

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ERICSSON INC. AND  
TELEFONAKTIEBOLAGET LM ERICSSON,  
Petitioner,

v.

INTELLECTUAL VENTURES I LLC,  
Patent Owner.

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Case IPR2018-01007  
Patent 7,412,517 B2

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Before KRISTEN L. DROESCH, MINN CHUNG, and AMBER L. HAGY,  
*Administrative Patent Judges.*

DROESCH, *Administrative Patent Judge.*

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

## I. INTRODUCTION

### A. Background

Ericsson Inc. and Telefonaktiebolaget LM Ericsson (collectively “Petitioner”) filed a Petition requesting an *inter partes* review of claims 1, 2, 4, 12, 13, and 15 (“the challenged claims”) of U.S. Patent No. 7,412,517 (Ex. 1001, “’517 Patent”). Paper 1 (“Pet”). Intellectual Ventures I LLC (“Patent Owner”) filed a Preliminary Response. Paper 5 (“Prelim. Resp.”).

We have authority under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. An *inter partes* review may not be instituted unless it is determined that “the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a).

For the reasons provided below, we determine, based on the record before us, there is a reasonable likelihood Petitioner would prevail in showing the unpatentability of all of the challenged claims. We institute on all grounds asserted in the Petition.

### B. Related Proceedings

The parties represent that the ’517 Patent is at issue in *Intellectual Ventures I LLC v. T-Mobile USA, Inc.*, No. 2:17-cv-00577-JRG (E.D. Tex.). Pet. 2; Paper 4, 2. The parties indicate Petitioner has filed petitions for IPR challenging other related patents held by Patent Owner, including IPR2018-00727 challenging Patent 6,626,629; IPR2018-01058 challenging Patent 7,359,971; and IPR2018-00758, IPR2018-00782,

*C. The '517 Patent (Ex. 1001)*

The '517 Patent discloses a packet-centric wireless point to multi-point telecommunications system including a wireless base station, a first data network, host workstations, and subscriber customer premise equipment (CPE) stations, and including resource allocation for shared bandwidth among subscriber CPE stations to optimize end-user Quality of Service (QoS). See Ex. 1001, 4:35–52, Fig. 2D.

Figure 13 of the '517 Patent is reproduced below.

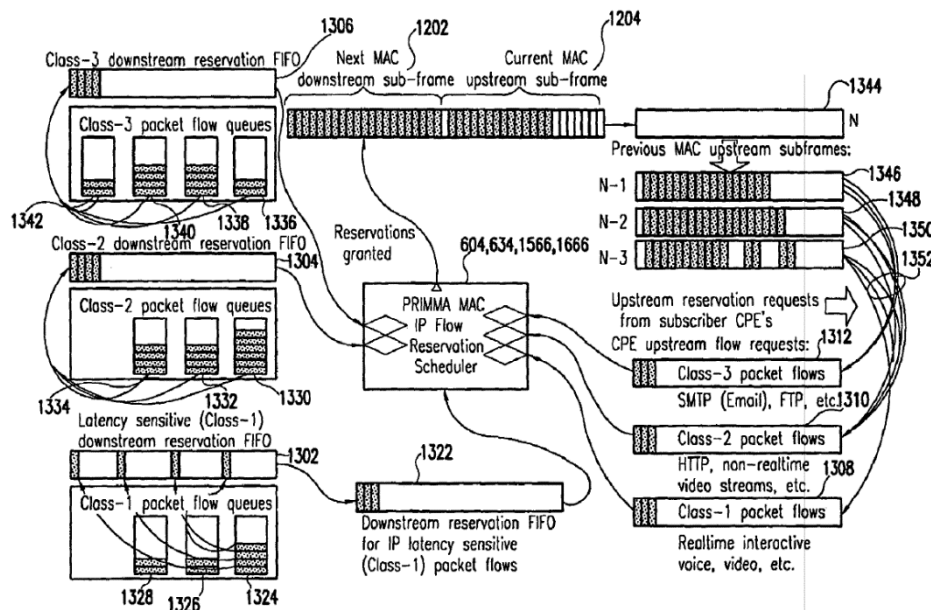


Figure 13 is a block diagram 1300 illustrating how a flow scheduler functions. See Ex. 1001, 6:26–27, 58:53–55.

Block diagram 1300 includes: flow scheduler 604, 634 (which is a combination of downlink flow scheduler 604 and uplink flow scheduler 634), downlink transmission subframe 1202 (i.e., the next MAC downstream subframe), uplink transmission subframe 1204 (i.e., the current MAC upstream subframe). . . . downstream reservation first-in-first-out queue 1322, class 1 downstream

queue 1302, class 2 downstream queue 1304, [] class 3 downstream queue 1306. . . . current upstream subframe 1344 (with the current upstream subframe 1204 about to be stored in it), previous upstream sub frames 1346, 1348, 1350, class 1 upstream reservation request queue 1308, class 2 upstream reservation request queue 1310, and class 3 upstream reservation request queue 1312.

Ex. 1001, 58:53–59:3. An IP-flow QoS class queueing processor (shown in Figs. 15A and 15B) queues the received data packets into class 1 packet flow queues 1324, 1326 and 1328, class 2 packet flow queues 1330, 1332, 1334, and class 3 packet flow queues 1336, 1338, 1340, and 1342. *See id.* at 59:4–9. Class 1, class 2, and class 3 packet flow queues are respectively assigned to class 1 downstream queue 1302, class 2 downstream queue 1304, and class 3 downstream queue 1306 based on inputs from a hierarchical class-based priority processor, a virtual private network (VPN) directory enabled (DEN) data table and a service level agreement (SLA) priority data table (shown in Fig. 15B). *See id.* at 59:10–17; *see also* 49:55–64 (describing same with respect to Fig. 15B). Flow scheduler 604, 634 schedules these downlink data packets onto downlink transmission subframe 1202. *See id.* at 59:17–19.

Reservation requests for future upstream slots arrive at wireless base station as part of the current upstream subframe 1204 received from a CPE subscriber station over the wireless medium. *See id.* at 59:31–34. Current upstream subframe 1204 can temporarily store reservation requests for analysis and scheduling of uplink packets (as shown in Fig. 8B). *See id.* at 59:34–37. Previous upstream subframes 1346, 1348, 1350 include upstream reservation requests awaiting upstream frame slot allocations in future upstream sub frames 1204. *See id.* at 59:37–40. “Reservation request

blocks (RRBs) . . . include a request for a number of slots for a single IP flow identifier # and class of the flow.” *Id.* at 59:40–43. RRBs also include subslots that include a subscriber ID and IP-flow priority and type. *See id.* at 56:48–53, Fig. 12K. Upstream reservation requests by IP flow and class are queued onto class 1, class 2, and class 3 upstream reservation request queues 1308, 1310, 1312 by IP flow QoS class queueing processor (shown in Fig. 16A and 16B). *See id.* at 59:43–49. “Flow scheduler 604 and 1566, and 634, and 1666, uses these downstream reservations and upstream reservation requests to assign slots to data packets in the next downstream transmission subframe 1202 and upstream transmission sub frame 1204, respectively.” *Id.* at 59:49–53.

#### *D. Illustrative Claim*

Challenged claims 1 and 12 are independent, with claims 2 and 4, and 13 and 15, dependent therefrom, respectively. Claim 1 is illustrative and reproduced below:

1. A method for allocating a shared wireless bandwidth in a packet-centric wireless point to multi-point telecommunications system, the method comprising:
  - analyzing contents of packets to be communicated over the shared wireless bandwidth in a downlink direction from a wireless base station to at least one customer premises equipment (CPE) station;
  - analyzing reservation requests for packets to be communicated in the unlink<sup>1</sup> direction from the at least one CPE station to the wireless base station, wherein each reservation request comprises a subscriber identifier and at least one other subscriber attribute, wherein the analyzing includes processing the subscriber identifier and

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<sup>1</sup> The term “unlink” appears to be a typographical error.

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