions); *Scientific Design Co. v. Shell Oil Co.*, IPR2021-01537, Paper 7 (PTAB Mar. 18, 2022) and IPR2022-00158, Paper 7 (PTAB Apr. 4, 2022) (both noting that “apart from initialing the asserted art in an IDS, [the Examiner] did not indicate a substantive

evaluation of the asserted art.”).<sup>11</sup>

More significantly, as noted above in Section V.B.1, the Examiner did substantively apply the Dressler reference, which is related to Spain through a common application. However, under this further first prong analysis of the *Becton* Factors (a), (b), and (d), Spain is **not the same prior art** as the applied Dressler reference, as demonstrated by EX1016 showing the textual differences between the references. Significant amounts of the additional material shown in EX1016 are

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<sup>11</sup> The Examiner likewise considered and initialed without further analysis numerous other Application Publications and Issued Patents related and unrelated to Spain and also assigned to Polaris Wireless– Twenty-Eight (28) in Total. *See* EX1002, pp.83-85; 67-68 (First IDS dated 2008-09-25 with single Polaris Wireless Reference unrelated to Spain of U.S. Patent Publication No. 2006/0243936); pp.74-76; 63-64 (Second IDS dated 2010-03-15 with no Polaris Wireless References); pp.69-71; 65-66 (Third IDS dated 2010-10-25 with no Polaris Wireless References); pp.32-37; 16-20 (Fourth IDS dated 2012-10-31 with a total of Thirty-Four (34) References, of which are Twenty-Seven (27) Polaris Wireless References related or unrelated biographically to Spain). All of this occurred in time ***after*** the Examiner’s material error when misapprehending and overlooking the specific teachings of Spain as reflected in Dressler that impact patentability of the challenged claims.

relied on in Ground 1 above. *See* Ground 1, *infra* (citing EX1006, [0067]; [0082]-[0084]; Fig. 15; [0083]-[0084]; [0070]-[0072]; [0080]; Fig. 12; [0064]-[0065]). This should end the inquiry with respect to Spain and the *Becton* Factors.

Nevertheless, Petitioner demonstrates below that the Examiner erred in a manner material to the patentability of the challenged claims by misapprehending and overlooking specific teachings of Spain as reflected in Dressler where those teachings impact patentability of the challenged claims. *See Advanced Bionics* at 10.

**a. Factor (c)**

*Advanced Bionics* confirms that Factor (c) “focuses on the record developed by the Office in previously reviewing the art or arguments. It *informs*, therefore, the petitioner’s showing under factors (e) and (f).” *Advanced Bionics* at 10 (emphasis added). The Prosecution History of the ’753 Patent is not only informative, it is definitive on the question of error by the Office.

During examination Dressler was applied to pending claims 13 and 44. EX1002, p.56. The Examiner focused on the language of those claims relating to “omitting a first location estimate having an error greater than a predetermined threshold.” *Id.* None of the challenged claims specifically claim “a first location estimate” or a “second location estimate” as specified in claim 10, from which claim 13 depends. None of the claims specifically claim any omission or any error. Owner made no mention of Dressler in the sole response. EX1002, pp.40-45. In this respect,

the Prosecution History makes clear the Examiner failed to focus on any application of Dressler’s disclosure to the broad features of the independent claims. This was a material error.

In applying Dressler to pending claims 13 and 44, the Examiner focused on the disclosure also present in Spain relating to the “adaptation algorithm”:

The adaptation algorithm also determines what measurements to collect to best calibrate the RF prediction model. Instead of collecting all measurements, only measurements that can provide the maximal information to support reduction of the prediction errors are collected. The specific choice of measurements to collect is based upon an analysis of the nature of the error and the desired accuracy of the prediction model.

EX1006, ¶[0053]:1-8.

This Petition does not rely on Spain’s “adaptation algorithm” and the above disclosure is not cited anywhere in this Petition. As understood from the Prosecution History, the Examiner was focused on the disclosure above concerning reduction of errors through “the specific choice of measurements to collect” – again, not an aspect of Spain relied upon in this Petition. This Petition does rely on Spain’s disclosure of interpolation for populating its RF Fingerprint database (*see* Section VII.A.1.b, *supra*), which is independent from the “adaptation algorithm” relied upon by the Examiner.

**b. Factors (e) and (f)**

*Advanced Bionics* explains that “if the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something persuasive under factors (e) and (f).” *Advanced Bionics* at 10. Here, the Examiner’s underdeveloped consideration of Spain’s content as reflected in Dressler was “material error” because it overlooked the disclosure that is broadly applicable to the independent claims directed to a method and system for location determination. *Advanced Bionics* at 8 n.9 (“material error may include misapprehending or overlooking specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims”).

The Examiner particularly overlooked the disclosure concerning “grid points” and “generating one or more sets of grid points.” Specifically in the form of generation of sets of grid points wherein each set includes newly interpolated grid points. *See* Sections VII.A.1.a, b, d, *supra*. And, in the form of the initial search using the identity of a serving cell and its associated RF fingerprint database clustering to support the same. *See Id.*

By allowing claims based on limitations that were taught in the cited art of record, the Examiner overlooked teachings that had a significant impact on patentability. This petition’s ground of unpatentability is not merely “a disagreement with a specific finding of record by the Office.” *Advanced Bionics* at 10-11. Rather,

this petition relies upon teachings of Spain as reflected in Dressler that were simply overlooked during prosecution.

The Board has consistently declined to discretionarily deny institution under similar facts. *See, e.g., DISH Network LLC v. Sound View Innovations, LLC*, IPR2020-01041, Paper 13, 22 (PTAB Jan 19, 2021) (granting institution where “Petitioner has sufficiently shown Examiner error by pointing out specific teachings of the [previously-asserted] prior art that the Examiner overlooked”); *Roku, Inc. v. Universal Electronics, Inc.*, IPR2019-01615 (PTAB April 17, 2020) (granting institution where “Petitioner has pointed out sufficiently how the Examiner materially erred in its evaluation of [the Reference].”); *Trans Ova Genetics, LC v. XY, LLC*, IPR2018-00250, Paper 9, 18-19 (PTAB June 27, 2018) (granting institution where “the Examiner manifestly failed to appreciate [disclosures]...from [the previously-cited art]”).

With respect to factor (f), the Petition is supported by an expert declaration (EX1008) by Dr. Williams explaining how a POSITA would have understood Spain. *See, e.g.,* EX1008, ¶¶60-63; *see also* EX1009. This new evidence also weighs against discretionary denial. *See, e.g., Puma N. Am., Inc. v. Nike, Inc.*, IPR2019-01058, Paper 10, 19 (PTAB Oct. 31, 2019) (instituting where petition presented “new non-cumulative evidence.... probative to issues of patentability and helpful to our consideration of a prior art combination that was not before the Examiner”).

Accordingly, the Board should not exercise its discretion to deny this petition under §325(d).

\*\*\*\*

Owner may attempt to assert the Examiner's evaluation of U.S. Patent No. 7,433,695 ("Gordon") in *ex parte* reexamination serial no. 90/012,694 of U.S. Patent No. 7,561,104 ("the '104 Patent") is somehow relevant to any §325(d) consideration. Gordon is related to Spain as a continuation-in-part of a continuation. *See* EX1017 (continuity data, claiming priority to U.S. 6,944,465, which is the issued patent stemming from Spain). The '104 Patent is related to the '753 Patent through a common provisional. *See* EX1018 (continuity data, claiming priority to U.S. Provisional Application Ser. No. 60/899,379). This is where any overlap ends.

Most succinctly, the Examiner indicated that Gordon failed to disclose, teach, or suggest the limitations of '104 Patent claim 1 of "...determining which of said first and second signal characteristics has a greater magnitude" and "modifying said observed network measurement data using the greater magnitude signal characteristic." *See* EX1019, p.7. The challenged '753 Patent claims include no similar or related limitations.

Further in making the finding that Gordon was insufficient in the reexamination, the Examiner evaluated disclosure at column 13, lines 53-61; column 18, lines 13-17, column 11, lines 39-49, column 16, lines 37-48, column 18, lines

17-25, column 17, lines 26-28, and column 16, lines 9-18 of Gordon. *Id.* at pp.7-8. None of this disclosure is present in Spain. This is further evident by the textual comparison of Gordon with Spain, provided as EX1020. For this additional reason, it cannot be said that the Examiner's evaluation of Gordon has any relevance to the '753 Patent under §325(d).

Owner may also note the Examiner's analysis and rejection of the disclosure of U.S. 7,460,505 ("the '505 Patent"). The '505 Patent is not related to Spain but shares a common inventor. *See* EX1021 (inventor David Stephenson Spain). The Examiner found the '505 Patent's disclosure was insufficient with respect to the "modifying..." claim language discussed above. *See* EX1019, p.216. The Examiner evaluated disclosure at column 10, lines 51-60 and column 3, lines 31-32 of the '505 Patent. *Id.* (referring to proposed rejection present at pp.247-248). None of this disclosure is present in Spain. This is further evident by the textual comparison of Gordon with Spain, provided as EX1022. As such, it cannot be said that the Examiner's evaluation of the '505 Patent has any relevance to the '753 Patent under §325(d).

## IX. CONCLUSION

Petitioner has shown a reasonable likelihood of success. Therefore, this Petition should be granted and the Board should institute trial.

Date: August 9, 2023

Respectfully submitted,

/Patrick C. Keane/

Patrick C. Keane, Esq.

Registration No. 32,858

BUCHANAN INGERSOLL & ROONEY PC

1737 King Street, Suite 500

Alexandria, Virginia 22314

Direct Telephone (703) 838-6522

Main Facsimile (703) 836-2021

patrick.keane@bipc.com

*Counsel for Petitioner*

**APPENDIX A - LIST OF EXHIBITS**

| <b>Exhibit No.</b> | <b>Description</b>                                                                                                                                                                                           |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001               | U.S. Patent No. 8,406,753, issued on March 26, 2013 (“the ’753 Patent”)                                                                                                                                      |
| 1002               | File History of U.S. Patent Application No. 12/026,480, filed on February 5, 2008 (“the ’480 Application”)                                                                                                   |
| 1003               | U.S. Provisional Application No. 60/899,379, filed on February 5, 2007                                                                                                                                       |
| 1004               | <i>Not Assigned</i>                                                                                                                                                                                          |
| 1005               | A. Agiwal <i>et al.</i> , “LOCATOR – Location Estimation System for Wireless LANs,” 2004                                                                                                                     |
| 1006               | U.S. Patent Publication No. 2003/0064735, published on April 3, 2003 to D. Spain <i>et al.</i> (“Spain”)                                                                                                     |
| 1007               | Appendix D to Geoscope’s Preliminary Infringement Contentions dated April 7, 2023, <i>Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc.</i> , Civ. Action No. 1:22-cv-01331 (EDVA)             |
| 1008               | Declaration of David Hilliard Williams                                                                                                                                                                       |
| 1009               | <i>Curriculum Vitae</i> of David Hilliard Williams                                                                                                                                                           |
| 1010               | Declaration of Dr. Sylvia Hall-Ellis                                                                                                                                                                         |
| 1011               | <i>Curriculum Vitae</i> of Dr. Sylvia Hall-Ellis                                                                                                                                                             |
| 1012               | Complaint dated November 22, 2022, <i>Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc.</i> , Civ. Action No. 1:22-cv-01331 (EDVA) filed on November 22, 2022 (“the Related Litigation”)       |
| 1013               | Preliminary Identification of Asserted Claims dated March 27, 2023, <i>Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc.</i> , Civ. Action No. 1:22-cv-01331 (EDVA) filed on November 22, 2022 |

Petition for *Inter Partes* Review of U.S. Patent No. 8,406,753

| <b>Exhibit No.</b> | <b>Description</b>                                                                                                                                                                                                 |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1014               | U.S. Patent Publication No. 2005/0266855, published on December 1, 2005 to G. Zeng <i>et al.</i> (“Zeng”)                                                                                                          |
| 1015               | U.S. Patent No. 7,167,714, issued on January 23, 2007 to R. Dressler and D. Spain, Jr. <i>et al.</i> (“Dressler”)                                                                                                  |
| 1016               | Difference comparison between the text of the Specifications of the Dressler and Spain                                                                                                                             |
| 1017               | U.S. Patent No. 7,433,695, issued on October 7, 2008 to S. Gordon <i>et al.</i> (“Gordon”)                                                                                                                         |
| 1018               | U.S. Patent No. 7,561,104, issued on July 14, 2009 to M. Alles <i>et al.</i> (“the ’104 Patent”)                                                                                                                   |
| 1019               | File History of Reexamination Control No. 90/012,694 (“the ’694 Reexamination”)                                                                                                                                    |
| 1020               | Difference comparison between the text of the Specifications of the Gordon and Spain                                                                                                                               |
| 1021               | U.S. Patent No. 7,460,505, issued on December 2, 2008 to D. Spain (“the ’505 Patent”)                                                                                                                              |
| 1022               | Difference comparison between the text of the Specifications of the ’505 Patent and Spain                                                                                                                          |
| 1023               | Plaintiff Geoscope Technologies PTE. LTD.’s Opening Claim Construction Brief, E.D. Va. Civil Action No. 1:22-cv-01373-MSN-JFA (Dkt. No. 75).                                                                       |
| 1024               | Stipulation Regarding Agreed Upon Claim Constructions dated May 23, 2023, <i>Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc.</i> , Civ. Action No. 1:22-cv-01331 (EDVA) filed on November 22, 2022 |

Petition for *Inter Partes* Review of U.S. Patent No. 8,406,753

| <b>Exhibit<br/>No.</b> | <b>Description</b>                                                                                                                                                                                          |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1025                   | Google LLC's Opening Claim Construction Brief dated May 26, 2023, <i>Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc.</i> , Civ. Action No. 1:22-cv-01331 (EDVA) filed on November 22, 2022  |
| 1026                   | <i>Not Assigned</i>                                                                                                                                                                                         |
| 1027                   | <i>Not Assigned</i>                                                                                                                                                                                         |
| 1028                   | Claim Construction Memorandum Opinion & Order dated July 19, 2023, <i>Geoscope Technologies Pte. Ltd. v. Google LLC f/k/a Google Inc.</i> , Civ. Action No. 1:22-cv-01331 (EDVA) filed on November 22, 2022 |

**CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. §42.24**

The undersigned hereby certifies that the foregoing Petition totals 9,555 words, excluding the parts which are exempted by 37 C.F.R. §42.24(a)(1).

Date: August 9, 2023

/Patrick C. Keane/  
Patrick C. Keane, Esq.  
Registration No. 32,858  
BUCHANAN INGERSOLL & ROONEY PC  
1737 King Street, Suite 500  
Alexandria, Virginia 22314  
Direct Telephone (703) 838-6522  
Main Facsimile (703) 836-2021  
patrick.keane@bipc.com  
*Counsel for Petitioner*

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this 9<sup>th</sup> day of August, 2023, a true and correct copy of the foregoing **PETITION FOR *INTER PARTES* REVIEW FOR U.S. PATENT NO. 8,406,753 and EXHIBITS 1001-1003, 1005-1025, and 1028**, are being served via overnight UPS on the correspondence address of record\* for **U.S. Patent No. 8,406,753**, as follows:

Duane Morris LLP  
901 New York Avenue, N.W., Suite 700 East  
Washington, DC 20001  
(202) 776-7800

*\*Duane Morris LLP is no longer located at 505 9<sup>th</sup> Street, N.W., Suite 1000, Washington, DC 20004. Counsel for Petitioner is serving these papers to the current address noted above and confirmed upon contacting Duane Morris.*

and a courtesy copy is being served to Patent Owner's litigation counsel as follows:

Timothy K. Gilman  
SCHULTE ROTH & ZABEL LLP  
919 Third Avenue  
New York, NY 10022  
(212) 756-2000

John M. Erbach  
SPOTTS FAIN, P.C.  
411 East Franklin Street, Suite 600  
Richmond, VA 23219  
(804) 697-2044

Date: August 9, 2023

/Patrick C. Keane/

Patrick C. Keane, Esq.  
Registration No. 32,858  
BUCHANAN INGERSOLL & ROONEY PC  
1737 King Street, Suite 500  
Alexandria, Virginia 22314  
Direct Telephone (703) 838-6522  
Main Facsimile (703) 836-2021  
patrick.keane@bipc.com  
*Counsel for Petitioner*