

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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GEOTAB INC. AND GEOTAB USA, INC.,  
Petitioners,

v.

FRACTUS, S.A.  
Patent Owner.

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Case No. PGR2025-00056  
Patent No. 12,095,149

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**PETITIONERS' REPLY TO PATENT OWNER'S  
PRELIMINARY RESPONSE AS AUTHORIZED IN EXHIBIT 3001**

Petitioners file this Reply to Paper 11 (“POPR”) as authorized by EX3001. While Petitioners disagree with Fractus’s POPR arguments, for simplicity this Reply focuses on Grounds 1A and 3A. Fractus does not dispute that the combinations in Grounds 1A and 3A meet every limitation in the claims challenged therein. Fractus’s sole argument challenging Grounds 1A and 3A fails because it depends on mischaracterizing Dou. Because the Petition shows a reasonable likelihood that at least one challenged claim is unpatentable, the Board should institute trial.

**I. Fractus’s Challenge To Ground 1A Fails.**

Ground 1A combines EX1013 (“Dou”) and EX1010 (“Ciais-Multiband”) (Pet., 19-23). Fractus argues that a POSA would not have formed Dou+Ciais-Multiband because the combination purportedly violates “Dou’s design constraints” that allegedly require a certain amount of distance between antennas to achieve “spatial diversity.” POPR, 1-4, 8-11, 22-28. Fractus’s strawman argument misrepresents Dou and the Petition, and is baseless.

**A. Fractus’s Argument Fails Because Dou Does Not Require Spatial Diversity.**

Fractus’s argument fails because it *mischaracterizes Dou*. Dou, titled “Internal Diversity Antenna Architecture,” describes “[v]arious embodiments of a... diversity antenna architecture.” Dou, code(54), Abstract. Fractus does not dispute that antenna diversity means using multiple antennas within a communication system to improve signal reliability and quality. Pet., 17 (citing EX1007, ¶76).

Nothing in Dou requires its “diversity antenna architecture” to provide *spatial* diversity.

To the contrary, Dou describes spatial diversity as one of several alternative “diversity techniques” for creating diversity between its two antennas. For example, Dou describes an embodiment in which its antennas provide *polarization* diversity, i.e., “one... diversity technique.” Dou, [0018] (“The first internal antenna 206 and the second internal antenna 208 may have varying polarities to implement one or more diversity techniques.”). Dou describes spatial diversity as a different, *optional*, diversity technique. Dou, [0022] (antennas 206 and 208 “*may* be used to implement various spatial diversity techniques”) (emphasis added). Fractus does not dispute that POSAs knew polarization diversity and pattern diversity were alternative techniques that provide antenna diversity. Pet., 17 (citing EX1007, ¶76 (“A diversity architecture such as that described in Dou can be implemented in various forms: spatial diversity (using physically separated antennas), pattern diversity (using antennas with different radiation patterns), and/or polarization diversity (using orthogonally polarized elements.”)); Dou, [0018] (describing polarization diversity with one antenna vertically polarized and another antenna “vertically polarized with a cross-polarization component.”).

Fractus’s assertion that Dou requires spatial diversity as “emphasize[d]” by Dou’s claims is facially false. POPR, 10 (citing Dou dependent claim 8), 23-24

(citing discussion of Dou dependent claim 8 in “Section II.C.i”). While Dou’s dependent claim 8 recites at least a “quarter wavelength” separation between a first and second “diversity antenna” that Fractus calls a spatial diversity design constraint, Dou’s independent claims have no such requirement. This confirms that Dou’s invention does not *require* spatial diversity.

**B. Fractus’s Argument Fails Because Even If Dou Required Spatial Diversity the Dou+Ciais-Multiband Combination Provides It.**

Even if Dou required quarter wavelength spacing between “diversity antenna[s]” (i.e., antennas 206 and 208) as Fractus alleges (POPR, 1-4, 8-11)—which it does not—Dou+Ciais-Multiband provides it. Fractus’s contrary argument depends on the false assertion that Dou+Ciais-Multiband requires using Ciais-Multiband’s PCB with particular (40.5 mm × 105 mm) dimensions. POPR, 24. It does not.

Dou+Ciais-Multiband implements Dou’s wireless device with Ciais-Multiband’s *antenna*, not Ciais-Multiband’s *PCB*. Pet., 19-20, 22. Limitation [7.b] recites a “*ground plane rectangle enclosing the ground plane.*” Applying this claim language, the Petition cites Ciais-Multiband (and Dou) as teaching ground planes backing a rectangular PCB, which was common for mobile phones. Pet., 24-25.

If Dou is read as requiring a spatial diversity design constraint (it does not), then Ground 1A meets it because Dou and Ciais-Multiband are combined “according to ‘various performance and design constraints’ known to a POSA.” Pet., 22 (citing

Dou, [0030]); Dou, [0030] (“[T]he specific implementation of the first internal antenna 206 and the second internal antenna 208 may vary depending upon such factors as the target operating frequencies,... a form factor of the wireless device,... and so forth.”). Fractus never argues that it was beyond a POSA’s skill to implement the Dou+Ciais-Quadband in a manner providing spatial diversity. Dou confirms it was not. Dou, [0012], [0024], [0030] (“[T]he placement or location of the first internal antenna 206 and the second internal antenna 208 within the wireless device 200 may be performed in accordance with various performance and design constraints.”), [0039] (“[A]ny suitable topology... may be used... as desired for a given implementation.”), [0063].

## **II. Fractus’s Challenge To Dou+Jing In Ground 3A Fails Because Dou Does Not Require Spatial Diversity.**

Ground 3A combines Dou with EX1011 (“Jing”) (Pet., 120-126). As with Ground 1A, Fractus challenges Ground 3A by arguing that a POSA would not have formed Dou+Jing because it purportedly violates “Dou’s design constraints” that allegedly require a certain amount of distance between antennas to achieve “spatial diversity.” POPR, 35-41.

Fractus’s contention is baseless because (as explained above) Dou does not require spatial diversity. Fractus’s challenge to Dou+Jing thus fails for the reasons explained *supra* §I.A.

### **III. The Board Should Institute Trial.**

Ground 1A demonstrates the unpatentability of claims 7-9, 11-14, 16-17, and 19-20. Pet., 17-55. Fractus does not dispute that Dou+Ciais-Multiband meets every limitation in these claims. Fractus's only challenge to Ground 1A rests on mischaracterizing Dou as requiring spatial diversity (*supra* §I.A) and ignoring that regardless Dou+Ciais-Multiband provides spatial diversity (*supra* §I.B). Fractus's argument is baseless.

Ground 3A demonstrates the unpatentability of claims 1, 3-5, 13, 15, 17, and 19-20. Pet., 120-146. Fractus does not dispute that Dou+Jing meets every limitation in these claims. Fractus's only challenge to Ground 3A rests on mischaracterizing Dou as requiring spatial diversity (*supra* §II). Fractus's argument is baseless.

Thus, Grounds 1A and 3A alone show a reasonable likelihood that claims 1, 3-5, 7-9, 11-17, and 19-20 are unpatentable, and the Board should institute trial.

Respectfully submitted,

Date: October 27, 2025

By: /Adam R. Wichman/  
Adam R. Wichman, Reg. No. 43,988  
WOLF, GREENFIELD & SACKS, P.C.

**CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6 (e)(4)**

I certify that on October 27, 2025, a copy of the foregoing document, including any exhibits filed therewith, is being served via electronic mail, as previously consented to by Patent Owner, upon the following:

|                |                                                                                  |
|----------------|----------------------------------------------------------------------------------|
| Mark J. DeBoy  | <a href="mailto:mdeboy@esfip.com">mdeboy@esfip.com</a>                           |
| Patrick Finnan | <a href="mailto:pfinnan@esfip.com">pfinnan@esfip.com</a>                         |
| Larry Shatzer  | <a href="mailto:lshatzer@esfip.com">lshatzer@esfip.com</a>                       |
|                | <a href="mailto:Fractus_GeoTab_IPRs@esfip.com">Fractus_GeoTab_IPRs@esfip.com</a> |

Date: October 27, 2025

/Dara Del Rosario/  
Dara Del Rosario  
Paralegal  
WOLF, GREENFIELD & SACKS, P.C.