

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CENTRAL SQUARE TECHNOLOGIES, LLC, PETITIONER.

v.

CARBYNE, LTD., PATENT Owner.

IPR2025-01179
U.S. Patent No. 11,689,383

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

	<u>Page</u>
I. Introduction.....	1
II. No Claim Construction Inconsistency	2
III. Ground 1	2
A. Ramanujaiaha Teaches or Renders Obvious Simultaneous Audio and WebRTC Real-Time Video	3
1. Carbyne’s Myopic Argument Ignores Ramanujaiaha’s Clear Teachings.....	3
2. Carbyne’s Attempt to Limit Ramanujaiaha’s WebRTC Disclosure Fails.....	5
3. No Requirement for Motivation-to-Combine Analysis for Single Reference	8
4. POSITA Would Have Used WebRTC for Real-Time Video	10
B. Ramanujaiaha Teaches or Renders Obvious Using Phone Number as Unique Identifier.....	12
IV. Ground 2	14
A. Ramanujaiaha and Krishnan Render Obvious Independent Claims.....	14
1. Motivation to Engage in Simultaneous Audio and WebRTC Real-Time Video	14
2. Carbyne Mischaracterizes Krishnan	16
3. Petition Provided the Requisite Motivation to Combine.....	18
B. Ramanujaiaha and Krishnan Render Obvious Claims 7 and 14	20
1. Carbyne’s New Claim Construction	20

2.	Ground 2 Nevertheless Renders Claims 7 and 14 Obvious	21
3.	Petition Provided Motivation to Combine	23
V.	Secondary Considerations Lack Nexus and Are “Pay-to-Play”	24

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>Caption Health, Inc. v. Univ. of British Columbia</i> , IPR2025-01422, Paper 15 (Dec. 18, 2025).....	2
<i>CRFD Rsch., Inc. v. Matal</i> , 876 F.3d 1330 (Fed. Cir. 2017)	5
<i>Elekta Ltd. v. ZAP Surgical Sys., Inc.</i> , 81 F.4th 1368 (Fed. Cir. 2023)	11, 17
<i>Fox Factory, Inc. v. SRAM, LLC</i> , 944 F.3d 1366 (Fed. Cir. 2019)	24
<i>Galderma Lab’ys, L.P. v. Tolmar, Inc.</i> , 737 F.3d 731 (Fed. Cir. 2013)	28
<i>Gen. Elec. Co. v. Raytheon Tech. Corp.</i> , 983 F.3d 1334 (Fed. Cir. 2020)	9, 12
<i>Merck & Cie v. Gnosis S.P.A.</i> , 808 F.3d 829 (Fed. Cir. 2015)	30
<i>Ormco Corp. v. Align Tech., Inc.</i> , 463 F.3d 1299 (Fed. Cir. 2006)	28, 30
<i>Runergy Alabama Inc. v. Trina Solar Co., Ltd.</i> , IPR2025-00007, Paper 38 (Apr. 15, 2026).....	9
<i>Virtek Vision Int’l ULC v. Assemb. Guidance Sys., Inc.</i> , 97 F.4th 882 (Fed. Cir. 2024)	9
Other Authorities	
37 C.F.R. § 42.71(d)(1).....	2

TABLE OF EXHIBITS¹

Exhibit No.	Description	Previously Filed
1001	U.S. Patent No. 11,689,383 to Dizengof (“’383 Patent”)	X
1002	Prosecution History of U.S. Patent No. 11,689,383	X
1003	Declaration of Stuart J. Lipoff	X
1004	CV of Stuart J. Lipoff	X
1005	U.S. Patent No. 9,762,733 to Ramanujaiaha et al. (“Ramanujaiaha”)	X
1006	U.S. Patent No. 9,420,099 to Krishnan et al. (“Krishnan”)	X
1007	Scott B. Guthery & Mary J. Cronin, MOBILE APPLICATION DEVELOPMENT WITH SMS AND THE SIM TOOLKIT, McGraw-Hill (2002)	X
1008	Carbyne Answer to Complaint for Patent Infringement and Amended Counterclaims, <i>CentralSquare Techs., LLC v. Carbyne, Inc.</i> , Case No. 24-cv-01497-ADA, Dkt. 18 (W.D. Tex., June 16, 2025)	X
1009	U.S. Patent No. 9,792,654 to Limas et al.	X
1010	Declaration of Dan Sinclair in Support of Admission <i>Pro Hac Vice</i>	X
1011	Supplemental Declaration of Stuart J. Lipoff	

¹ Unless otherwise specified, citations are to the original page, column, and line numbers of exhibits. Brackets ([]) are used to refer to the sequential page numbers added to exhibits pursuant to 37 C.F.R. §42.63(d)(2)(i).

Exhibit No.	Description	Previously Filed
1012	Deposition Transcript of Gerald Christensen (June 2, 2026) ²	
1013	Expert Declaration of Gerald Christensen, <i>CentralSquare Techs., LLC v. Carbyne, Inc.</i> , Case No. 24-cv-01497-ADA, Dkt. 32-1 (W.D. Tex., Nov. 3, 2025)	
1014	Stephen Sale & Tom Rebbeck, <i>Operators need to engage with WebRTC and the opportunities it presents</i> , ANALYSYS MASON (Oct. 2014)	
1015	<i>Frost & Sullivan</i> , WIKIPEDIA (last visited June 1, 2026), https://en.wikipedia.org/w/index.php?title=Frost_%26_Sullivan&oldid=1241252384	
1016	John Honovich, <i>CEO Refuses To Pay for Frost & Sullivan Award</i> , IPVVM (Apr. 19, 2018), https://ipvm.com/discussions/ceo-refuses-to-pay-for-frost-sullivan-award	
1017	Sean Moolman, <i>Frost & Sullivan Awards: Recognition of Excellence or Cargo Cult?</i> , LINKEDIN (Aug. 18, 2017), https://www.linkedin.com/pulse/frost-sullivan-awards-recognition-excellence-cargo-cult-sean-moolman/	

² Each of Exhibit Nos. 1013 through 1017 were marked as exhibits during the June 2, 2026 deposition of Gerald Christensen (Patent Owner's expert consultant). A separate table immediately below cross-references these exhibits with the exhibit numbers they received during the deposition.

Exhibit No.	Description	Previously Filed
1018	Plaintiff's Notice Regarding Certain Terms To Be Construed in the Joint Claim Construction Statement, <i>CentralSquare Techs., LLC v. Carbyne, Inc.</i> , Case No. 24-cv-01497-ADA, Dkt. 64 (W.D. Tex., Feb. 26, 2026)	
1019	Email from Anna Schmidt, Law Clerk to the Honorable Alan D. Albright (Apr. 21, 2026, at 11:40 CT)	

**CROSS REFERENCE OF IPR EXHIBITS WITH CHRISTENSEN
DEPOSITION EXHIBITS**

IPR Exhibit No.	Christensen Dep. Exhibit No.	Description
2004	1	Declaration of Gerald Christensen
2013	2	Dec. 21, 2020 Memo Published by the Washoe County Communications Supervisor regarding a "Regional PSAP Funding Request" (available at https://www.washoecounty.gov/technology/board_committees/911_response/2021/Files/012121/Item%2015%20-%20WC%20Carbyne%20c-Live%20Universe.pdf)
1013	3	Expert Declaration of Gerald Christensen, <i>CentralSquare Techs., LLC v. Carbyne, Inc.</i> , Case No. 24-cv-01497-ADA, Dkt. 32-1 (W.D. Tex., Nov. 3, 2025)
1001	4	U.S. Patent No. 11,689,383 to Dizengof
2006	5	June 7, 2021 CentralSquare press release entitled " <u>CentralSquare Technologies Now Offering Carbyne's C-Live Universe</u> "
2012	6	2025 Product Leader Report, Frost & Sullivan
1015	7	<i>Frost & Sullivan</i> , WIKIPEDIA (last visited June 1, 2026), https://en.wikipedia.org/w/index.php?title=Frost%26_Sullivan&oldid=1241252384
1016	8	John Honovich, <i>CEO Refuses To Pay for Frost & Sullivan Award</i> , IPVM (Apr. 19, 2018), https://ipvm.com/discussions/ceo-refuses-to-pay-for-frost-sullivan-award

IPR Exhibit No.	Christensen Dep. Exhibit No.	Description
1017	9	Sean Moolman, <i>Frost & Sullivan Awards: Recognition of Excellence or Cargo Cult?</i> , LINKEDIN (Aug. 18, 2017), https://www.linkedin.com/pulse/frost-sullivan-awards-recognition-excellence-cargo-cult-sean-moolman/
1005	10	U.S. Patent No. 9,762,733 to Ramanujaiaha et al.
2009	11	Garcia et al., <u>WebRTC Testing: Challenges and Practical Solutions</u> , IEEE (2017)
1014	12	Stephen Sale & Tom Rebbeck, <i>Operators need to engage with WebRTC and the opportunities it presents</i> , ANALYSYS MASON (Oct. 2014)

I. INTRODUCTION³

Carbyne's Response asks the Board to disregard what the prior art plainly teaches in favor of strained, selective readings of Ramanujaiaha, Krishnan, and the '383 Patent. ***First***, the Petition satisfies every IPR requirement; there is no claim construction inconsistency. ***Second***, contrary to Carbyne's attempts to limit Ramanujaiaha's disclosure, Ramanujaiaha anticipates or renders obvious the challenged claims, including by disclosing simultaneous audio and WebRTC video transmission across two different connections where the caller's phone number serves as the unique identifier. ***Third***, Ramanujaiaha and Krishnan render the challenged claims obvious. Krishnan confirms simultaneous transmission of audio and video from the user to the emergency-services call center and discloses GPS, image, and position data—even under Carbyne's new claim construction. ***Fourth***, Carbyne's supposed industry recognition is for features unrelated to the '383 Patent. There is no evidence that the "fundamental feature" of simultaneous audio and WebRTC real-time video is the subject of any alleged praise, nor has Carbyne demonstrated that Universe practices the '383 Patent. The required nexus is absent. The Board should find all challenged claims unpatentable.

³ Unless otherwise indicated, all emphasis added.

II. NO CLAIM CONSTRUCTION INCONSISTENCY

Petitioner's constructions are consistent between the related district court litigation and this proceeding. *See* Pet., 5; Ex-1018; Ex-1019, [1], [4]; Ex-3100, [3]-[4]. Carbyne tried its "inconsistent construction" argument *after* its deadline to request Director Review under 37 C.F.R. § 42.71(d)(1) had passed, which the Director rejected. Paper 19, 2; Ex-3100, 5. Now, six months after institution, the Response (POR, 9-13) again advances the same, already-rejected argument. Carbyne's suggestion that Petitioner must "stipulate[] to employ Patent Owner's plain-and-ordinary meaning constructions" is unsupported given Petitioner's agreement. *Caption Health, Inc. v. Univ. of British Columbia*, IPR2025-01422, Paper 15, 3 (Dec. 18, 2025) (finding Petitioner's "consent" to use the same construction before the Board as in district court is a "stipulation," and denying request for discretionary denial). There is no inconsistency, and Carbyne's attempt to manufacture one should be rejected again.

III. GROUND 1

Carbyne misreads Ramanujaiaha, focusing on individual excerpts in isolation while ignoring express teachings elsewhere. Properly read, Ramanujaiaha anticipates or renders obvious the challenged claims.

A. RAMANUJAIAHA TEACHES OR RENDERS OBVIOUS SIMULTANEOUS AUDIO AND WEBRTC REAL-TIME VIDEO

1. Carbyne's Myopic Argument Ignores Ramanujaiaha's Clear Teachings

Carbyne's central contention that "simultaneous receipt of audio and WebRTC real-time video communications" is not disclosed or rendered obvious (POR, 16, 25) is contradicted by Ramanujaiaha's plain text. Simultaneous audio and video communication is a solution Ramanujaiaha was designed to provide. Although "many customers today regularly use two or more communication channels" (such as telephone calls and video conferencing) to interact with contact centers "simultaneously or at the same time," operators "struggle to manage multiple related interactions as a single conversation across different channels." Ex-1005, 5:6-23. Ramanujaiaha addresses this and discloses ways for user and contact center to "*concurrently (e.g., simultaneously or at the same time)*" communicate across multiple channels, including voice and WebRTC video. *Id.*, 5:17-23, 5:29-33, 5:45-51, 9:46-53; Ex-1011, ¶¶23-27.

Ramanujaiaha teaches methods for communications between a customer and a contact center in an emergency context involving "a first interaction via a first medium" and a "second interaction" via "communication mediums that are different from the first medium." Ex-1005, [1] at (57), 6:13-19. These mediums can include voice and WebRTC video. *Id.*, 9:46-53 ("communication" can "refer to any real-

time ... interaction that uses any *communication channel* including, without limitation telephony calls [and] web real-time communication (e.g. *WebRTC calls*)). Ramanujaiaha defines “communication channels” to include “mediums or modalities,” as Carbyne’s expert agreed. *Id.*, 4:59-61; Ex-1012, 199:5-8, 200:3-20. Ramanujaiaha also discloses multimodal communications, “where two or more communication modalities (also referred to as modes of communication, communication channels[,], or communication mediums) are *invoked concurrently* during a single communication session,” as depicted in Figures 2-4. Ex-1005, 5:45-51, 3:50-58; Pet., 35-36; Ex-1003, ¶114; Ex-1011, ¶¶28-32. Carbyne ignores these disclosures.

Instead, Carbyne focuses on isolated passages to assert that a “visual channel” would not include “video stream using WebRTC” because “visual channel” can only mean “visual content” or “visual media” generated by a call center and rendered by a web browser or mobile application. POR, 16-17. Not only does Carbyne’s artificial “visual is not video” distinction ignore the actual teachings of Ramanujaiaha, it is directly contradicted by Carbyne’s own expert. Ex-1012, 225:16-226:7 (admitting “*video channels* typically imply *visual communication channels*” and “*visual communication channels* can include *video conferencing*,” including “WebRTC”); Ex-1011, ¶¶33-34 (Petitioner’s expert confirming same).

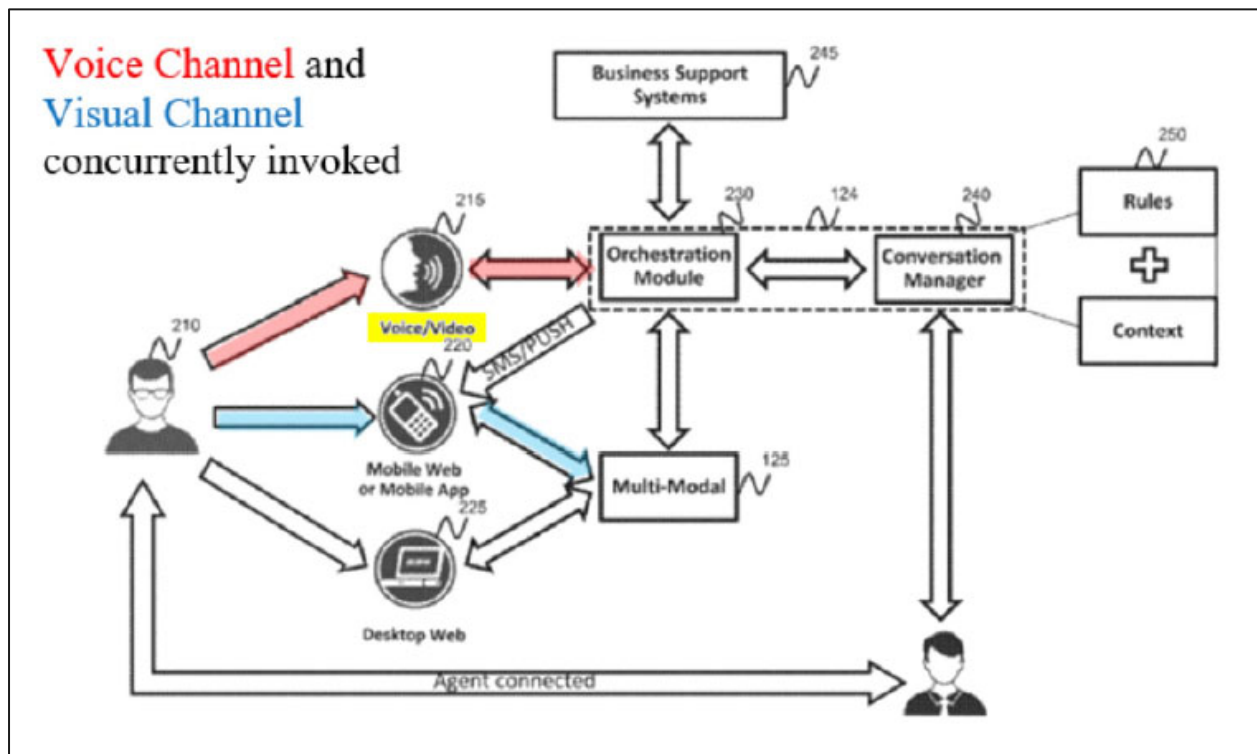
Cognizant of the weakness of its argument, Carbyne alternatively argues “visual content” must be limited to only “web pages, fillable forms, and user interfaces” “generated by the call center and sent to a user during a ‘voice’ call” (POR, 17-18), ignoring all other disclosures in Ramanujaiaha teaching simultaneous telephone and WebRTC communications with emergency call centers. Ex-1011, ¶35. “A reference must be considered for *everything that it teaches*, not simply the described invention or a preferred embodiment.” *CRFD Rsch., Inc. v. Matal*, 876 F.3d 1330, 1349 (Fed. Cir. 2017). Carbyne’s cherry-picking and mischaracterization of Ramanujaiaha ignores that it “contain[s] *other* teachings that disclose or suggest the claimed [’383 invention].” *Id.*, 1348 (emphasis in original).

2. Carbyne’s Attempt to Limit Ramanujaiaha’s WebRTC Disclosure Fails

Ramanujaiaha discloses that a communication “generally refer[s] to any real-time and non-real time interaction that uses any communication channel including, without limitation telephony calls [and] web real-time communication (e.g. *WebRTC calls*).” Ex-1005, 9:46-53, 10:34-42. Yet Carbyne insists these express disclosures merely refer to “generic methods for communication” available “when initially contacting a call center” or “employed by a user device to initiate contact.” POR, 18 (emphasis removed). But Ramanujaiaha’s actual teachings of WebRTC contain *no* such limitation, as Carbyne’s expert admitted. Ex-1012, 222:5-223:8 (“I don’t see that disclosed” when asked whether 9:45-53 described WebRTC as only

for “initial communications” or “the way that we first contact a call center”); Ex-1011, ¶¶36-38.

Carbyne's assertion that Figure 2 “identifies ‘video’ as transmitted over the *initial* ‘voice channel’” (POR, 19) is likewise unsupported. Carbyne highlighted “Voice/Video,” arguing WebRTC is used to make “initial contact,” such that “video” is an alternative to audio, and then claims the two forms of communication are “*never* identified as occurring” at the same time.



Id., 19-20, FIG. 2 (yellow annotation by Carbyne). Carbyne, again, ignores Ramanujaiaha, 9:46-53, and the repeated disclosures that multi-channel communications are invoked concurrently. Ex-1005, 10:32-45 (explaining that the user's phone, visual interface device, and web browser may all be the “same

device”); *supra* III.A.1. Moreover, Figure 2 discloses how multimodal server 125 communicates with the user device(s) in “***different modalities***” and “dynamically generates audio ***and*** ... visual content” to the user. Ex-1005, 10:62-64, 11:4-8. While an initial contact may be voice (or video), Ramanujaiaha also discloses or renders obvious communications via different modalities, including audio and video content.⁴ Ex-1011, ¶¶39-41.

Carbyne next argues that Ramanujaiaha's discussion of synchronization “confirms” that WebRTC is only used to “initially communicate with the contact center” and that audio and video “are not meant to occur—and are never identified as occurring—at the same time.” POR, 20 (emphasis removed). According to Carbyne, “[t]here is no need to ‘synchronize’ or ‘maintain’ the ‘context’ of a real-time communication,” Ex-2004, ¶117, so the visual content cannot be real-time video. POR, 21. But in emergencies, video and audio ***must*** be synchronized so the call center can correlate what is spoken with what is seen. For example, if an

⁴ Carbyne argues that WebRTC can “***never***” occur at the same time as audio.

POR, 20 (citing Ex-2007). Ex-2007 contradicts Carbyne's position. Ex-2007, [0060]-[0063] (device can present icons when there are “overlapping formats for ***both audio and video***”), [0073]-[0075] (WebRTC media stream created is enabled to select a “***video and audio*** or audio-only” communication); Ex-1011, ¶¶42-44.

emergency caller states that a criminal “just took off in that car,” the video must be synced to audio so the operator can identify the car. Carbyne’s expert admitted the “need to synchronize audio and video channels in the PSAP context” was known for a “long time.” Ex-1012, 229:7-230:1; Ex-1011, ¶¶45-48.

Carbyne further argues that a “multimodal session” and “orchestration module” (Figures 3-4) *only* entail transmission of “page data” or “web data,” not WebRTC video. POR, 22-24. But Carbyne concedes that the *multimodal session*, which can be started by the *orchestration module*, transmits “video” and “voice.” Ex-1005, 10:27-28 (Figure 2 is labeled “Multimodal System”), POR, 19 (Carbyne conceding that Figure 2 shows transmission of “video” and “voice”); Ex-1005, 12:3-5 (“orchestration module” can start “a multimodal session”). Further, Ramanujaiaha defines “multimodal communication” as invoking “two or more communication modalities” “concurrently,” *id.*, 5:45-51, and “communication” expressly includes “*WebRTC*.” *Id.*, 9:46-53, 9:5-14, 11:59-12:12; Ex-1012, 225:16-226:7 (admitting visual communication channels include video and WebRTC); Ex-1011, ¶¶49-50.

3. No Requirement for Motivation-to-Combine Analysis for Single Reference

In view of III.A.1 and III.A.2 above, Ramanujaiaha anticipates or renders obvious the challenged claims. Carbyne argues Ramanujaiaha does not render the ’383 Patent obvious because the Petition supposedly fails to explain why a POSITA would have been motivated to combine different portions of Ramanujaiaha. POR,

25-31. Carbyne improperly demands a motivation-to-combine analysis for teachings within a single reference, but this would “*unduly dissect*[] prior art references into collections of individual elements, requiring a party showing obviousness to re-do the work already done in the prior art reference.” *Gen. Elec. Co. v. Raytheon Tech. Corp.*, 983 F.3d 1334, 1352 (Fed. Cir. 2020). Petitioner was not required to show a motivation to combine elements *within* Ramanujaiaha—especially because the reference itself explains why those elements fit together. Even if such motivation were required, a POSITA would have read Ramanujaiaha as a whole, recognizing its disclosures of multimodal sessions, WebRTC video, and concurrent voice/visual channels as components of the disclosed system. Ex-1011, ¶51.

Carbyne's reliance on *Virtek Vision Int'l ULC v. Assemb. Guidance Sys., Inc.*, 97 F.4th 882 (Fed. Cir. 2024), is misplaced. *Virtek* concerns motivation to combine *separate* prior art references, *id.*, 886, not embodiments “within a single reference.” *Runergy Alabama Inc. v. Trina Solar Co., Ltd.*, IPR2025-00007, Paper 38, 38 (Apr. 15, 2026) (“[*Virtek*] does *not* hold that motivation is required to combine elements found *within a single reference*.”). Carbyne's “duplicative communications” argument (POR, 27) fails because Ramanujaiaha discloses audio-first, video-second scenarios that anticipate or render obvious the challenged claims. *Supra* III.A.1; Ex-1011, ¶¶52-53. Further, Carbyne's “hindsight” argument (POR, 29-30)

mischaracterizes a standard claim-mapping method as improper reconstruction. *See* Ex-2005, 39:25-41:10; Ex-1011, ¶¶54-56.

4. POSITA Would Have Used WebRTC for Real-Time Video

Carbyne did not invent WebRTC, which was well-known prior to the '383 Patent, but suggests a POSITA would not have selected WebRTC for emergency-call video transmission, alleging poor video quality, lossy encoding, and jitter. POR, 32-33. But the technical context supports selecting WebRTC for emergency video transmission. Ex-1011, ¶57.

A POSITA would prefer WebRTC because it allows browser-based, real-time video without requiring dedicated application installation. Ex-2005, 42:14-22 (explaining that WebRTC does not require users to download a special application); Ex-1012, 245:19-246:8. Alternative protocols require pre-installation of dedicated software. This advantage is critical in emergencies because callers do not have time to locate, download, install, and configure a specialized video application to transmit live video of a fire, shooting, or other emergency. Ex-1011, ¶¶24-26, 58-59. Carbyne's expert acknowledged as much. Ex-1012, 246:4-8.

It was well known that establishing a WebRTC video connection with a caller allowed PSAP operators to get additional information about the caller's event. Ex-1011, ¶59. Carbyne focuses on *potential* latency or jitter of WebRTC (POR, 32) but disregards the teaching that establishing a "data channel" "compris[ing] a WebRTC"

with an emergency caller allows the PSAP to “use information incoming from” that data channel, including videos “to help determine information about the event.” Ex-1006, 7:27-35, 1:44-49; Ex-1011, ¶60. Carbyne’s expert alleges doing so would “degrade the quality of communications,” Ex-2004, ¶156, but there is no evidence or technical analysis supporting that allegation. Even with this supposed drawback, the prior art still taught use of “WebRTC” in emergency calls. Ex-1006, 1:41-49 (establishing “trusted data channel (e.g., a WebRTC call) with a PSAP system,” such that the PSAP can “help determine information about the event (e.g., to build a picture of the scenario)”; Ex-1011, ¶¶61-62 (“WebRTC was designed to be bandwidth-efficient compared to many alternative approaches known at the time.”). Obviousness does *not* “require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.” *Elekta Ltd. v. ZAP Surgical Sys., Inc.*, 81 F.4th 1368, 1374 (Fed. Cir. 2023).

Carbyne’s claim that a POSITA would not have employed WebRTC because of “packet loss,” “jitter,” and “lossy” video is unsupported. POR, 32-33. Ex-2009 explains that “lossy” refers only to the encoding method, which saves space by eliminating data indiscernible to “the human eye.” Ex-2009 states that “packet loss” and “jitter” are “indicators” for *assessing* WebRTC’s Quality of Service, but praises WebRTC for “simpl[ifying] the embedding of voice and video communications in

all types of applications.” Ex-2009, [6]. Indeed, Ex-2009 noted WebRTC’s explosive popularity, predicting “7 *billion* devices compliant with WebRTC by 2020.” *Id.*, [1]; *see also* Ex-1014, [1] (stating WebRTC will soon be included in the “world’s most popular smartphone OS”); Ex-1011, ¶¶63-64. Carbyne’s expert agreed this “very large number” presumed “pretty much *everybody has got a smartphone*” that supported WebRTC. Ex-1012, 253:12-254:5. Even if WebRTC had some decline in video quality or jitter, a POSITA would have recognized that a technology available on “pretty much everybody[‘s] smartphone” was an obvious choice for emergency calls. *Gen. Elec.*, 983 F.3d at 1351 (“simultaneous advantages and disadvantages ... does not necessarily obviate motivation to combine”).

B. RAMANUJAIAHA TEACHES OR RENDERS OBVIOUS USING PHONE NUMBER AS UNIQUE IDENTIFIER

Dependent claims 4, 11, and 18 require the “unique identifier for the mobile device” to comprise the mobile device’s “phone number.” Carbyne argues Ramanujaiaha teaches a Session ID but “never teaches that this ‘Session ID’ is the user’s telephone number.” POR, 33-34. But that strawman ignores the Petition’s statement that “Ramanujaiaha *also* discloses [11] because the real-time video stream is associated with the caller’s telephone number (*another type of unique identifier*).”⁵

⁵ The Petition’s discussion of dependent claim 4 incorporates the discussion of independent claim element [11], which in turn incorporates the discussions of [1d]

Pet., 38. The Petition explained how “the video stream originates from (and is therefore associated with) the calling mobile device and its corresponding telephone number.” *Id.*; Ex-1011, ¶¶65-66. Carbyne ignores this, attacking what “Petitioner appears to argue” (POR, 34) instead of Petitioner's actual position.

Ramanujaiaha “extract[s] data about the customer interaction such as the caller's telephone number” and sends “a link including *a unique URL or corresponding to the user's phone number*” to the user “over SMS” when it “identif[ies] that the user is engaging via a smart phone or a mobile phone.” Pet., 20-21, 29-31, 38-39, 41 (citing Ex-1005, 7:4-5, 7:10-16, 10:55-59, 12:5-13, 12:23-30). Carbyne ignores its admission that “[a] POSITA would recognize that mapping a phone number to a message endpoint and directing a URL to that endpoint associates the phone number and the URL.” Ex-1013, ¶¶13-14. Carbyne's expert explained that “[m]essage endpoint in this context could simply be a mobile phone receiving some type of communication that's nonverbal.” Ex-1012, 75:13-19. Thus, Carbyne's concession that “[a] POSITA would recognize that mapping a phone number to a [phone] and directing a URL to that [phone]” (which Ramanujaiaha discloses) “is one way to” create the association required by claims 4, 11, and 18

and [1h]. Pet., 38, 41. The discussion of claim 4 applies to claims 11 and 18. Pet., 48-49, 52.

dooms its position. Ex-1013, ¶13; Ex-1011, ¶¶67-69. Using a phone number as the unique identifier is disclosed, or at minimum rendered obvious, by Ramanujaiaha.

IV. GROUND 2

As with Ramanujaiaha, Carbyne misreads Krishnan, again focusing on individual excerpts in isolation while ignoring express teachings elsewhere and Petitioner's motivations to combine. POR, 34-46. Properly read, Ramanujaiaha and Krishnan render obvious every claim.

A. RAMANUJAIAHA AND KRISHNAN RENDER OBVIOUS INDEPENDENT CLAIMS

1. Motivation to Engage in Simultaneous Audio and WebRTC Real-Time Video

Carbyne contends there is no motivation to “simultaneously engage in audio and WebRTC real-time video communication between a caller and recipient during an emergency.” POR, 34-35. But the Petition repeatedly cited Krishnan's express disclosure of simultaneous voice-only and video data communications. *E.g.*, Pet., 10-11, 57-60, 63. Carbyne acknowledges that emergency callers can be asked to “establish a trusted data channel (e.g., a WebRTC call),” but incorrectly insists the “purpose” is “call triage,” and that “in Krishnan, data (like video) is communicated *before* there is audio communication.” POR, 36-37;⁶ Ex-1011, ¶¶70-71. Not so.

⁶ Carbyne makes the same order of operation argument later in POR, 39-40, 41, 43.

Krishnan states that an “emergency caller” (i.e., one *already speaking* with the PSAP) can be “asked to establish a trusted [WebRTC] data channel” to “*then* provide their perspective about the event via the data channel.” Ex-1006, 1:41-44; Pet., 57. A caller cannot be “asked” to establish a WebRTC session without audio communication *already* in place. Krishnan makes clear the WebRTC connection is not used exclusively for call triage or prioritization, but also “to help determine information about the event (e.g., *to build a picture of the scenario*).” Ex-1006, 1:44-49; Ex-1011, ¶¶72-73.

In fact, Carbyne itself cites to Krishnan's teaching of simultaneous transmission of audio and video. POR, 38-39 (citing Ex-1006, 7:27-35) (“If the interaction is *initiated* with a *voice-only* communication channel, PSAP server 216, may prompt the user ... to establish a *data* interaction connection, such as by PSAP server 216 sending a text message with a link to cause the establishment of the data channel [that] *may further comprise a WebRTC*.”). Krishnan thus discloses voice and WebRTC communications operating in parallel. Carbyne points to no teaching that the voice connection must close before the WebRTC data channel is established. Whether the data channel is sometimes used for triage or managing multiple callers does not negate Krishnan's teachings. Ex-1011, ¶74.

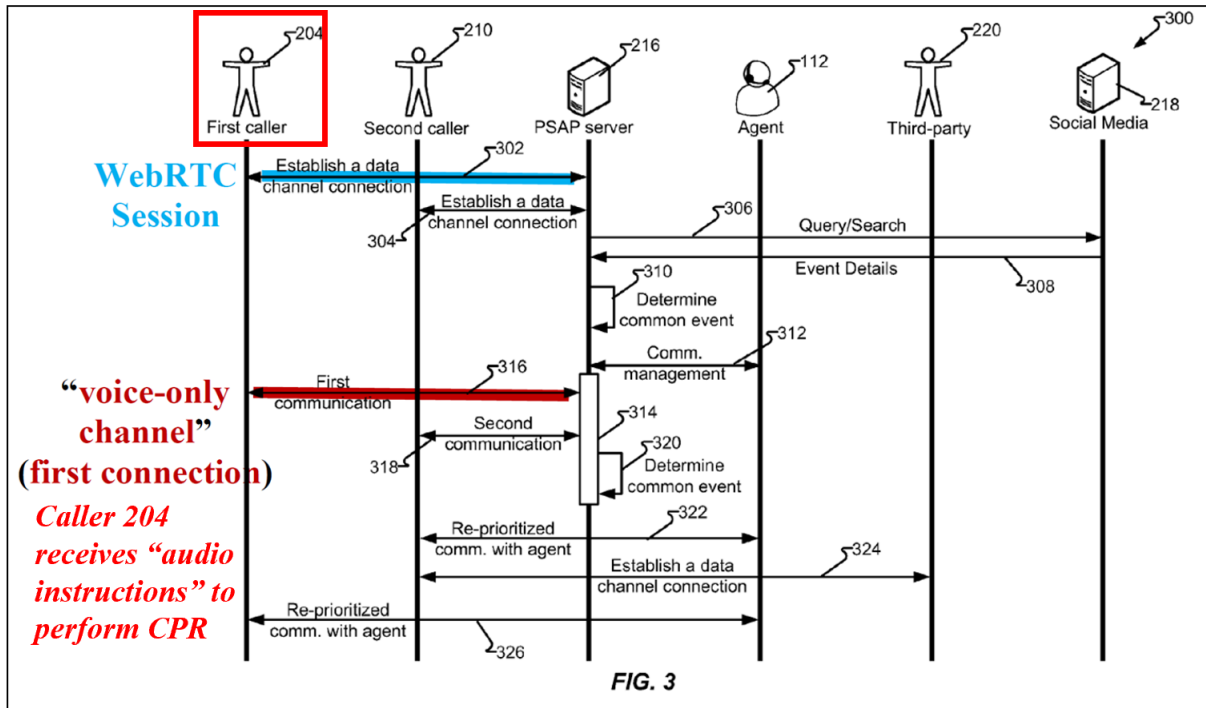
2. Carbyne Mischaracterizes Krishnan

Carbyne tries to recast Krishnan's express disclosure and asserts that the "while" language in Krishnan, 10:62-66 "does not imply or teach simultaneous communication." POR, 38. Not so. Krishnan states that "first user device 206 has established a data channel interaction with PSAP server 216, and "[w]hile audio communications may be provided via the data channel and/*or a voice-only channel*, other content is exchanged via the data channel, content such as messages[;] video; images; and/or position data" (Ex-1006, 10:53-66)—meaning video, images, and GPS data are provided over the established data channel, but audio can be provided by the same data channel *or by a voice-only channel*. A POSITA would not interpret Krishnan, as Carbyne asserts, to have "no teaching" of "simultaneous audio and real-time video." POR, 38.

Rather, Krishnan discloses or renders obvious the challenged claims by teaching two separate channels—a "voice-only" channel and a data channel for exchanging video, images, position data. Krishnan further discloses or renders obvious the '383 Patent claims, especially when read with the other concurrent audio/video disclosures in Krishnan and Ramanujaiah. As Krishnan's goal is facilitating communication over different mediums, limiting a system capable of delivering multiple mediums simultaneously to one at a time is illogical, especially in emergencies where every piece of information matters. Moreover, it would make

no sense to terminate the voice-only channel, as maintaining audio contact with the caller is critical, even while receiving video and other content over the data channel. Pet., 58-60; Ex-1011, ¶¶75-78. A POSITA has “common sense, common wisdom, and common knowledge,” such that “an obviousness determination does not always require prior art to *expressly* state a motivation for every obvious combination.” *Elektro*, 81 F.4th at 1374.

Carbyne also wrongly claims that Krishnan, Figure 3 only discloses “a sequential, ordered process,” and that step 316 “is [not] even a voice call at all,” which therefore means no simultaneous voice and video communications. POR, 39-40. Not so. Krishnan discloses that step 316 may have a “content type,” and that “[c]ontent type may differ in terms of *audio*, video, text, position information, etc.”—meaning step 316 can be *voice*. Ex-1006, 9:49-53, 9:60-64 (“caller 204 *may receive audio* instructions”).



Krishnan, FIG. 3 (additional annotations by Petitioner). Carbyne further ignores that Krishnan teaches the same order as the '383 Patent: first, a voice-only channel; second, a data channel that may comprise WebRTC.⁷ Ex-1006, 7:27-35; Ex-1011, ¶¶79-82.

3. Petition Provided the Requisite Motivation to Combine

Finally, Carbyne argues there is no motivation to combine Krishnan and Ramanujaiaha for “the real-time video stream is received through the WebRTC session while audio content of the emergency call is received” element. POR, 41-

⁷ Carbyne's remaining arguments (POR, 38-39) are addressed in the Petition and herein, including at IV.A.1 (7:27-35); IV.B.2 (11:28-31) and III.A.1 (column 5).

42 (arguing that “simply using ‘WebRTC’ and ‘video’ does not separately motivate use of this simultaneously with audio communication.”);⁸ Ex-1011, ¶83.

But the Petition explained the motivation to combine. Pet., 58-60 (“POSITA would have been motivated to utilize Ramanujaiaha’s web browser link to establish a *WebRTC session*, taught by Krishnan, because it would have comported with Ramanujaiaha’s express goal of facilitating ‘real-time’ interactions” between contact center and customers); *id.*, 59 (smart phones are “adapted to *simultaneously* communicate with an emergency call center over *voice-only and data channels*”); *id.*, 12 (“Ramanujaiaha and Krishnan are directed to the same problem of improving call center response services by allowing a user to provide *visual and audio communications*”). Ex-1011, ¶¶84-88. Carbyne never addresses these arguments, effectively conceding the required motivation.

⁸ Carbyne claims that the Petition’s discussion of [1k] does not mention motivation to combine, but [1k] states that “because, *as explained for [1g]*,” Krishnan’s disclosures render the element obvious. Pet., 63. [1g] explains the motivation to combine Ramanujaiaha and Krishnan and a POSITA’s expectation of success.

B. RAMANUJAIAHA AND KRISHNAN RENDER OBVIOUS CLAIMS 7 AND 14

1. Carbyne's New Claim Construction

Carbyne states claims 7 and 14 do not require construction (POR, 42), yet introduces a new, unsupported claim construction argument that, even if accepted, does not save these claims from being rendered obvious. Carbyne alleges “to satisfy claims 7 and 14, the same ‘recipient’ must engage in an ‘audio’ ‘emergency call’ with a ‘mobile device user’ while *also simultaneously* receiving both (1) a ‘real-time video stream’ and (2) either ‘GPS location data’ or ‘one or more photographs’ via the same ‘WebRTC session’ with the ‘user.’” *Id.* This is a deliberately narrowed interpretation of claims 7 and 14 that Carbyne never proposed at institution. Tellingly, Carbyne does not cite *any* evidence to support its new construction, relying entirely on a naked assertion that “[t]his requirement is already apparent from the claim language itself.” *Id.*

Unlike the independent claims, claims 7 and 14 do not contain the “while” language Carbyne relies on to argue “simultaneous” audio and video, but recite only that “the WebRTC session further transmits [GPS or photographs].” Ex-1001, cls. 7, 14. A WebRTC session can remain open to transmit additional data *after* an initial video stream ends. Nothing in the ’383 Patent specification teaches what Carbyne advances. Carbyne offers *no* evidence that a POSITA would have understood claims 7 and 14 as Carbyne advances. Ex-1011, ¶¶89-93.

2. Ground 2 Nevertheless Renders Claims 7 and 14 Obvious

Even under Carbyne's new claim construction, claims 7 and 14 are obvious, contrary to Carbyne's allegations. POR, 43-45. Carbyne overlooks Krishnan's teaching of simultaneous transmission of GPS data or photographs while transmitting audio and video—precisely what claims 7 and 14 require under Carbyne's new construction. POR, 36 (citing Ex-1006, 1:41-49) (“An emergency caller is asked to establish a trusted *data channel (e.g., a WebRTC call)* with a PSAP system and then provide their perspective about the event via the data channel. The PSAP can use information incoming from each of the data channels (e.g., *pictures*, videos, text information, etc.) to help determine information about the event (e.g., *to build a picture of the scenario*)”); Pet., 66; Ex-1011, ¶94.⁹ A POSITA would understand that a 911 operator would receive the video, picture, and GPS over the WebRTC data channel, and during the same WebRTC session, “build a picture of the scenario.” Ex-1006, 1:47; Pet., 66; Ex-1011, ¶95. A POSITA would know that a 911 operator working to understand an emergency scenario would want to

⁹ Further, Carbyne cites to Krishnan's Figure 2 (POR, 43), but Figure 2 describes caller 204 placing an emergency voice call using a customer communication device 206, such as a cellular phone or smart phone “adapted to support *video*, audio, text, *and/or data* communications.” Pet., 56.

simultaneously receive pictures and video (to know what the emergency is) as well as the GPS location of the caller (to know precisely where to send the first responders). Ex-1011, ¶96. Ending a first WebRTC session after a video is sent and then opening a second one to receive pictures and/or GPS would unnecessarily delay help. It would further run the risk of a technical obstacle interfering with the second WebRTC session, where crucial GPS or pictures would be transmitted.

Krishnan confirms its data channel transmits multiple data types, including “photos” and “GPS,” along with video, disclosing or rendering obvious the claim requirements. Pet., 66 (citing Ex-1006, 11:28-31 (“[t]he multimedia content provided over the data channel may comprise *audio*, *video*, datafiles, URLs, *GPS coordinates*.”)); Ex-1006, 6:62-66 (user devices “take *photos*, take *video*, capture *audio*, [and] receive *GPS* data.”); *id.*, 7:36-47 (communication to the call center “includes, but is not limited to voice-based *audio* communications and may comprise *video*, *images*, text, data, *and/or other content*.”); POR, 44 (Carbyne acknowledging Krishnan’s disclosures of “*GPS coordinates*” and “*images*”). Ex-1011, ¶97.

Carbyne wrongly claims certain Krishnan passages are “inapt.” POR, 44. First, Carbyne claims GPS coordinates and pictures come from a “third-party 220.” *Id.* (citing Ex-1006, 11:6-31). But Carbyne ignores that the cited passage does not involve any third party. Ex-1006, 11:20-31 (multimedia data “may be captured *by*

first user device 206 and sent to PSAP server 216.”). Second, Carbyne argues “images” and “position data” at Krishnan 10:62-66 refer to messages sent *to* the user. POR, 44. But Krishnan 10:62-66 describes “images” and “position data” as “*exchanged* via the data channel”—i.e., bidirectional. Third, Carbyne argues Krishnan 7:43-58 “does not explain when and how [GPS] is sent to PSAP.” POR, 44. But Krishnan teaches “GPS coordinates” are “provided over the data channel,” which is where video is sent via WebRTC. Ex-1006, 1:41-46, 7:32-35, 11:28-31; Ex-1011, ¶¶98-100.

3. Petition Provided Motivation to Combine

Carbyne incorrectly argues the Petition’s “limited discussion” fails to provide motivation to combine, alleging that “a motivation to employ ‘video communication’ says nothing” about using the same WebRTC session to transmit image or position information. POR, 44-45. But the Motivation to Combine section states “a POSITA would have recognized that real-time communication via WebRTC would have allowed the user to *quickly and accurately convey the nature of their emergency* (e.g., through video communication)[,] thus enabling the contact center to provide *more timely emergency services.*” Pet., 28, 59. The Petition also cited Krishnan’s teaching that a PSAP “can use information incoming from each of the data channels (e.g., pictures, videos, text information, etc.) to *help determine*

information about the event.” Pet., 11, 58 (citing Ex-1006, 1:45-49). Ex-1011, ¶101.

As these and the other cited passages in the Petition show, a POSITA would have been motivated to combine Krishnan with Ramanujaiaha to allow the user to quickly and accurately convey the nature of the emergency—enabling more timely and effective emergency services. *Supra* IV.B.2. A POSITA would understand Krishnan's system helps the contact center “obtain a *more complete knowledge of the emergent situation*” and “better coordinate mitigation activities for the emergent event” to “build a picture of the scenario” in real time. Ex-1006, 1:47, 2:1-4; Ex-1011, ¶102. A POSITA would further understand that in an emergency, a 911 operator should receive pictures, GPS, and videos in real-time as the event unfolds, not after the fact. *Supra* IV.B.2. A POSITA would use WebRTC for GPS and photographs for the same reasons WebRTC would be used for video, including because requiring callers to download a separate application would introduce unacceptable delay. Ex-2005, 42:14-22; Ex-1011, ¶103.

V. SECONDARY CONSIDERATIONS LACK NEXUS AND ARE “PAY-TO-PLAY”

First, Carbyne's purported secondary considerations (POR, 46-52) lack nexus. The asserted evidence is neither “tied to a specific product” that “embodies the claimed features [or] is coextensive with them” nor the “direct result of the unique characteristics of the claimed invention.” *Fox Factory, Inc. v. SRAM, LLC*,

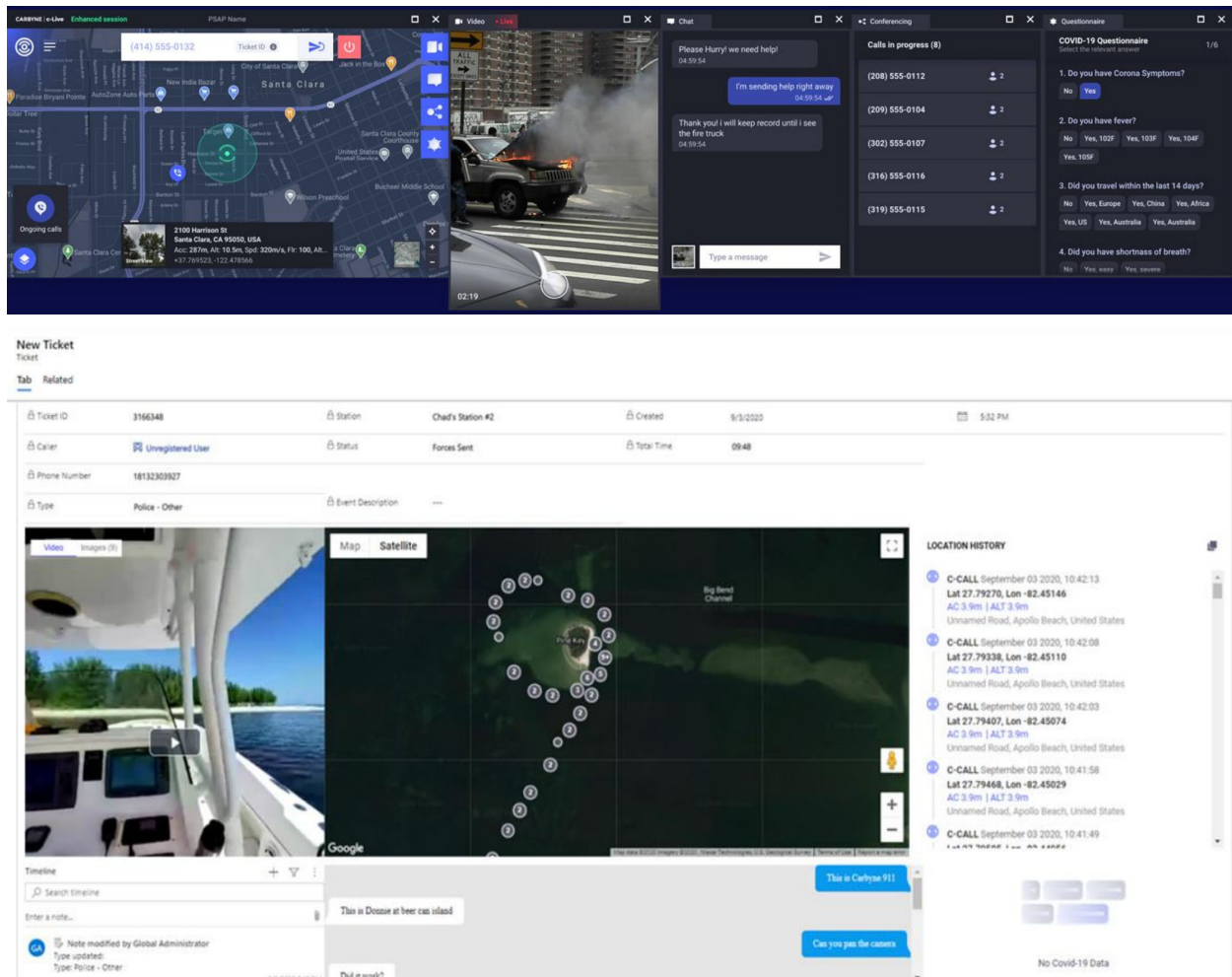
944 F.3d 1366, 1373-74 (Fed. Cir. 2019). Carbyne alleged the “fundamental feature” of the ’383 Patent is simultaneous transmission of audio and WebRTC real-time video via two different connections. POR, 2, 14-16; POPR, 7-9, 21; Ex-1002, [59]. But Carbyne’s expert made *no* effort to research, test, or use Universe to tie it to claim 1. Ex-1012, 18:4-17 (admitting he relied on only two documents and spoke to no one at Carbyne about how the system operates). When pressed on technical details of how Universe works, Carbyne’s expert admitted he would be speculating. *Id.*, 40:8-9, 42:18-22, 133:17-20 (“I can’t comment on things I haven’t seen [and] I have not seen how this is actually done from an engineering perspective.”). Ex-1011, ¶¶104-105.

Carbyne fails to establish that all elements of claim 1 are met. Its expert insisted the URL “encapsulates a unique identifier that could be a telephone number” (Ex-1012, 77:13-22), but there is no evidence Universe does so. Its expert admitted he had not seen any. *Id.*, 82:8-14 (“I don’t know if I have seen a specific example in commercial practice.”); Ex-1011, ¶106.

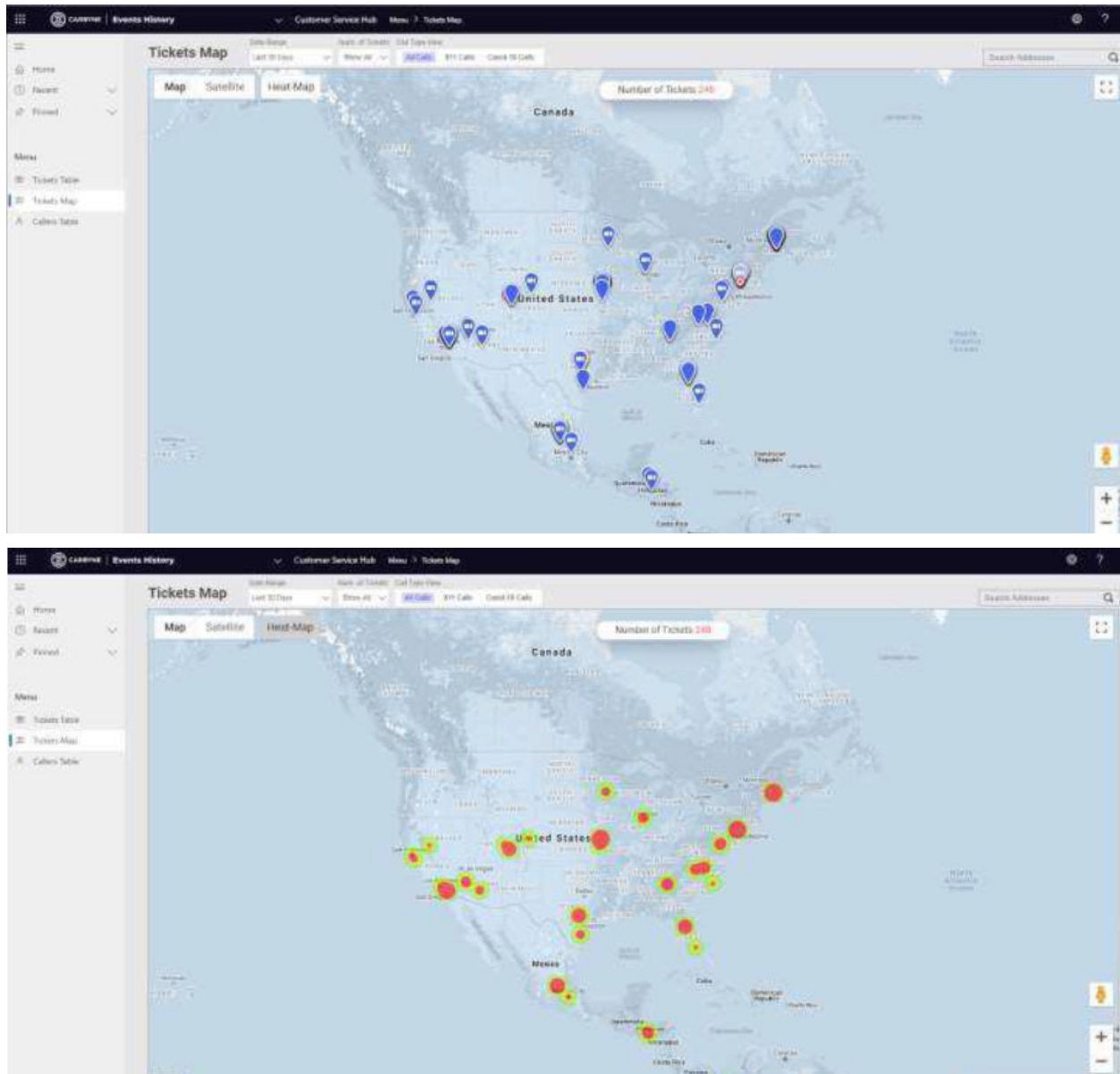
Carbyne’s evidence does not show customers *chose* Universe *because* of this claim 1’s “fundamental feature.” Rather, the evidence confirms unclaimed features were much more important. Ex-2013, [1], [7], [11], [14]-[16]; Ex-2014, [13]-[14]; Ex-1011, ¶¶107-108. Carbyne’s own expert agreed the features Carbyne touts—location accuracy, silent chat, resizable video windows—are unclaimed, such that

Universe is **not** coextensive with claim 1 and does **not** embody it. Ex-1012, 152:18-20; 151:8-12 (admitting “chat” is not “explicitly captured” by ’383 Patent claims); 156:8-12 (Q: “Is the ability to ‘easily view and resize video windows’ ... claimed?” A: “No, not explicitly.”). Ex-1011, ¶109.

Even Carbyne's images of Universe highlight aspects unrelated to the “fundamental feature” of simultaneous audio and WebRTC video:



Ex-2013, [4]-[6] (showing map views, chat, conferencing, questionnaire, events history, and “Breadcrumb (if mobile)”).



Ex-2014, [9]-[10] (showing Tickets Map and Tickets Map Heat View); Ex-1011, ¶110.

Carbyne's expert made no effort to identify *which* features drive any success. Ex-1012, 32:8-14 ("For purposes of evaluating this document, I did not go through an exercise of determining what is the most innovative."). "[I]f the commercial success is due to an unclaimed feature of the device, the commercial success is

irrelevant.” *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006). The “live video stream” mentioned in Carbyne’s marketing material (Ex-2013, [11]) was undoubtedly in the prior art (Ex-1005, 4:63-5:3, 9:46-52, 10:32-45; Ex-1006, 1:41-49, 5:46-56, 7:7-12, 7:36-43), and thus has no nexus to the alleged praise. *Galderma Lab’ys, L.P. v. Tolmar, Inc.*, 737 F.3d 731, 740 (Fed. Cir. 2013) (commercial success “must be due to the merits of the claimed invention **beyond** what was readily available in the prior art.”); *Ormco*, 463 F.3d at 1312; Ex-1011, ¶111. Carbyne fails to demonstrate that any evidence of non-obviousness for Universe is tied to claim 1.

Carbyne’s claim that Universe “has received a variety of industry accolades evincing the non-obviousness of the claimed subject matter” (POR, 51) also fails. Carbyne points to a 2021 press release where Petitioner “announced the availability” of Universe “**alongside** [Petitioner’s own] Enterprise CAD solution.” Ex-2006, [1]. While Universe is described as “provid[ing] dynamic, real-time caller-generated live video, GPS, and chat,” the allegedly “fundamental feature” of simultaneous audio and WebRTC real-time video is not mentioned. Carbyne’s expert admitted the press release’s features are not covered by claim 1. Ex-1012, 194:21-195:4 (Q: “There are a number of other features ... not covered by the claims of the ’383 patent?” A: “Correct, I would agree.”); Ex-1011, ¶112.

Carbyne also points to a 2025 Frost & Sullivan award for “North American Product Leadership Recognition in the emergency cloud call handling industry.” Ex-2012, [8]. But that award pertains to Carbyne’s *APEX platform*—*not* Universe, the product that allegedly practices claim 1. *Id.*, [4]. APEX includes myriad features unrelated to claim 1, including AI-driven event assistance, language identification, virtual agents that can pay parking tickets, detecting clusters of calls in a geofenced area, and notifying bus drivers of school shootings. *Id.*, [4]-[6]. Moreover, far from being organic evidence of industry praise, recipients must *pay* for Frost & Sullivan’s publicity and recognition. Ex-1015, [1] (“must pay a fee to communicate the outcome to the public”); Ex-1016, [1] (“paying for an award creates a perverse incentive”); Ex-1017, [3] (“one actually has to pay” and “not an insignificant amount”). Even Carbyne’s expert admitted “you could call it a *pay-to-play* model.” Ex-1012, 175:16-19.¹⁰ Ex-1011, ¶¶113-114.

Carbyne offers no evidence tying the supposed industry praise to the ’383 Patent claims. In the 911 context, capabilities such as pinpointing a caller’s location provide standalone value apart from simultaneous audio and video. Ex-1011, ¶115.

¹⁰ Carbyne’s expert admitted he had no idea how Carbyne was selected for this award, including whether Carbyne had paid anything or shaped its context, which it clearly did. Ex-1012, 161:22-162:10, 167:11-168:8; Ex-1016.

As none of the cited materials attributes recognition to the claimed invention, Carbyne fails to establish nexus. *Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 837 (Fed. Cir. 2015) (patentee “***must establish*** a nexus between [secondary considerations] evidence and the merits of the claimed invention.”); *Ormco*, 463 F.3d at 1312.

Dated: June 9, 2026

Respectfully submitted,

By: /s/ Gianni Cutri

Gianni L. Cutri (Reg. No. 52,791)
gianni.cutri@kirkland.com
Dan Sinclair (*pro hac vice* pending)
dan.sinclair@kirkland.com
KIRKLAND & ELLIS LLP
333 West Wolf Point Plaza
Chicago, IL 60654
Telephone: (312) 862-2000

Adam R. Alper (*pro hac vice* forthcoming)
adam.alper@kirkland.com
KIRKLAND & ELLIS LLP
555 California Street
San Francisco, CA 94104
Telephone: (415) 439-1400

Michael W. De Vries (*pro hac vice* forthcoming)
michael.devries@kirkland.com
KIRKLAND & ELLIS LLP
695 Town Center Dr.
Costa Mesa, CA 92626
Telephone: (714) 982-8822

Kat Li (Reg. No. 64,857)
kat.li@kirkland.com
KIRKLAND & ELLIS LLP
401 W. Fourth Street
Austin, TX 78701
Telephone: (512) 678-9100

Lionel M. Lavenue (Reg. No. 46,859)
Lionel.lavenue@finnegan.com
FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, LLP
1875 Explorer Street, Suite 800
Reston, VA 20190-6023
Telephone: (571) 203-2750

CERTIFICATE OF WORD COUNT

The undersigned certifies that the foregoing reply complies with the type-volume limitation in 37 C.F.R. § 42.24. According to the word processing system used to prepare the reply, the reply contains 5,598 words.

Dated: June 9, 2026

By: /s/ Vicki Merideth

Vicki Merideth

Case Manager

KIRKLAND & ELLIS LLP

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing **PETITIONER'S
REPLY TO PATENT OWNER'S RESPONSE** was served on June 9, 2026 via
email directed to counsel of record for the Patent Owner at the following:

K. Patrick Herman
P52PTABDocket@orrick.com

Alyssa Caridis
A8CPTABDocket@orrick.com

Dated: June 9, 2026

By: /s/ Vicki Merideth
Vicki Merideth
Case Manager
KIRKLAND & ELLIS LLP