

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. PGR2025-00056
Patent 12,095,149

**PATENT OWNER'S SUR-REPLY TO PETITIONERS' REPLY TO
PRELIMINARY RESPONSE**

A. Introduction

Petitioners' Reply mischaracterizes the Petition to avoid the counter arguments presented in Patent Owner's Preliminary Response (POPR). Petitioners should be held to the positions taken in the Petition. *Zscaler, Inc. v. Symantec Corp.*, No. IPR2017-01342, Paper 37 at 26 (P.T.A.B. Nov. 9, 2018).

B. Petitioners' Combination of Dou and Cia's Multiband Relies on Spatial Diversity

Petitioners claim that Patent Owner mischaracterizes Dou because "Dou describes spatial diversity as just one of several 'diversity techniques' for creating diversity." Reply at 1. Petitioners miss the point. Petitioners' Dou+Cia's Multiband combination would only be understood by the POSA as implementing spatial diversity because the Dou+Cia's Multiband combination's proposed antenna is not suitable for either pattern or polarization diversity.

Indeed, as noted by *Petitioners'* expert, "[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)." EX1007, ¶76. The Dou+Cia's Multiband combination proposed in the Petition provides two identical Cia's Multiband antennas physically separated from each other on opposite ends of a ground plane. Petition at 19-20, 24-25, 30-31. In

other words, the Dou+Ciais Multiband combination allegedly provides diversity “using physically separated antennas,” *which is spatial diversity*. EX1007, ¶76.

In contrast, the Petition nowhere proposes using “antennas with different radiation patterns,” nor does it propose using “orthogonally polarized elements.” *See id.* Rather, the Petition proposes using identical Ciais Multiband antennas, which would exhibit identical substantially omnidirectional radiation patterns, in a parallel arrangement on the ground plane. *See* EX1010 at 920-921; Petition at 19-20, 24-25, 30-31. Therefore, the only diversity possibly implemented in the Dou+Ciais Multiband combination is spatial diversity.

C. The Dou+Ciais Multiband Combination Does Not Provide Any Antenna Diversity

Petitioners do not contest that a quarter wavelength spacing between antennas is required for spatial diversity. *See* Reply at 1-3; *see also* POPR at 7. Instead, Petitioners argue that the Petition does not rely on Ciais Multiband’s 40.5 mm x 105 mm ground plane, and that a POSA could craft a ground plane to meet spatial diversity requirements. Reply at 3-4. This, however, is not what the Petition says. The Petition states that it is implementing Dou’s PCB 204 using the Ciais Multiband 40.5 x 105 mm PCB ground plane: “Dou+Ciais-Multiband meets [7.b] because it implements Dou using Ciais’s teaching to dispose antenna 206 (first antenna) at the top of PCB 204 ... PCB 204 implements Ciais’s teaching of a rectangular (40.5 mm × 105 mm) PCB.” Petition at 24-25 (emphasis added). Accordingly, the POPR

is correct that the combination of Dou and Ciais Multiband is nonobvious as it fails to provide spatial diversity. POPR at 22-27.

Patent Owner notes for completeness that the Dou+Ciais Multiband combination also fails to provide polarization or pattern diversity. The combination utilizes two Ciais Multiband antennas which would have the same radiation patterns, and therefore, cannot provide pattern diversity. The Ciais multiband antennas would exhibit the same polarization as they are arranged in parallel in the combination. Therefore, the antennas are not orthogonally polarized elements and do not provide polarization diversity. Accordingly, regardless of how Petitioners characterize their reliance on Dou's *diversity* techniques, the Dou+Ciais Multiband combination does not implement *any* antenna diversity.

Petitioners' Reply asserts similar arguments with respect to the Dou+Ciais Quadband combination. Reply at 4 ("Fractus never argues that it was beyond a POSA's skill to implement the **Dou+Ciais-Quadband** in a manner providing spatial diversity.") (emphasis added). These arguments fail for the same reasons – the Dou+Ciais Quadband combination fails to provide spatial diversity as it implements Ciais Quadband's 40.5 x 105 mm PCB ground plane (*e.g.*, Petition at 64, 84); and it uses a parallel arrangement of two Ciais Quadband antennas (Petition at 64-66) which would not provide polarization or pattern diversity.

D. Petitioners' Combination of Dou and Jing Relies on Spatial Diversity

Similar to the discussion above. Petitioners' Dou+Jing combination would only be understood by the POSA as implementing spatial diversity. The Dou+Jing combination proposed in the Petition provides two identical Jing antennas physically separated from each other on opposite ends of a ground plane. Petition at 123-125. In other words, the Dou+Jing combination allegedly provides diversity "using physically separated antennas," *which is spatial diversity*. EX1007, ¶76. The Petition nowhere proposes using "antennas with different radiation patterns," nor does it propose using "orthogonally polarized elements." *See id.* Therefore, the only diversity possibly implemented in the Dou+Jing combination is spatial diversity.

E. The Dou+Jing Combination Does Not Provide Any Antenna Diversity

Petitioners do not contest that a quarter wavelength spacing between antennas is required for spatial diversity. *See* Reply at 1-3; *see also* POPR at 7. Further, the Petition is explicit that the Dou+Jing combination is utilizing Jing's 36 x 60 mm ground plane. Petition at 125 ("POSAs would have implemented Dou's antenna 306 and 308 using a Jing antenna for each and Jing's 36 × 60 mm ground plane as a modified ground plane 310..."). Accordingly, as explained in the POPR, the 60 mm spacing between the two antennas in the Petition's modified antenna is well short of the lower bound (83.3 mm) of the spacing specified by Dou to achieve spatial

diversity at the antennas' lowest frequency (900 MHz). POPR at 38-40; EX2010 at ¶¶ 73-74.

Further, the Dou+Jing antenna combination also fails to provide polarization and/or pattern diversity. As illustrated in the Petition, the Jing antennas are placed on the same ground plane and are provided with a parallel arrangement in the combination. Petition at 125. As noted by Petitioners' expert, polarization diversity uses orthogonally polarized elements. EX1007, ¶76. The parallel arrangement of the Jing antennas in the combination ensures that the antennas are not orthogonally polarized elements. Accordingly, the modified antenna would not provide polarization diversity. Further, the modified antenna uses two identical Jing antennas which would have the same substantially omnidirectional radiation patterns. EX1011 at 2659; Petition at 125. Therefore, the modified antenna of the Dou+Jing combination does not provide pattern diversity. Accordingly, regardless of how Petitioners characterize their reliance on Dou's *diversity* techniques, the Dou+Jing combination does not implement *any* antenna diversity. Therefore, the proposed combination is nonobvious.

Dated: November 3, 2025

Respectfully submitted,
/Mark J. DeBoy/
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CERTIFICATE OF SERVICE

The undersigned certifies that pursuant to 37 C.F.R. § 42.6(e), a copy of the foregoing **PATENT OWNER'S SUR-REPLY TO PETITIONERS' REPLY TO PRELIMINARY RESPONSE** was served via email (as previously consented to by counsel) on November 3, 2025 to lead and backup counsel of record for Petitioners as follows:

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