

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
WACO DIVISION**

WSOU INVESTMENTS, LLC d/b/a  
BRAZOS LICENSING AND  
DEVELOPMENT,

Plaintiff,

v.

MICROSOFT CORPORATION

Defendant.

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CIVIL ACTION NO. 6:20-cv-463

**JURY TRIAL DEMANDED**

**ORIGINAL COMPLAINT FOR PATENT  
INFRINGEMENT**

Plaintiff WSOU Investments, LLC d/b/a Brazos Licensing and Development (“Brazos” or “Plaintiff”), by and through its attorneys, files this Complaint for Patent Infringement against Microsoft Corporation (“Microsoft” or “Defendant”) and alleges:

**NATURE OF THE ACTION**

1. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, et seq., including §§ 271, 281, 284, and 285.

**THE PARTIES**

2. Brazos is a limited liability corporation organized and existing under the laws of Delaware, with its principal place of business at 605 Austin Avenue, Suite 6, Waco, Texas 76701.

3. On information and belief, Defendant Microsoft Corporation is incorporated under the laws of Washington State with its principal place of business at 1 Microsoft Way, Redmond, Washington 98052. Microsoft may be served with process through its registered agent Corporation Service Company, 211 East 7th Street, Suite 620, Austin, Texas 78701.

4. On information and belief, Microsoft has been registered to do business in the state of Texas under Texas SOS file number 0010404606 since about March 1987.

5. On information and belief, Microsoft has had regular and established places of business in this judicial district since at least 2002.

**JURISDICTION AND VENUE**

6. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular, 35 U.S.C. §§ 271, 281, 284, and 285.

7. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

8. This Court has specific and general personal jurisdiction over Microsoft pursuant to due process and/or the Texas Long Arm Statute, because Microsoft has committed acts giving rise to this action within Texas and within this judicial district. The Court's exercise of jurisdiction over Microsoft would not offend traditional notions of fair play and substantial justice because Microsoft has established minimum contacts with the forum. For example, on information and belief, Microsoft has committed acts of infringement in this judicial district, by among other things, selling and offering for sale products that infringe the asserted patent, directly or through intermediaries, as alleged herein.

9. Venue in the Western District of Texas is proper pursuant to 28 U.S.C. §§1391 and/or 1400(b).

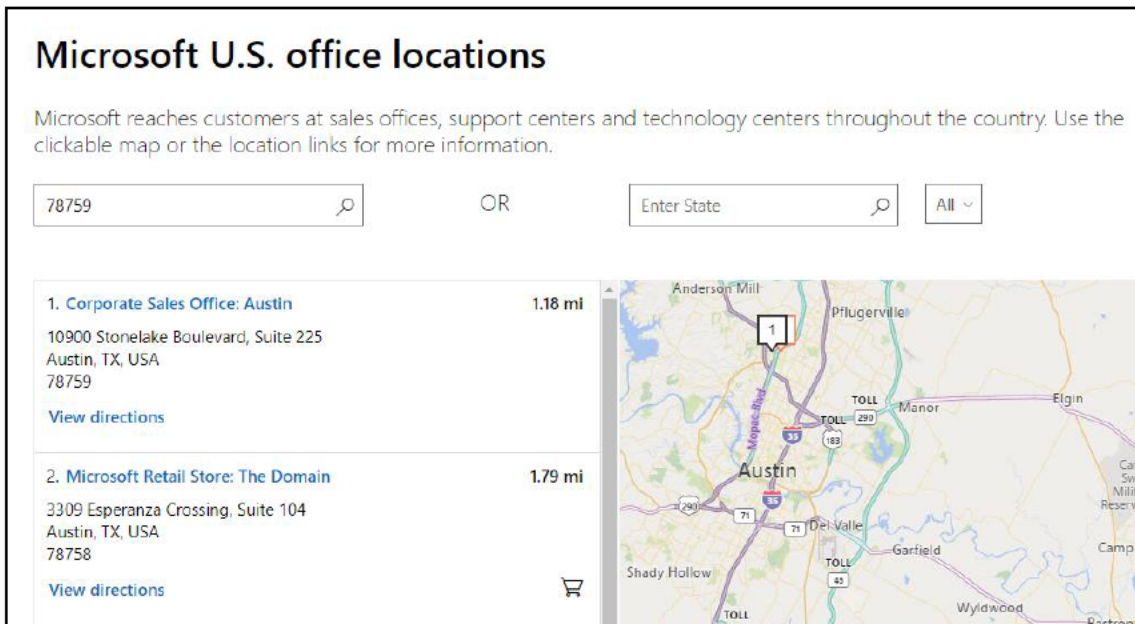
10. This district was deemed to be a proper venue for patent cases against Microsoft in actions bearing docket numbers: 6-19-cv-00572 (*Zeroclick, LLC v. Microsoft Corporation*); 6-19-cv-00687 (*Exafer, Ltd. v. Microsoft Corporation.*); and 6-19-cv-00399 (*Neodron Ltd. v. Microsoft Corporation*).

11. On information and belief, Microsoft maintains a variety of regular and established business locations in the judicial district including its Corporate Sales Office Locations, Retail Store Locations, and Datacenter Locations.

12. On information and belief, Microsoft operates multiple corporate sales offices in the judicial district, and these offices constitute regular and established places of business.

13. On information and belief, Microsoft employs hundreds of employees within its corporate sales offices located in the judicial district.

14. On information and belief, Microsoft has an established place of business in this judicial district known as “Corporate Sales Office: Austin” located at 10900 Stonelake Boulevard, Suite 225, Austin, Texas 78759 and “Microsoft Retail Store: The Domain” located at 3309 Esperanza Crossing, Suite 104 Austin, Texas 78758.



<https://www.microsoft.com/en-us/about/officelocator?Location=78759>

15. On information and belief, Microsoft’s “Corporate Sales Office: Austin” and “Microsoft Retail Store: The Domain” locations were respectively assessed by the Travis County Appraisal District in 2019 to have market values of over \$2.3 million dollars and \$2.7 million dollars.

Property ID	Geographic ID	Type	Property Address	Owner Name	DBA Name	Appraised Value
434588		Personal	19500 STONELAKE BLVD 9-225 AUSTIN, TX 78759	MICROSOFT CORPORATION	MICROSOFT CORPORATION	\$2,300,856
838154		Personal	3309 ESPERANZA CROSSING 104 AUSTIN, TX 78758	MICROSOFT CORPORATION	MICROSOFT CORPORATION STORE #11	\$2,702,083
846351		Personal	12812 SHOPS PARKWAY 300 TX 78738	MICROSOFT CORPORATION	MICROSOFT CORPORATION	\$205
846353		Personal	907 W 5 ST 101 TX 78703	MICROSOFT CORPORATION	MICROSOFT CORPORATION	\$023
846400		Personal	6005 INTERSTATE HY 35 TX 78748	MICROSOFT CORPORATION	MICROSOFT CORPORATION	\$270
848401		Personal	1301 BARBARA JORDAN BLVD 3-700 TX 78723	MICROSOFT CORPORATION	MICROSOFT CORPORATION	\$26,744

<http://propaccess.traviscad.org/clientdb/SearchResults.aspx>

16. On information and belief, Microsoft has another established place of business in this judicial district known as “Corporate Sales Office: San Antonio” located at Concord Park II, 401 East Sonterra Boulevard, Suite 300, San Antonio, Texas 78258.



Source: Google Maps

17. On information and belief, Microsoft owns and operates multiple datacenters in the judicial district, including without limitation data centers located at 5150 Rogers Road, San Antonio, Texas 78251; 5200 Rogers Road, San Antonio, Texas 78251; 3823 Weisman Boulevard, San Antonio, Texas 78251; and 15000 Lambda Drive, San Antonio, Texas 782245.

18. On information and belief, Microsoft utilizes its datacenter locations in this judicial district as regular and established places of business. As a non-limiting example, the data centers in San Antonio are referred to within Microsoft as “US Gov Texas.”

19. On information and belief, thousands of customers who rely on the infringing datacenter infrastructure that Microsoft’s engineering and operations teams have built, reside in this judicial district.

**COUNT ONE - INFRINGEMENT OF**  
**U.S. PATENT NO. 8,226,241**

20. Brazos re-alleges and incorporates by reference the preceding paragraphs of this Complaint.

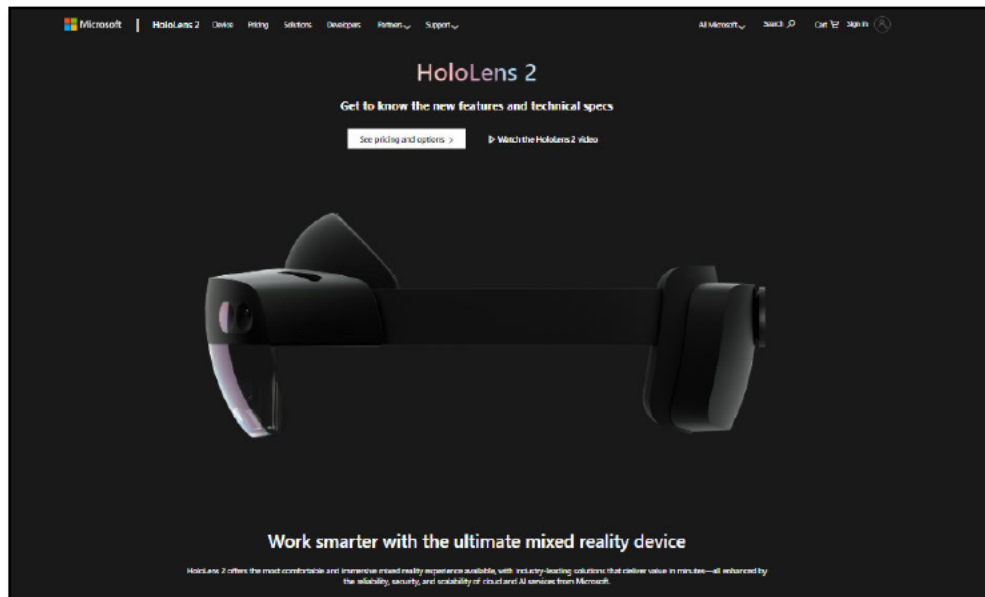
21. On July 24, 2012, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 8,226,241 (“the ’241 Patent”), entitled “Image Projector Employing a Speckle-Reducing Laser Source.” A true and correct copy of the ’241 Patent is attached as Exhibit A to this Complaint.

22. Brazos is the owner of all rights, title, and interest in and to the ’241 Patent, including the right to assert all causes of action arising under the ’241 Patent and the right to any remedies for the infringement of the ’241 Patent.

23. Microsoft makes, uses, sells, offers for sale, imports, and/or distributes in the United States, including within this judicial district, products such as, but not limited to, augmented reality headsets and services, including the Microsoft HoloLens series headsets and associated services (collectively, the “Accused Products”).



[https://www.microsoft.com/en-us/hololens?icid=SSM\\_AS\\_Promo\\_Devices\\_HoloLens2](https://www.microsoft.com/en-us/hololens?icid=SSM_AS_Promo_Devices_HoloLens2)



<https://www.microsoft.com/en-us/hololens/hardware>

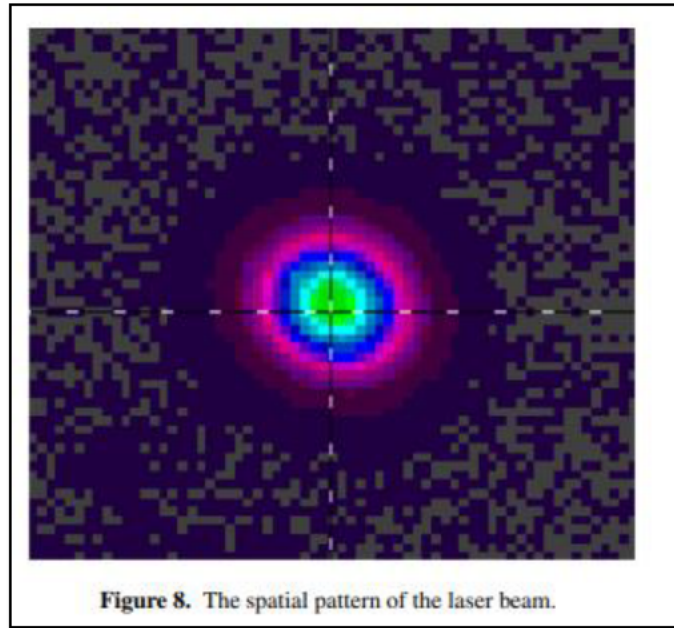
24. The Accused Products project images using light beams from lasers, waveguides, and mirrors.

### **New Display Technology**

For the display, Microsoft has introduced a novel approach by combining two previously existing technologies: MEMS displays and waveguides. Waveguides have been used in the previous HoloLens, as well as with Magic Leap One, and a lot of other AR headsets. However, the images projected into the waveguides are now created by high precision laser beams – reflected from a set of mirrors vibrating at a crazy 54000 times a second. To design the entire optics system, Microsoft has used the vast computing capacity of its Azure cloud to simulate the path of the different colored laser beams through the waveguide almost at the photon level. And I can't even fathom the incredibly intricate manufacturing process that's needed for such precision.

<https://vbandi.net/2019/02/28/hololens-2/>

25. Considering the high precision of the lasers in the Accused Products, upon information and belief, light beams from the lasers would have a spectrum with a plurality of spectral lines corresponding to a plurality of different spatial modes of said laser cavity. For example, light beams from high precision lasers have spatial patterns.



[https://www.researchgate.net/publication/258306328 Efficient end-pumped multi-wavelength laser operation of disordered NdLiGdWO42 crystal](https://www.researchgate.net/publication/258306328_Efficient_end-pumped_multi-wavelength_laser_operation_of_disordered_NdLiGdWO42_crystal)

26. Moreover, various light beam shaping methods are available, including intra-cavity and extra-cavity beam shaping. Extra-cavity beam shaping achieves beam shaping by passing light beams through passive components such as refractive/diffractive optical elements or spatial light modulators with optical phase or optical amplitude modulations. Intra-cavity laser beam shaping is mainly accomplished by placing refractive/diffractive optical elements in the laser cavity, to



modulate either the phase and/or the amplitude of the oscillating light field in the laser cavity.

## 1. Introduction

Go to:

Structural beams, which are light beams with a specific transverse field distribution, have been widely used in areas such as lithography [1,2,3], photopolymerization [4,5,6,7,8,9,10], optical tweezers [11,12,13], and other applications. The beam shaping method is commonly used to generate structured beams. The beam shaping method can be divided into two types, i.e., intra-cavity and extra-cavity beam shaping. Extra-cavity beam shaping achieves beam shaping by passing light beams through passive components such as refractive/diffractive optical elements [14,15,16,17] or spatial light modulators with optical phase or optical amplitude modulations [18,19]. Intra-cavity laser beam shaping is mainly accomplished by placing refractive/diffractive optical elements in the laser cavity, so as to modulate either the phase and/or the amplitude of the oscillating light field in the laser cavity [20,21,22,23,24,25,26]. Overall, most of the optical elements used for intra-cavity beam shaping must be specially designed for the specified laser light field. This is not as good as an SLM (spatial light modulator) or DMD (digital mirror device), which are commonly used in external cavity beam shaping to dynamically control the laser light field.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6678223/>

27. Continuous-wave (CW) laser modules have discrete spectral lines and can be categorized as having Single-Spatial-Mode (SM) or Multiple Spatial Modes (MM). Spatial modes are also referred to as “transversal modes” or simply beam modes.

The visible and NIR spectral regions can be covered with either laser sources having continuously tunable wavelength, supercontinuum sources or smaller and much cheaper CW laser modules having discrete spectral lines from UV to infrared. In this article, we focus on compact CW lasers and their specialty.

With respect to beam profile, continuous wave (CW) lasers can be categorized as having Single-Spatial-Mode (SM) or Multiple Spatial Modes (MM). Spatial modes are also referred to as ‘transversal modes’ or simply ‘beam modes’.

<https://integratedoptics.com/laser-beam-collimation>

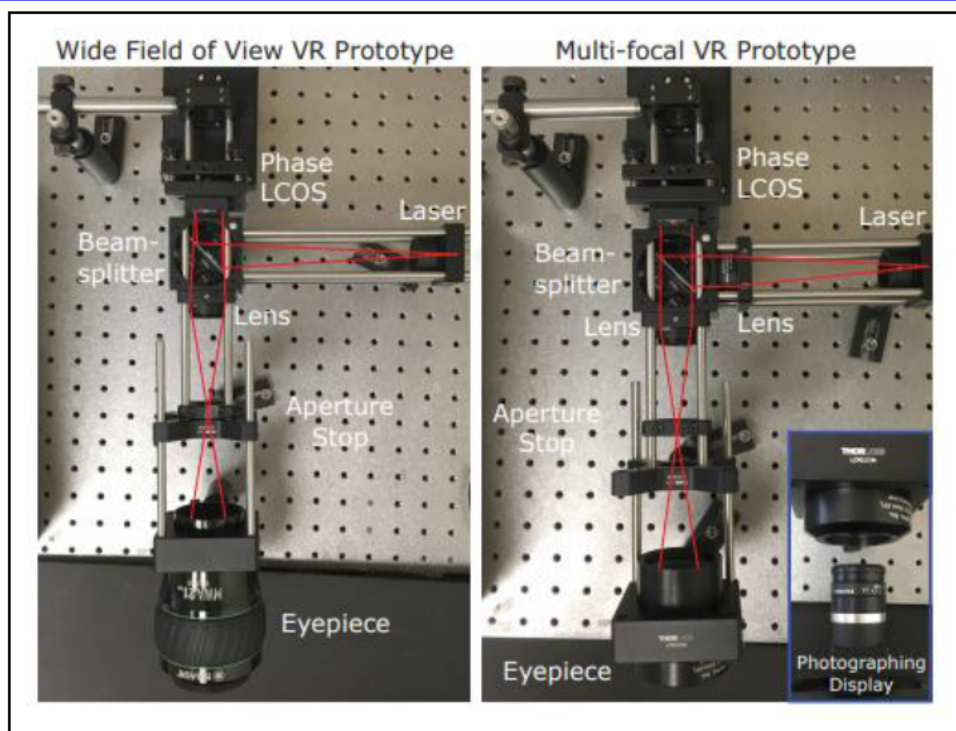
28. The Accused Products include HOLOEYE PLUTO liquid crystal on silicon (LCOS) reflective phase-only spatial light modulator (SLM) with a resolution of 1920×1080 pixels. SLMs are devices used to modulate the amplitude, phase, or polarization of light waves in space and time. The SLM is illuminated by a single optical fiber that is coupled to three laser diodes emitting at different wavelengths and spatially modulates the illuminating light to create

the image.

#### 4.1 Hardware

We constructed four prototype displays which we assess in Section 5.2. Each prototype included a HOLOEYE PLUTO (model HES-6010-VIS) liquid crystal on silicon (LCOS) reflective phase-only spatial light modulator with a resolution of  $1920 \times 1080$  pixels. The pitch of the SLM is  $8 \mu\text{m}$ , and the active area is  $15.36 \times 8.64 \text{ mm}$ . The SLM was illuminated by a single optical fiber that was coupled to three laser diodes emitting at 448, 524, and 638 nm. The laser light was linearly polarized to match the requirement of the SLM. For full

[https://www.microsoft.com/en-us/research/wp-content/uploads/2017/05/holo\\_author.pdf](https://www.microsoft.com/en-us/research/wp-content/uploads/2017/05/holo_author.pdf)




[https://www.microsoft.com/en-us/research/wp-content/uploads/2017/05/holo\\_author.pdf](https://www.microsoft.com/en-us/research/wp-content/uploads/2017/05/holo_author.pdf)

reality (VR) experiences using JD5552 LCoS-SLM (Jasper Display Corp.; Hsinchu, Taiwan R.O.C.) in 2016 [8]. Microsoft demonstrated the HoloLens, its first self-contained augmented reality (AR) device, using PLUTO LCoS-SLM (Holoeye Photonics; AG, Berlin, Germany) in the same year [9]. In addition to

<https://www.mdpi.com/2076-3417/8/11/2323/pdf>

## SPATIAL LIGHT MODULATORS

[Home](#) > Spatial Light Modulators



Spatial light modulator (SLM) is a general term describing devices that are used to modulate amplitude, phase, or polarization of light waves in space and time. HOLOEYE's Spatial Light Modulator systems are based on translucent (LCD) or reflective (LCOS) liquid crystal microdisplays.

The use of LC materials in SLMs is based on their optical and electrical anisotropy. A certain gray level represents a defined average voltage across the LC cell. This voltage leads to a variable tilt of the LC molecules due to their electrical

<https://holoeye.com/spatial-light-modulators/>

29. In view of preceding paragraphs, each and every element of at least claim 15 of the '241 Patent is found in the Accused Products.

30. Microsoft has and continues to directly infringe at least one claim of the '241 Patent, literally or under the doctrine of equivalents, by making, using, selling, offering for sale, importing, and/or distributing the Accused Products in the United States, including within this judicial district, without the authority of Brazos.

31. Microsoft has received notice and actual or constructive knowledge of the '241 Patent since at least the date of service of this Complaint.

32. Since at least the date of service of this Complaint, through its actions, Microsoft has actively induced product makers, distributors, retailers, and/or end users of the Accused Products to infringe the '241 Patent throughout the United States, including within this judicial district, by, among other things, advertising and promoting the use of the Accused Products in various websites, including providing and disseminating product descriptions, operating manuals, and other instructions on how to implement and configure the Accused Products. Examples of such advertising, promoting, and/or instructing include the documents at:

- [https://www.microsoft.com/en-us/hololens?icid=SSM\\_AS\\_Promo\\_Devices\\_HoloLens2](https://www.microsoft.com/en-us/hololens?icid=SSM_AS_Promo_Devices_HoloLens2)
- <https://www.microsoft.com/en-us/hololens/hardware>
- [https://www.microsoft.com/en-us/research/wp-content/uploads/2017/05/holo\\_author.pdf](https://www.microsoft.com/en-us/research/wp-content/uploads/2017/05/holo_author.pdf)
- <https://www.mdpi.com/2076-3417/8/11/2323/pdf>
- <https://holoeye.com/spatial-light-modulators/>
- [https://www.researchgate.net/publication/258306328\\_Efficient\\_end-pumped\\_multi-wavelength\\_laser\\_operation\\_of\\_disordered\\_NdLiGdWO42\\_crystal](https://www.researchgate.net/publication/258306328_Efficient_end-pumped_multi-wavelength_laser_operation_of_disordered_NdLiGdWO42_crystal)
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6678223/>
- <https://integratedoptics.com/laser-beam-collimation>

33. Since at least the date of service of this Complaint, through its actions, Microsoft has contributed to the infringement of the '241 Patent by having others sell, offer for sale, or use the Accused Products throughout the United States, including within this judicial district, with knowledge that the Accused Products infringe the '241 Patent. The Accused Products are especially made or adapted for infringing the '241 Patent and have no substantial non-infringing use. For example, in view of the preceding paragraphs, the Accused Products contain functionality which is material to at least one claim of the '241 Patent.

**JURY DEMAND**

Brazos hereby demands a jury on all issues so triable.

**REQUEST FOR RELIEF**

WHEREFORE, Brazos respectfully requests that the Court:

(A) Enter judgment that Microsoft infringes one or more claims of the '241 Patent literally and/or under the doctrine of equivalents;

(B) Enter judgment that Microsoft has induced infringement and continues to induce infringement of one or more claims of the '241 Patent;

(C) Enter judgment that Microsoft has contributed to and continues to contribute to the infringement of one or more claims of the '241 Patent;

(D) Award Brazos damages, to be paid by Microsoft in an amount adequate to compensate Brazos for such damages, together with pre-judgment and post-judgment interest for the infringement by Microsoft of the '241 Patent through the date such judgment is entered in accordance with 35 U.S.C. § 284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. § 284;

(E) Declare this case exceptional pursuant to 35 U.S.C. § 285; and

(F) Award Brazos its costs, disbursements, attorneys' fees, and such further and additional relief as is deemed appropriate by this Court.

Dated: June 2, 2020

Respectfully submitted,

/s/ James L. Etheridge

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**COUNSEL FOR PLAINTIFF**