UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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COMMSCOPE TECHNOLOGIES LLC,
Petitioner,

v.

DALI WIRELESS INC.,
Patent Owner.

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Case IPR2020-01473
Patent 10,080,178 B2

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Before KARL D. EASTHOM, MELISSA A. HAAPALA, and
SHARON FENICK, Administrative Patent Judges.

FENICK, Administrative Patent Judge.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

CommScope Technologies LLC ("Petitioner") filed a Petition to institute an *inter partes* review of claims 1–30 ("challenged claims") of U.S. Patent No. 10,080,178 B2 (Ex. 1001, "the '178 patent"). Paper 1 ("Pet."). Dali Wireless Inc. ("Patent Owner") filed a Preliminary Response. Paper 9 ("Prelim. Resp."). With our authorization (Paper 13), Petitioner filed a Reply relating to our discretion under 35 U.S.C. § 325(a), Paper 15 ("Reply"), and Patent Owner filed a Sur-Reply, Paper 17 ("Sur-Reply"). We have authority under 35 U.S.C. § 6(b)(4) and 35 U.S.C. § 314.

The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted "unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

Upon consideration of the Petition, Preliminary Response, and additional briefing we decline to exercise discretion to deny institution under 35 U.S.C. § 325(d), and we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one challenged claim of the '178 patent. Accordingly, for the reasons that follow, we institute *inter partes* review.

I. BACKGROUND

A. Real Parties-in-Interest

As the real parties-in-interest, Petitioner identifies CommScope Technologies LLC, CommScope, Inc. of North Carolina, CommScope, Inc., and CommScope Holding Company, Inc. Pet. iv. Patent Owner identifies only itself as real party-in-interest. Paper 3, 1.

B. Related Proceedings

Petitioner and Patent Owner identify *Dali Wireless, Inc. v. CommScope Technologies LLC*, No. 1:19-cv-00952-MN (D. Del.) ("the related action") as a related action involving the '178 patent.[1] Pet. iv; Paper 3, 1.

C. The '178 Patent

The '178 patent is titled "Distributed Antenna System" and relates to a distributed antenna system (DAS) that "enables a high degree of flexibility to manage, control, enhance, [and] facilitate the usage and performance of a distributed wireless network." Ex. 1001, codes (54), (57). According to one embodiment of the invention, a distributed antenna system includes digital access units (DAUs), which each connect to associated base stations and serve as an interface between these base stations and digital remote units (DRUs). *Id.* at 4:37–41. The distributed antenna system receives downlink data via radio frequency (RF) signals from the base stations. *Id.* at 4:60–62. After down-conversion, digitization, and conversion to baseband, the DAUs provide these received signals to DRUs. *Id.* at 4:63–5:6. Figure 1 of the '178 patent, reproduced below, is a block diagram showing the basic structure and an example downlink transport. *Id.*at 3:55–58.

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[1] According to Petitioner, "[t]he trial date for the district court action is March 2022," after the due date for a Final Written Decision in the instant case. See Pet. 87–88. Patent Owner did not present arguments towards exercising discretion to deny institution under 35 U.S.C. § 314(a). *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential). Therefore, we do not consider this issue further.
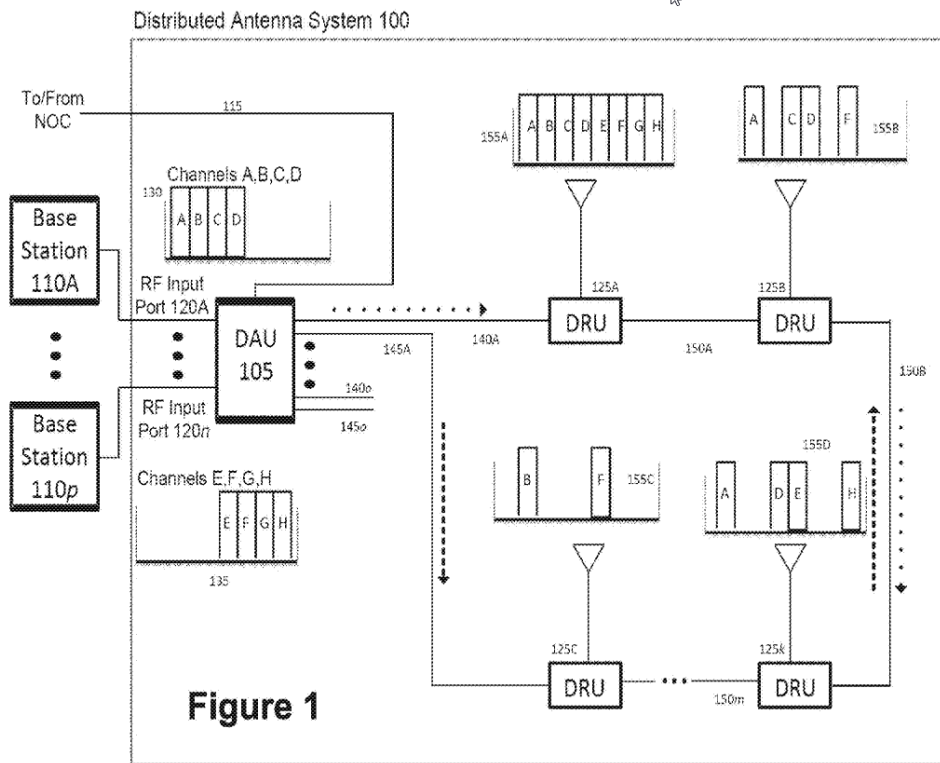
Figure 1

Figure 1 depicts DAU 105 that serves as an interface between associated base stations (110A through 110*p*) and DRUs (125A through 125*k*). *Id.* at 4:38–41, 4:60–62. Some DRUs, e.g., DRU 125B are connected to DAU 105 via a "daisy-chain" connection through its connection 150A to DRU 125A, which is connected directly to DAU 105 through connection 140A. *Id.* at 6:6–7, 6:29–32. As shown in Figure 1, DAU 150 receives composite downlink signal 130, comprising carriers[2] A–D from first base station 110A. *Id.* at 5:59–63. DAU 150 also receives

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[2] Elements A–H of Figure 1 are alternatively referred to as "channels" and as "carriers" in the '178 patent. *Compare* Ex. 1001 at 5:17–49, 7:55–7:67, Fig. 1 (describing A–H as channels) *with id.* at 5:62–66, 6:15–25, 6:32–56 (describing A–H as carriers); *see also* Prelim. Resp. 24. We use "carriers" in this section to refer to elements A–H.

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composite signal 135, comprising carriers E–H from *p*th base station 110*p*. *Id.* at 5:63–66. Bidirectional optical cables 140A and 145A connect DAU 105 to DRU 125A and 125C, bidirectional optical cables connect the DRUs in a ring configuration. *Id.* at 6:6–15. These connections facilitate networking of DAU105, allowing all carriers A–H to be available to transport data to DRUs 125A–125*k* for downlink. *Id.* at 6:15–18. The antenna ports of the DRUs receive uplink signals and transmit them to the base station via the DAUs. *Id*. at 5:29–42, 10:37–11:22.

Software settings within each DRU are configured in order to control which carrier signals are present in the downlink output signal at the antenna port of the DRU. *Id.* at 6:19–36, 6:43–56. An embedded software control module in a DAU, the DAU Management Control Module, "determin[es] and/or set[s] the appropriate amount of radio resources (such as RF carriers, CDMA codes or TDMA time slots) assigned to a particular DRU or group of DRUs to meet desired capacity and throughput objectives." *Id*. at 11:61–12:6. Another embedded software control module, the DAU monitoring module, "detects which carriers and corresponding time slots for each carrier are active for each DRU [and] provides information to the DAU Management Control Module to help identify when, e.g., a particular downlink carrier is loaded by a percentage greater than a predetermined threshold." *Id.* at 11:61–67, 12:46–54. "If that occurs, the DAU Management Control Module can adaptively modify the system configuration" to deploy additional radio resources for use by a particular DRU needing those resources, and to remove resources from a DRU if it no longer needs the radio resources assigned to it. *Id.* at 12:54–65. This occurs through communication with embedded software control modules in the

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