

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

FRACTUS, S.A.
Patent Owner.

Case No. IPR2025-01027
Patent No. 11,349,200

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

I. Fractus’s Sole Argument Challenging Ground 1 Fails Because Dou Does Not Require Spatial Diversity.

Ground 1 combines EX1013 (“Dou”) and EX1011 (“Jing”) (Pet., 31-39). Fractus argues that a POSA would not have made the Petition’s Dou+Jing combination because it purportedly violates “Dou’s design constraints” that allegedly require a certain amount of distance between the antennas to achieve “spatial diversity.” Paper 13 (“POPR”), 17-21. This argument is baseless.

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. Antenna diversity means using multiple antennas within a communication system to improve signal reliability and quality. Pet., 31 (citing EX1007, ¶115). Nothing in Dou requires its “diversity antenna architecture” to provide *spatial* diversity.

To the contrary, Dou describes spatial diversity as just one of several alternative “diversity techniques” for creating diversity between its 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 that polarization diversity and pattern diversity were alternative techniques that provide antenna diversity. Pet., 31 (citing EX1007, ¶115 (“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.”).

Dou’s claims refute any Fractus suggestion that Dou *requires* spatial diversity. E.g., POPR, 7-10, 17-23. While Dou’s *dependent* claim 8 recites 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 Dou’s invention does not require spatial diversity.

II. Baliarda-543 Lacks Written Description For The Full Scope Of Claims 1-20.

Fractus does not dispute the Petition’s showing that EX1040 (“Baliarda-543”)—the publication of the first non-provisional application in the ’200 patent’s priority chain—meets every limitation in claims 1-20. Pet., 73-84 (Ground 2). Fractus disputes only that Baliarda-543 is prior art to these claims.

The claims require an “*antenna... configured to transmit and receive signals from a 4G communication standard*” (Limitation [1.d]) and an “*antenna...*

configured to provide operation in... frequency bands... used by 4G communication standards” (Limitations [6.b], [11.b]) (collectively “4G limitations”).

In litigation, Fractus asserts that the 4G limitations encompass an antenna supporting LTE Band 12 within the 698-806 MHz spectrum. Pet., 26-30, 76. Here, Fractus ignores the requirement that an “*antenna*” be “*configured*” to use a specific “*frequency band*” and vaguely argues that “*4G communication standard*” includes “LTE communication standards.” POPR, 16. However, Fractus does not identify any written description within the four corners of Baliarda-543 of an antenna configured to support any LTE frequency band, let alone LTE Band 12, because there is none.

Fractus never explains how a POSA could have concluded that Fractus, when it filed Baliarda-543, possessed the idea of an antenna configured to support LTE Band 12 when there is no dispute that on December 21, 2006: (1) LTE frequency bands were undefined and an “open issue” (Pet., 76) and the LTE frequency bands were only defined years after Fractus filed Baliarda-543 (Pet., 74-78); (2) the 698-806 MHz frequency range later assigned to LTE Bands 12-14 was allocated to television and unavailable for cellular communication (Pet., 77-78, 80-81); and (3) Baliarda-543 expressly distinguishes the claimed “*antenna system*” (Limitations [1.a], [6.a], [11.a]) from antennas “for reception of TV” (Pet., 80-81 (citing Baliarda-543, [0096])). Baliarda-543 ***excluded*** antennas that would support LTE Band 12.

Ignoring the fact that Baliarda-543 *excludes* from the claimed “*antenna system*” antennas that were configured to operate in the 698-806 MHz frequency range used for television on December 21, 2006, Fractus vaguely argues that “[t]he LTE standard... was *essentially established* before the 2006 priority date of the ’200 Patent,” citing working group documents (EX2012-EX2014) and trade articles (EX2015-EX2016) that described *proposed technology* for LTE. POPR, 15-16 (emphasis added). On this basis Fractus argues that a POSA reading Baliarda-543 would have understood reference to “other high speed wireless standards” as “including” an “LTE standard.” POPR, 15. This is nonsense. On December 21, 2006 the LTE standard literally *did not exist*. Pet., 74-77. Even the *requirements* for a 4G communication system were not decided until November 2008. Pet., 74. The LTE standard was not adopted until 2009. Pet., 75.

Not one of Fractus’s citations to working group materials (EX2012-EX2014) and trade papers (EX2015-EX2016) describing *proposed LTE technology* in 2006 (POPR, 15-16) identifies an LTE frequency band, let alone frequencies for LTE Band 12. Far from showing that LTE was “essentially established” in 2006 (POPR, 15), Fractus’s evidence confirms the Petition’s showing that *the LTE standard and its frequencies bands were undefined* on December 21, 2006. Pet., 76 (“On December 21, 2006, the LTE frequency bands *had not even been defined* and what frequency ranges they might eventually use was an ‘open issue.’”).

Fractus's suggestion that the Petition's cases are distinguishable because the '200 patent is a continuation from Baliarda-543 (rather than a CIP) is baseless. POPR, 27-30. When Fractus filed it on December 21, 2006, Baliarda-543 provided no written description supporting the full scope of claims 1-20. Pet., 73-81.

With Baliarda-543 providing no written description supporting the full scope of claims 1-20, not one of those claims is entitled to Baliarda-543's filing date of December 21, 2006. Because Baliarda-543 was published in 2008, more than a year before the next non-provisional application in the priority chain was filed in 2014, it is indisputable prior art. Fractus does not dispute that Baliarda-543 meets every limitation in claims 1-20. As indisputable prior art, Baliarda-543 anticipates claims 1-20. Pet., 73-84.

* * *

The Petition shows a reasonable likelihood that each challenged claim is unpatentable. The Board should institute trial and find all claims are unpatentable.

Respectfully submitted,

Date: October 23, 2025

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

I certify that on October 23, 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:

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