

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BROADCOM CORPORATION,
Petitioner,

v.

WI-FI ONE, LLC,
Patent Owner.

Case IPR2013-00602
Patent 6,466,568 B1

Before KARL D. EASTHOM, KALYAN K. DESHPANDE, and
MATTHEW R. CLEMENTS, *Administrative Patent Judges*.

CLEMENTS, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Broadcom Corporation (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–6 (the “challenged claims”) of U.S. Patent No. 6,466,568 B1 (Ex. 1001, “the ’568 patent”). Paper 2 (“Pet.”).

Telefonaktiebolaget L. M. Ericsson¹ (“Patent Owner”) filed an election to waive its Preliminary Response. Paper 20. On March 10, 2014, we instituted an *inter partes* review of all challenged claims on certain grounds of unpatentability alleged in the Petition. Paper 27 (“Dec. to Inst.”).

After institution of trial, Patent Owner filed a Patent Owner Response (Paper 36, “PO Resp.”) and a Motion to Amend (Paper 38, “Mot. to Amend”). Petitioner filed a Reply (Paper 46, “Pet. Reply”) and an Opposition to Patent Owner’s Motion to Amend (Paper 47, “Opp. to Mot. to Amend”). Patent Owner then filed a Reply to Petitioner’s Opposition to its Motion to Amend. Paper 49 (“PO Reply”). Oral hearing was held on December 8, 2014.²

The Board has jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

Petitioner has shown, by a preponderance of the evidence, that claims 1–6 of the ’568 patent are unpatentable. Petitioner’s Motion to Amend is denied.

¹ On July 11, 2014, Patent Owner filed an Updated Mandatory Notice indicating that the ’568 patent had been assigned to Wi-Fi One, LLC, and that Wi-Fi One, LLC and PanOptis Patent Management, LLC were now the real parties-in-interest. Paper 40.

² A transcript of the oral hearing is included in the record as Paper 59.

A. Related Proceedings

Petitioner and Patent Owner indicate that the '568 patent is involved in a case captioned *Ericsson Inc., v. D-LINK Corp.*, Civil Action No. 6:10-cv-473 (E.D. Tex.) (“D-Link Lawsuit”). Pet. 1–2; Paper 6, 1. Patent Owner also identifies an appeal at the Federal Circuit captioned *Ericsson Inc., v. D-LINK Corp.*, Case Nos. 2013-1625, -1631, -1632, and -1633. Paper 6, 1. Petitioner also filed two petitions for *inter partes* review of related patents: IPR2013-00601 (U.S. Patent No. 6,772,215) and IPR2013-00636 (U.S. Patent No. 6,424,625).

B. The '568 patent

The '568 patent relates generally to radio communications systems, such as cellular or satellite systems, that use digital traffic channels in a multiple access scheme, such as time division multiple access (“TDMA”) or code division multiple access (“CDMA”). Ex. 1001, 1:13–17.

Figure 2 of the '568 patent is reproduced below.

FIG. 2

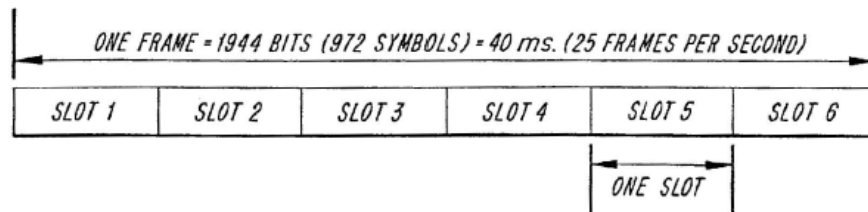


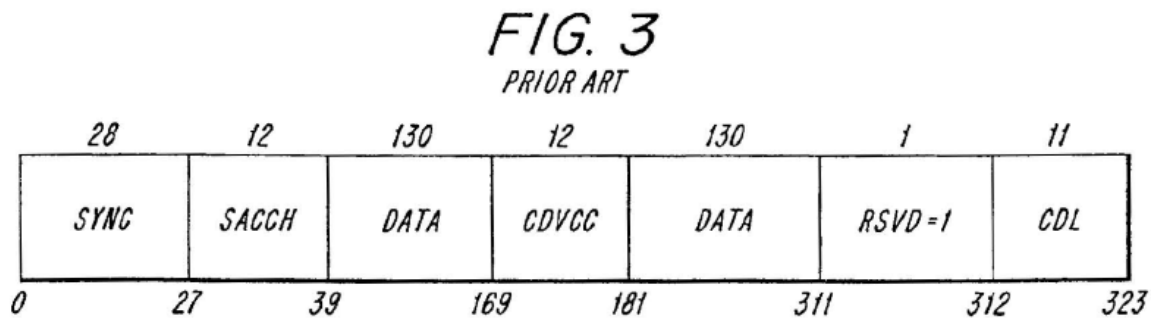
Figure 2 depicts how, in a TDMA system, the consecutive time slots on a radio channel are organized in TDMA frames of, for example, six slots each so that a plurality of distinct channels can be supported by a single radio carrier frequency. *Id.* at 5:11–15. Each TDMA frame has a duration of 40 milliseconds and supports six half-rate logical channels, three full-rate

logical channels, or greater bandwidth channels as indicated in the table below:

Number of Slots	Used Slots	Rate
1	1	half
2	1, 4	full
4	1, 4, 2, 5	double
6	1, 4, 2, 5, 3, 6	triple

As shown in the table, a full-rate digital traffic channel (“DTC”), for example, uses two slots of each TDMA frame—i.e., the first and fourth, second and fifth, or third and sixth. *Id.* at 2:8–11.

A conventional downlink DTC slot format is defined as shown in Figure 3, reproduced below.



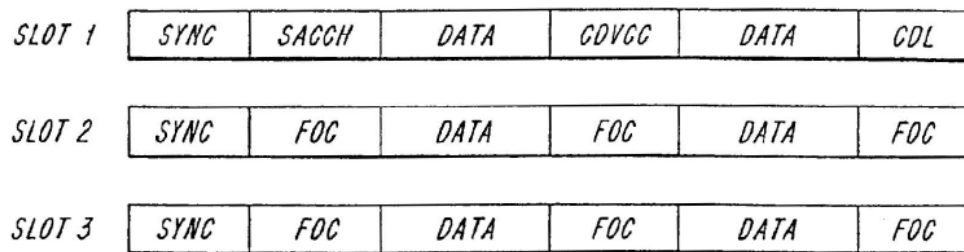
As shown in Figure 3, a slot includes a SYNC field, SACCH field, two DATA fields used to transmit the “payload” of the slot, a CDVCC field, and a reserved bit CDL field. *Id.* at 5:31–47. Conventionally, this format is used for each time slot in a TDMA frame—i.e., all six time slots. *Id.* at 5:47–49. However, if a mobile station is using a triple rate downlink connection—i.e., it is reading the DATA fields of each of time slots 1, 2, and 3—some of the other fields provided in the conventional downlink time slot of Figure 3 need not be transmitted in each time slot. *Id.* at 6:66–7:4. For example, a mobile station need not receive SACCH at triple rate; that is, a mobile station may only need to receive one SACCH for every three time slots. *Id.* at 7:4–8.

Likewise, the CDVCC field need not be transmitted by the base station at triple rate. *Id.* at 7:10–17.

To address these issues, the '568 patent discloses an alternative slot format to accommodate the different communication services described above. *Id.* at 5:50–52.

Figure 6 is reproduced below.

FIG. 6



As illustrated in Figure 6, in one embodiment of the invention, the fields that are conventionally used for SACCH and CDVCC information in slots 2 and 3 can be replaced by FOC information. *Id.* at Fig. 6, 7:8–10. Omitting these fields in time slots 2 and 3 (as well as 5 and 6) provides an opportunity to inform other mobile stations of information pertaining to their uplink connections. *Id.* at 7:21–25. For example, the FOC fields can be used to inform another mobile station that a previously transmitted packet was not properly received and should be retransmitted. *Id.* at 7:26–29.

According to another embodiment of the invention, the FOC may serve the purpose of a service type identifier by providing information relating to the same connection as the payload or data field in that time slot, such as a service type identifier that informs the mobile or base station of the type of information (e.g., voice, video, or data) being conveyed in the

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