

HAYNES BOONE

*TESLA, INC. V. INTELLECTUAL
VENTURES II LLC*

IPR2025-00221 (11,664,889)

Apple Inc. v. Aire Technology, Ltd., Case IPR2022-01135

Scott T. Jarratt, Brett Bostrom
Counsel for Petitioner

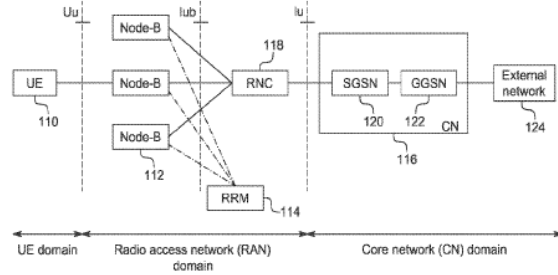


The '889 Patent



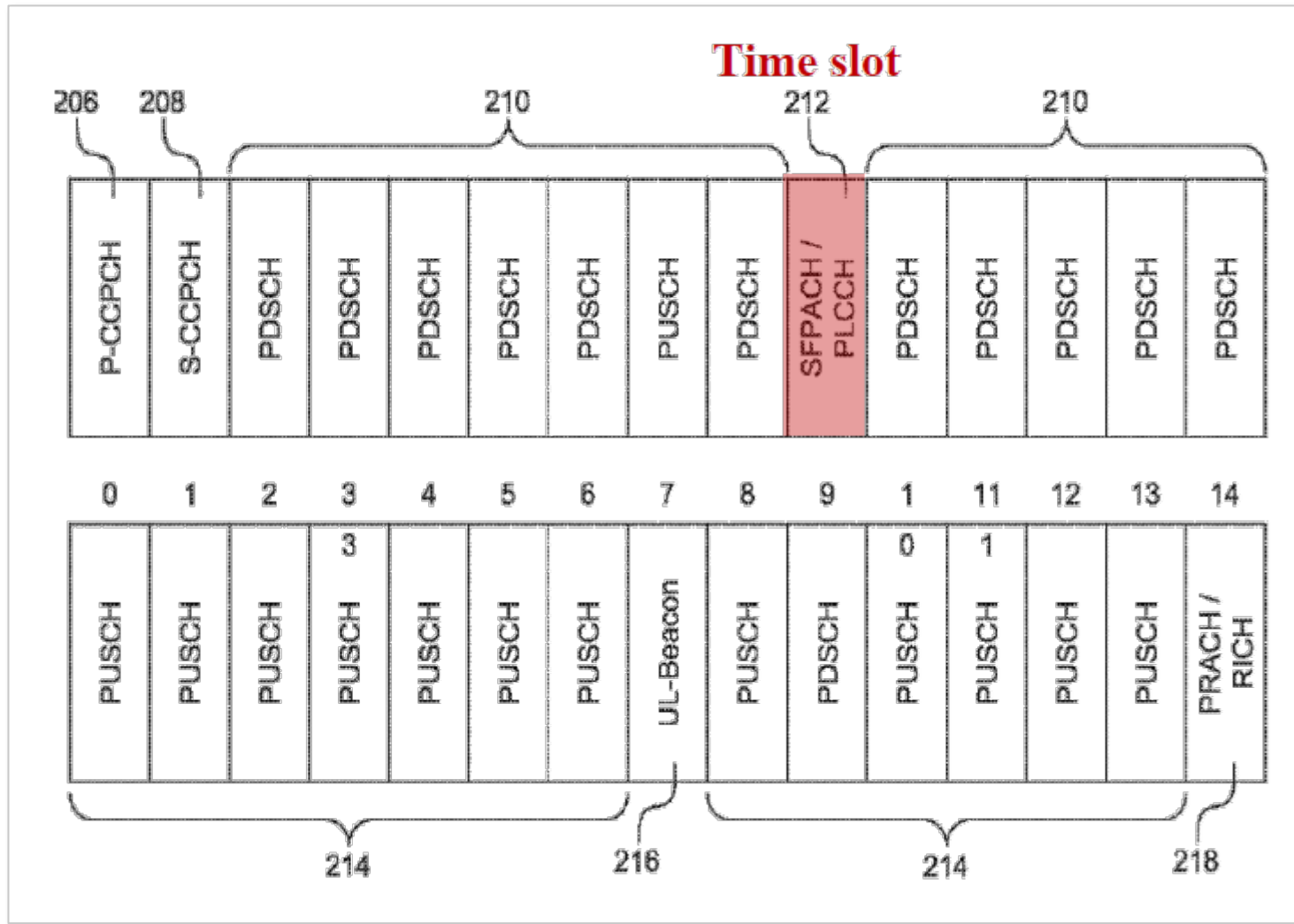
US011664889B2

(12) United States Patent Howard (34) COMMUNICATIONS IN A WIRELESS NETWORK (71) Applicant: Intellectual Ventures II LLC, Wilmington, DE (US) (72) Inventor: Paul Howard, Bristol (GB) (73) Assignee: Intellectual Ventures II LLC, Wilmington, DE (US) (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. (21) Appl. No.: 17/870,425 (22) Filed: Jul. 21, 2022 (65) Prior Publication Data US 2022/0360325 A1 Nov. 10, 2022 Related U.S. Application Data (63) Continuation of application No. 17/583,369, filed on Jan. 25, 2022, now Pat. No. 11,411,642, which is a (Continued) (51) Int. Cl. <i>H04B 7/26</i> (2006.01) <i>H04W 72/04</i> (2023.01) <i>H04W 72/12</i> (2023.01) <i>H04W 52/14</i> (2009.01) <i>H04J 3/16</i> (2006.01) (Continued) (52) U.S. Cl. CPC <i>H04B 7/2643</i> (2013.01); <i>H04J 3/1694</i> (2013.01); <i>H04L 5/0053</i> (2013.01); <i>H04W 52/146</i> (2013.01); <i>H04W 72/042</i> (2013.01); <i>H04W 72/0406</i> (2013.01); (Continued)	(10) Patent No.: US 11,664,889 B2 (45) Date of Patent: May 30, 2023 (58) Field of Classification Search CPC ... <i>H04J 3/1694</i>; <i>H04L 5/0053</i>; <i>H04W 52/146</i>; <i>H04W 72/0406</i>; <i>H04W 72/042</i>; <i>H04W 72/0446</i>; <i>H04W 72/121</i>; <i>H04W 72/1289</i> See application file for complete search history. (56) References Cited U.S. PATENT DOCUMENTS 5,056,109 A 10/1991 Gilhousen et al. 5,265,119 A 11/1993 Gilhousen et al. (Continued) FOREIGN PATENT DOCUMENTS DE 10201270 8/2002 EP 1467582 10/2004 (Continued) OTHER PUBLICATIONS "3 UMTS Interfaces," UMTS Protocols and Protocol Testing, pp. 9-14, located at <http://www.3gpp.org/ftp/Specs/rel99/2a/I-14251-eng/inter-urfaces.pdf>. (Continued) Primary Examiner — Ronald B. Abelson (74) Attorney, Agent, or Firm — Volpe Koenig (57) ABSTRACT A user equipment (UE) is configured to receive a control message over a physical control channel in a first time slot, wherein the control message has power control bits for a plurality of UEs, wherein the plurality of UEs include the first UE. The UE is further configured to extract power control information for the first UE from the control message, and to transmit a signal over a physical control channel to a base station in a second time slot at a transmission power level based on the extracted power control information. 16 Claims, 5 Drawing Sheets
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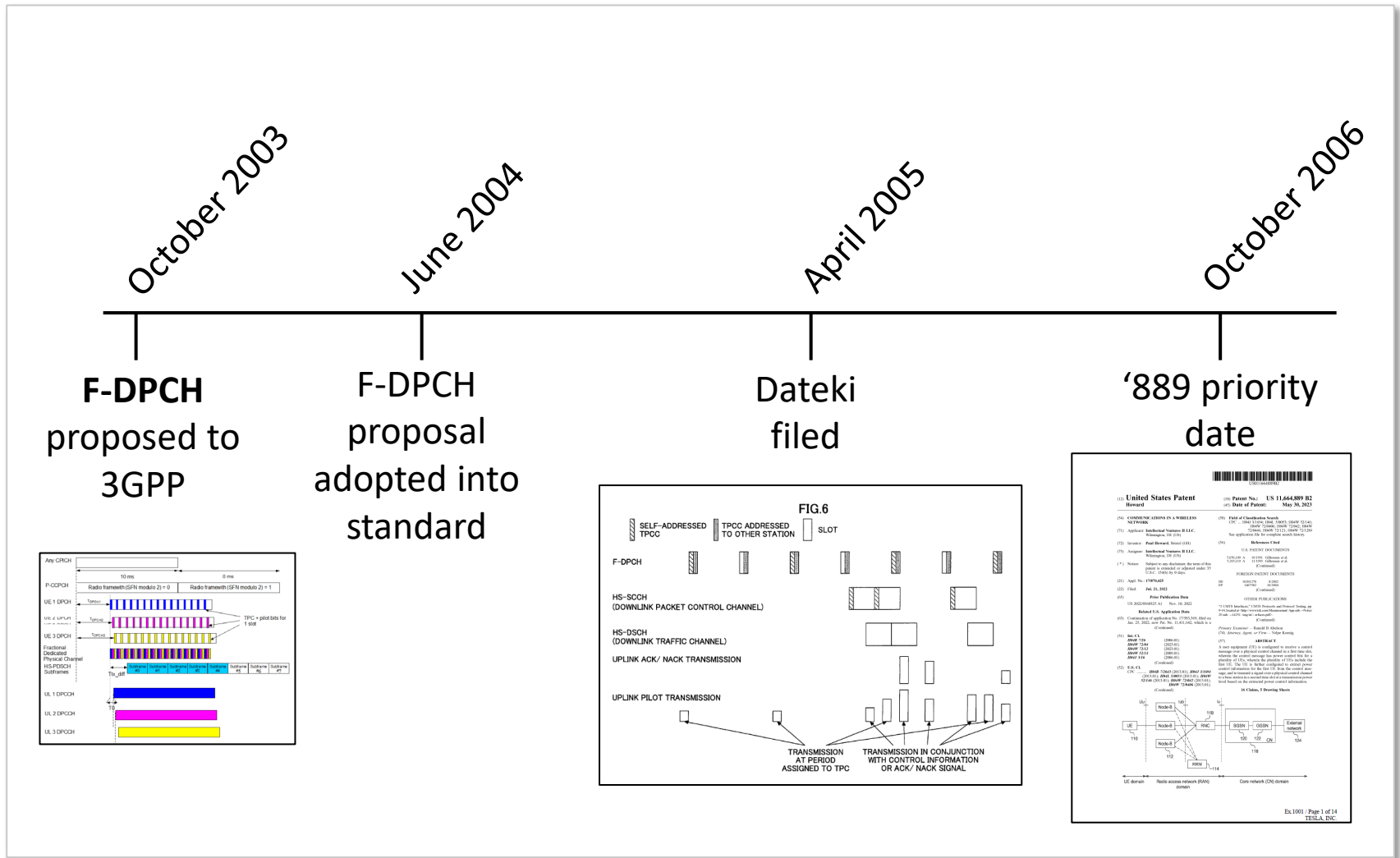
Ex.1001 / Page 1 of 14
TESLA, INC.

Control channels, power control information, and time slots



Ex. 1001, FIG. 2; Petition, 16.

Multiple-UE TPC was standardized well before '889 priority date



Petition, 13-14, 18, 20.

The disputed claim limitation

1. A first user equipment (UE) comprising:
a transmitter;
a receiver; and
a processor, operatively coupled to the transmitter and the receiver,
wherein:
the receiver and the processor are configured to receive a control message over a physical control channel in a first time slot, wherein the first time slot also includes a downlink shared channel, wherein the control message has power control bits for a plurality of UEs, wherein the plurality of UEs include the first UE,
the processor is further configured to extract power control information for the first UE from the control message, and
the transmitter and the processor are configured to transmit a signal over a physical control channel to a base station in a second time slot at a transmission power level based on the extracted power control information.

Overview

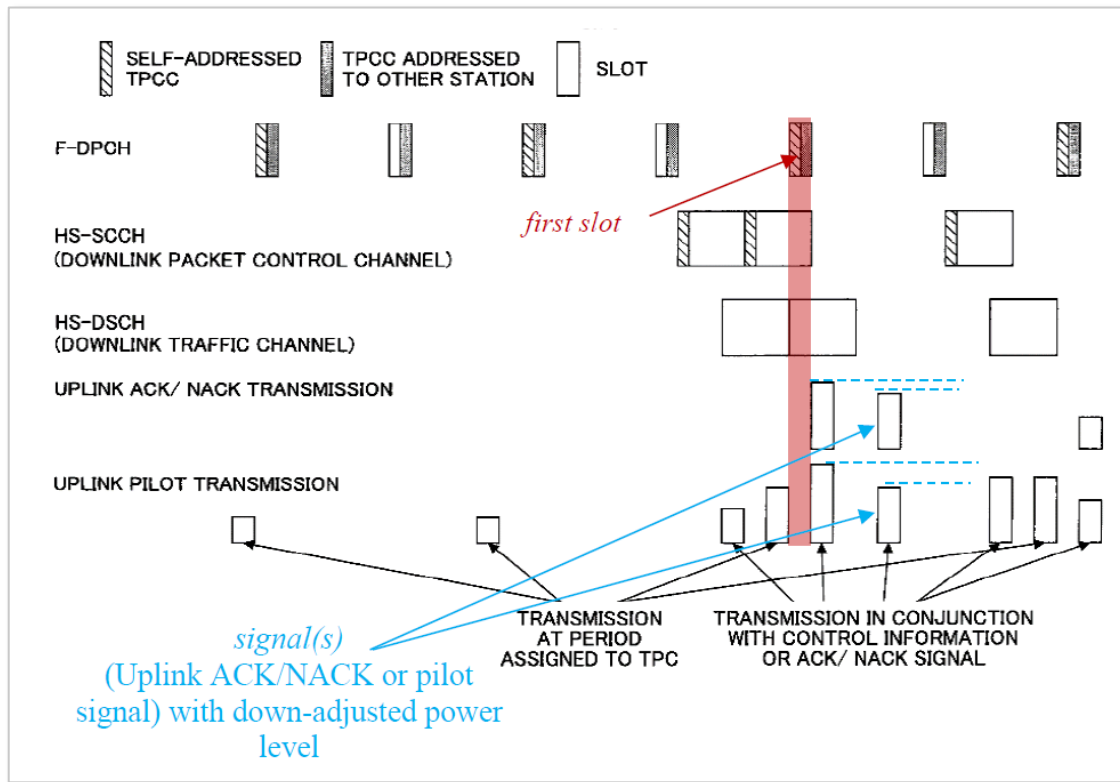
- **Ground 1:**
 - Dateki's Fig. 6 renders obvious the sole disputed claim limitation
 - Dateki's UE does not ignore TPCC sent on F-DPCH
- **Ground 2** (claims 3 and 7)
- **Ground 3** (claims 4 and 8)
 - Claim construction
 - Chitrapu's disclosure

Dateki's Fig. 6 renders obvious the sole disputed
limitation

Dateki renders obvious the sole disputed claim limitation

Claim 1

the transmitter and the processor are configured to transmit a signal over a physical control channel to a base station in a second time slot at a transmission power level based on the extracted power control information.



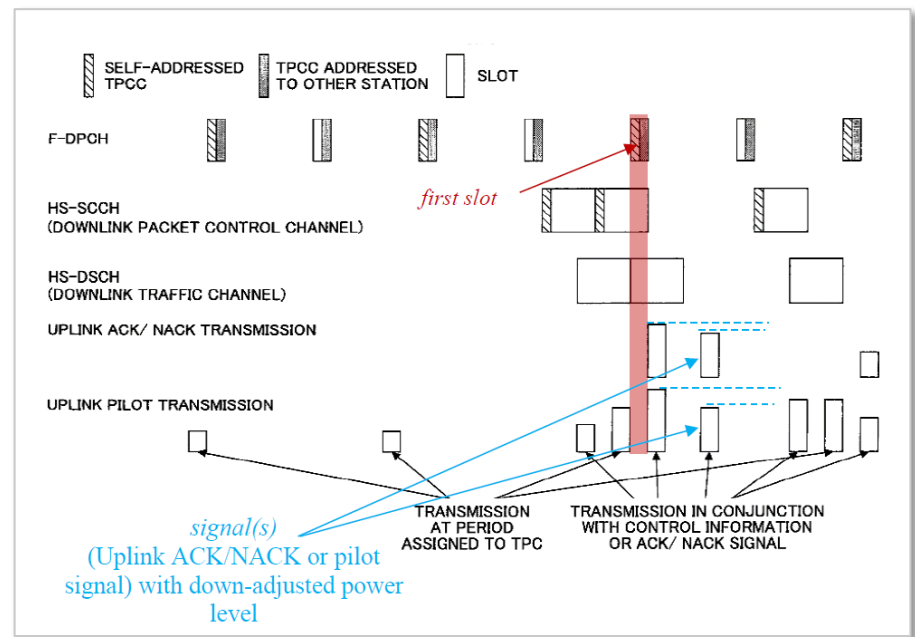
Ex. 1005, FIG. 6; Petition, 41; Reply, 6, 10-11.

Dateki's uplink pilot and ACK/NACK signals are transmitted “*at a power level based on*” power control information sent on F-DPCH (“TPCC1”)

The TPC bit (transmission power control information) is transmitted via the F-DPCH and HS-SCCH.

The F-DPCH corresponds to a channel that is capable of transmitting a slot including plural TPC bits addressed to differing mobile stations. In the illustrated example, TPC bits

Ex. 1005, 12:11-15; Reply, 8, 10-11.

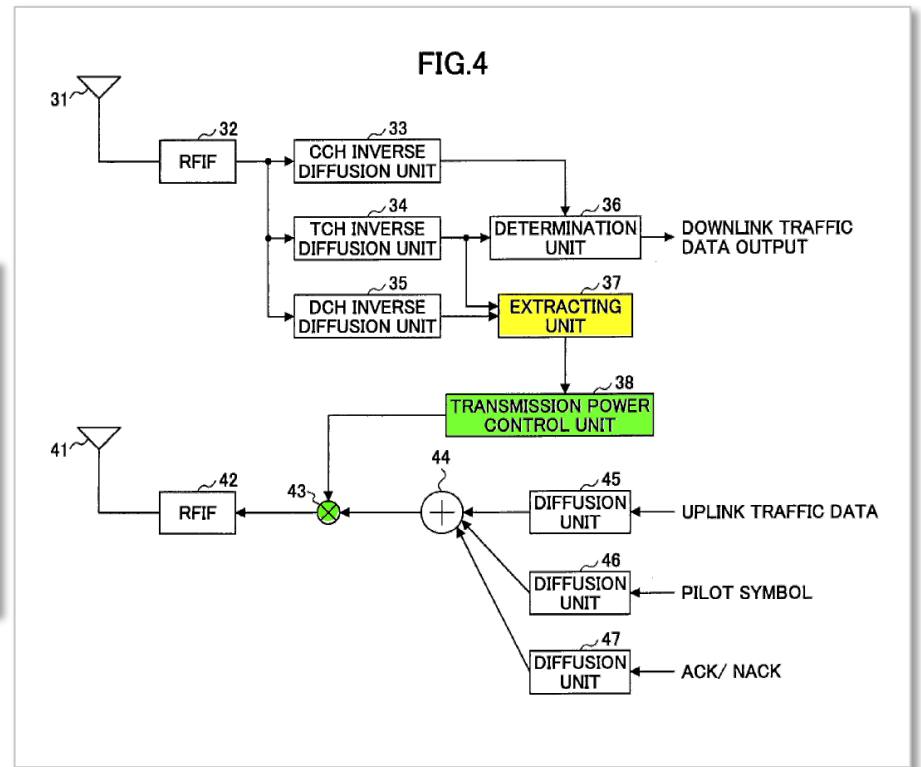


Ex. 1005, FIG. 6; Reply, 10.

Dateki's UE extracts all TPCCs and uses them for power control

nation unit outputs downlink traffic data. Also, inverse diffusion outputs including transmission power control information that are obtained by inverse diffusion processes conducted by the TCH inverse diffusion unit 34 and the DCH inverse diffusion unit 35, respectively, are input to the TPCC extracting unit 37 at which the transmission power control information is extracted. The extracted transmission power control information is then input to the transmission power control unit 38.

Ex. 1005, 10:51-59; Petition, 38-39; Paper 8, 22-23.

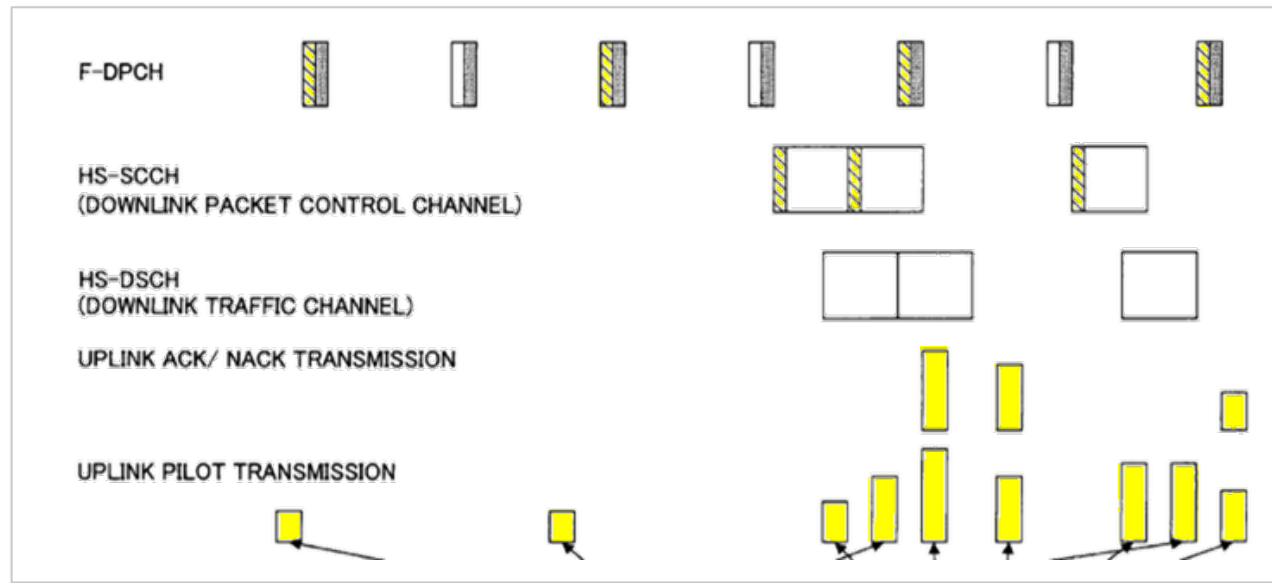


Ex. 1005, FIG. 4; Petition, 27-28, 34; Paper 8, 22-23.

The UE's power control level is based on the cumulative effect of several TPC commands

transmitted via the antenna 41. According to an embodiment, the transmission power control unit 38 is configured to increment the transmission power P_{tx} by +1 dB when the transmission power control information TPCC extracted by the TPCC extracting unit 37 is greater than 0 ($TPCC > 0$), and the transmission power control unit 38 is configured to decrement the transmission power P_{tx} by -1 dB when the transmission power control information is TPCC is less than 0 ($TPCC < 0$).

Ex. 1005, 11:4-11; Petition, 13; Reply, 9.



Ex. 1005, FIG. 6, Reply, 9.

Dateki's UE does not ignore TPCC1 sent on F-DPCH

Dateki's TPCC sent on HS-SCCH ("TPCC2") is supplemental to TPCC1

According to an aspect of the present invention, transmission power control information is transmitted at prescribed periodic intervals via a channel for transmitting information including the transmission power control information, and when packet transmission is conducted, transmission power control information is also transmitted via a control channel.

Ex. 1005, 6:61-66; Reply, 10-11.

According to the present embodiment, the wireless communication apparatus as is shown in FIG. 3 that may correspond to a base station receives a pilot signal, conducts SIR estimation on the pilot signal at the SIR estimating unit 25, generates transmission power control information TPCC at the TPCC generating unit 26, and transmits the transmission power control information TPCC via the F-DPCH as first transmission power control information TPCC at relatively long periodic intervals (transmission period of the present mobile station). Also, in a case where packet transmission is conducted, the transmission power control information is transmitted via the HS-SCCH as second transmission power control information TPCC at a shorter periodic cycle. In this

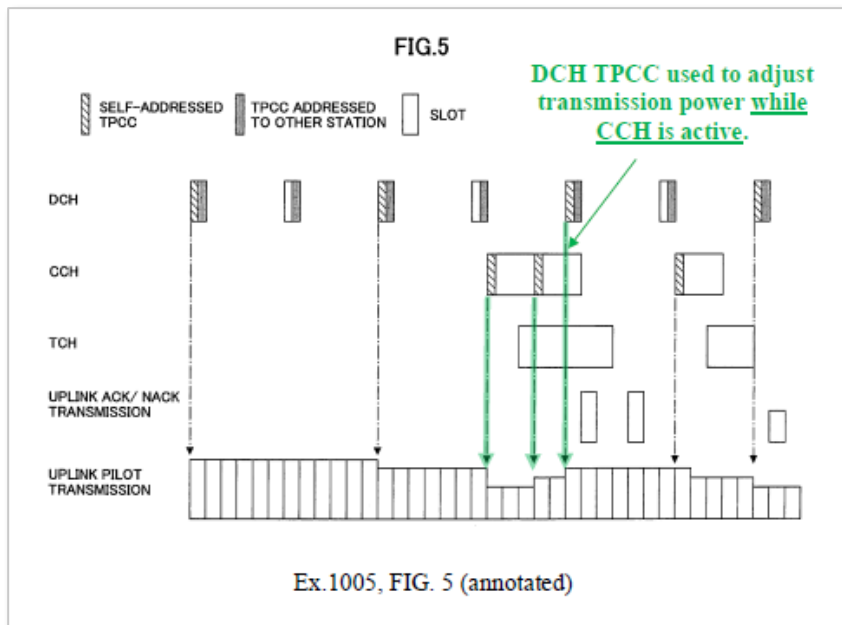
Ex. 1005, 12:66-13:11; Reply, 8, 11 and 38-39.

TPCC1 and TPCC2 are needed for high-pace control

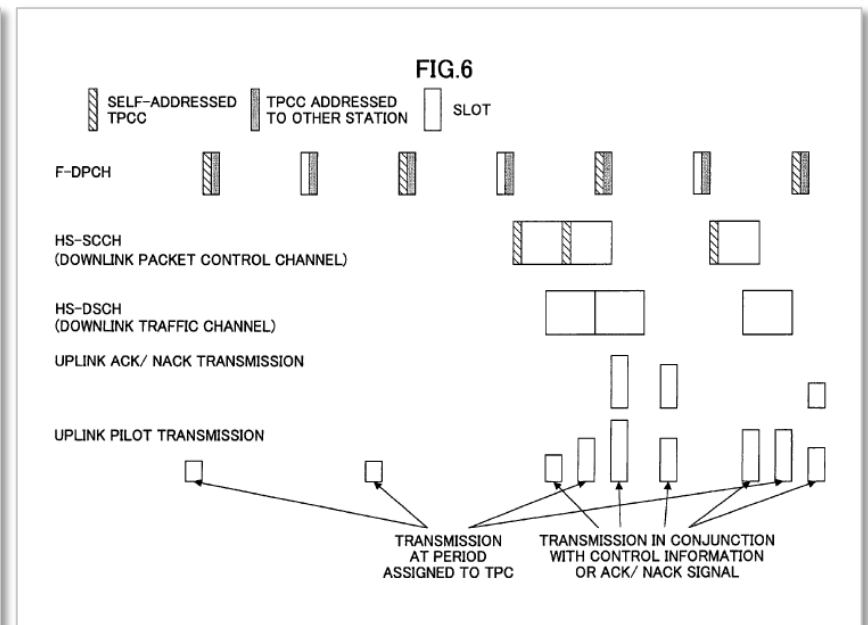
control may be conducted at a faster pace. Thus, when packet transmission is not conducted, unnecessary transmission power control processes are omitted so that the power consumption rate may be reduced. On the other hand, when packet transmission is conducted, the first transmission power control information and the second transmission power control information are transmitted so that high-pace transmission power control may be conducted with regard to state changes such as fading occurring in the wireless propagation path.

Ex. 1005, 11:56-65; Reply, 3, 8, 11.

Dateki's TPCCs adjust uplink power regardless of the receive channel



Ex. 1005, FIG. 5; Reply, 14; Petition, 41.



Ex. 1005, FIG. 6; Reply, 12-14.

The base station—not the UE—controls application of TPC

stations may be transmitted via this channel. According to the present embodiment, the HS-PDSCH is arranged to prioritize data transmission to a mobile station at which the elapsed time from a transmission timing of the first transmission power control information TPCC1 is not so long. According to such an arrangement, transmission power control may be effectively realized without including transmission power control information in the HS-SCCH. In one embodiment, the transmission power control information may be omitted for a first HS-SCCH (e.g. a HS-SCCH of which transmission timing interval with respect to a previous HS-SCCH is longer than the transmission period of the first transmission power control information TPCC1), and the transmission power control information may be included in a next HS-SCCH of which the transmission timing interval with respect to a previous HS-SCCH is shorter than the transmission period of the first transmission power control information TPCC1.

Ex.1005, 14:28-44; Reply, 12.

IV mischaracterizes Dateki's description of TPCC1 and TPCC2

The Reply fails to engage with Dateki's disclosure of Figure 6 which explicitly states that the "second from left TPC in the HS-SCCH" – rather than the power control message identified by the Petitioner on the F-DPCH in the "first slot" – provides for "accurate transmission power control of the first ACK signal" as well as the pilot signal transmitted at the same time. See, POR, 51-56. This disclosure

Sur-reply, 3.

It is noted that in the illustrated example of FIG. 6, the leftmost TPC bit in the HS-SCCH is generated based on the most recently received pilot signal before this TPC bit (i.e., the second pilot signal from the left in FIG. 6). When a mobile station receives the third (from the left) pilot signal, the mobile station may generate the second (from the left) TPC bit in the HS-SCCH based on the third pilot signal, and thereby, accurate transmission power control may be conducted upon transmitting the first ACK signal.

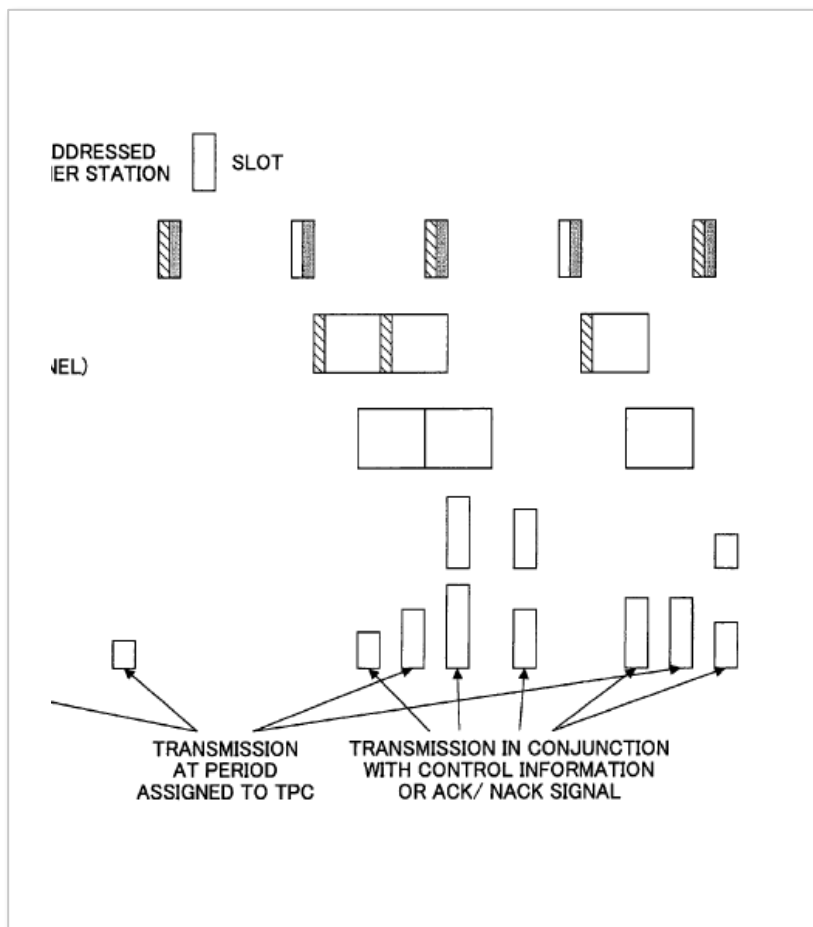
Ex.1005, 13:63-14:4; Sur-reply, 3; Reply, 6-8.

It is noted that the reception of the HS-PDSCH and the transmission of the ACK/NACK signal are conducted in conjunction with the reception of the HS-SCCH, and thereby, in either case, the known signal is transmitted in conjunction with the reception of the HS-SCCH.

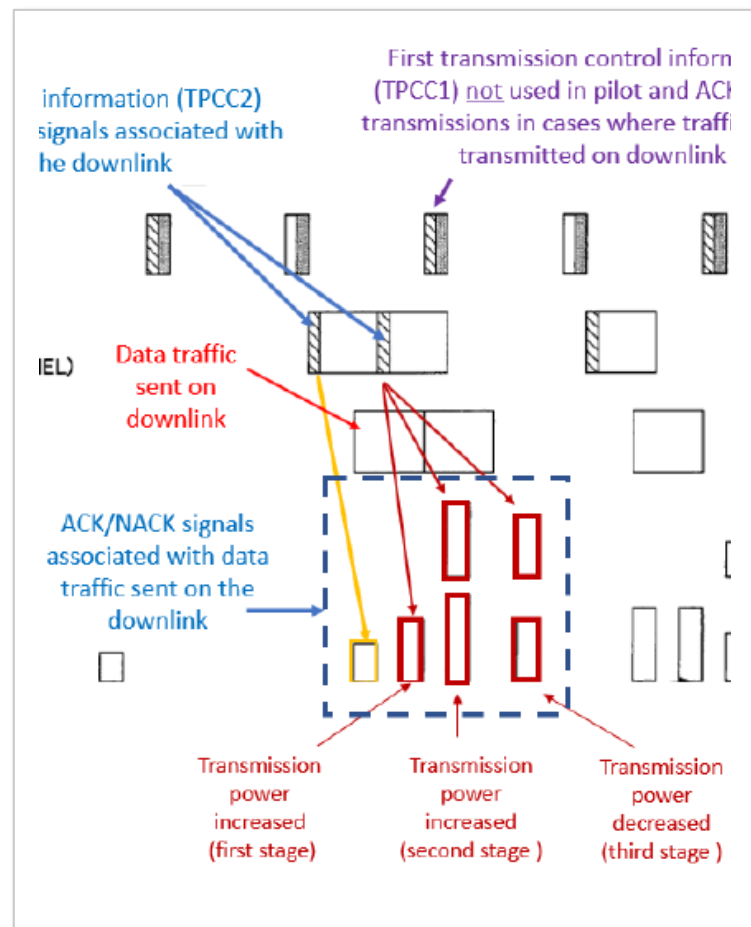
Ex.1005, 12:61-65; Sur-reply, 4; Reply, 6-8.

IV's "multiple stages" theory attempts to compensate for ignored TPCC1

IV's erroneous argument: three sequential power adjustments from single TPCC



Ex.1005, Fig. 6 (partial); Reply, 15-16.



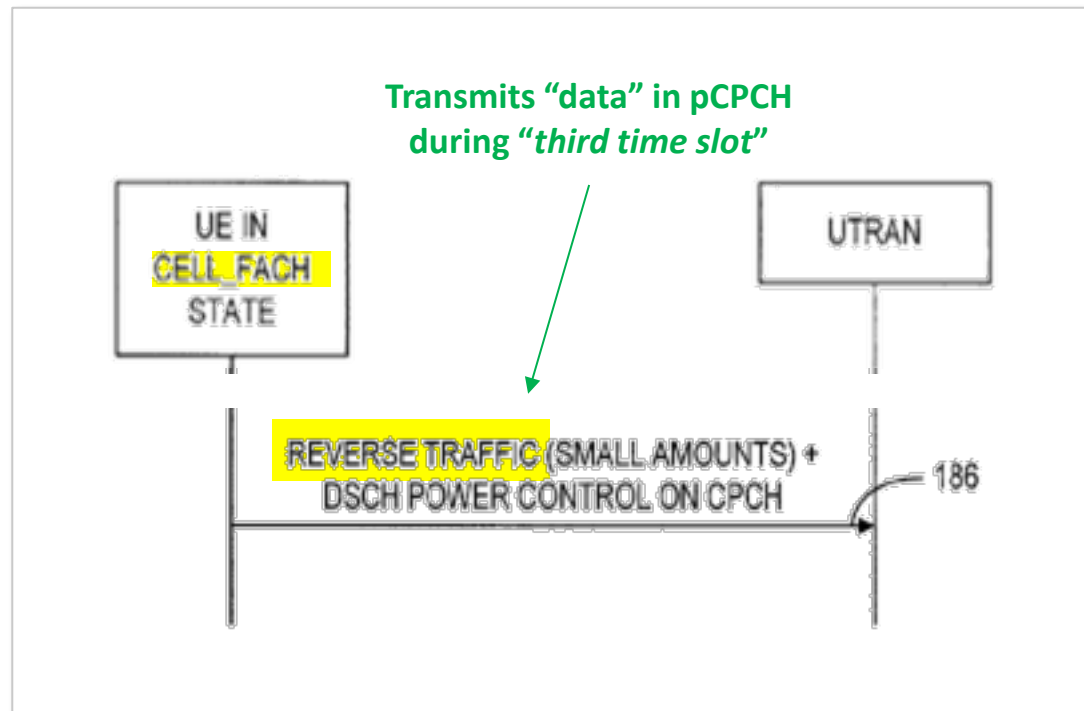
Ex.1005, Fig. 6 (partial); POR, 45; Reply, 7-8, 16.

(Ground 2) A POSITA would have been motivated to
combine Mate with Dateki

Dateki + Mate disclose all features of claims 3 and 7

Claim 3

3. The first UE of claim 1 wherein the transmitter and the processor are further configured to transmit data over a physical shared channel in a third time slot and the transmitter and the processor are further configured to not transmit the signal over the physical control channel at a same time that data over a physical shared channel is transmitted.

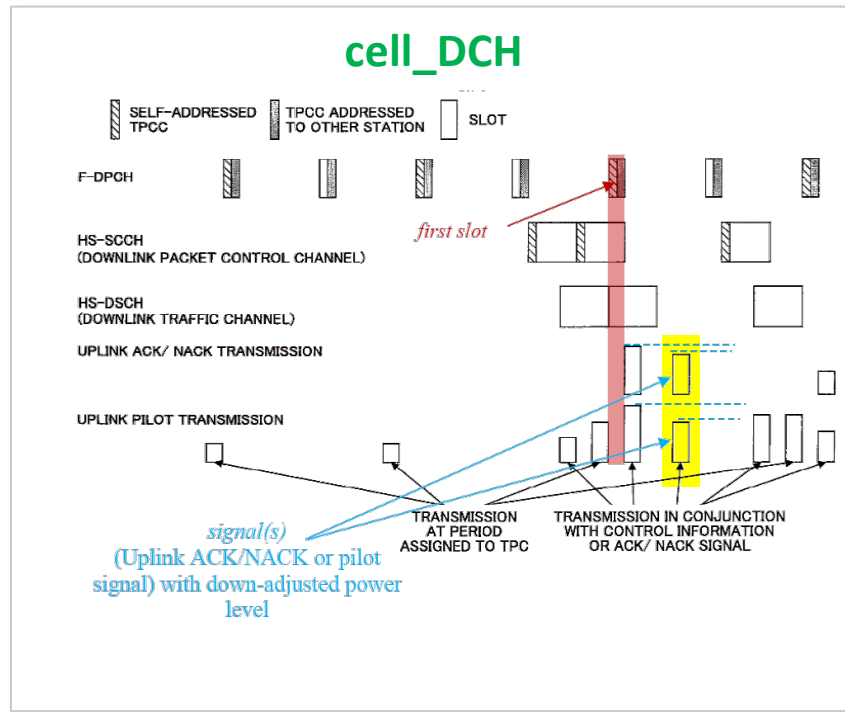


Ex.1009, Fig. 5 (partial); Petition, 53-55.

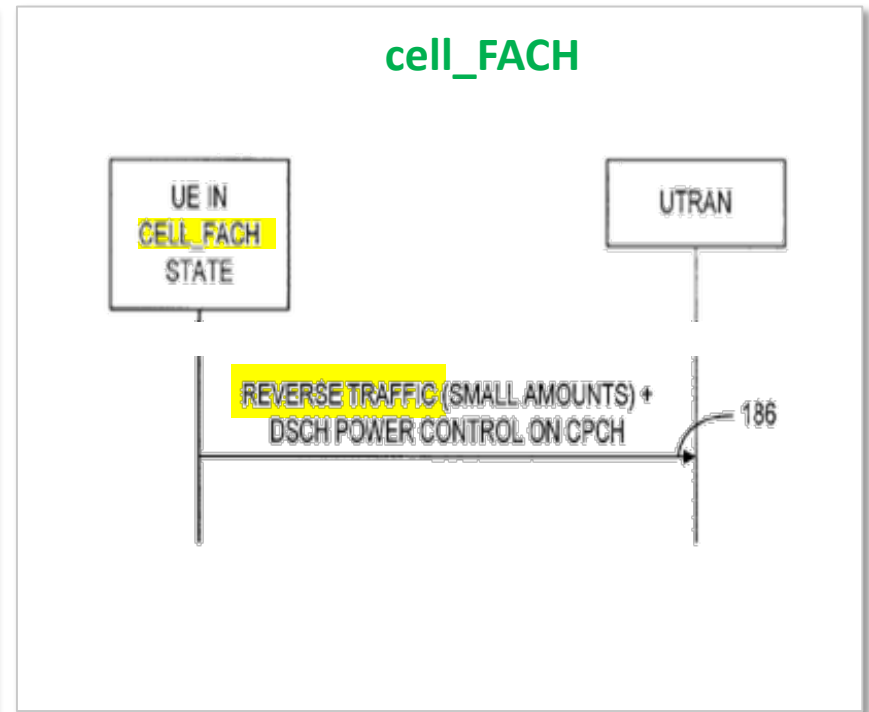
Dateki + Mate disclose all features of claims 3 and 7

Claim 3

3. The first UE of claim 1 wherein the transmitter and the processor are further configured to transmit data over a physical shared channel in a third time slot and the transmitter and the processor are further configured to not transmit the signal over the physical control channel at a same time that data over a physical shared channel is transmitted.



Ex.1005, Fig. 6; Petition, 54-55; Reply, 23.

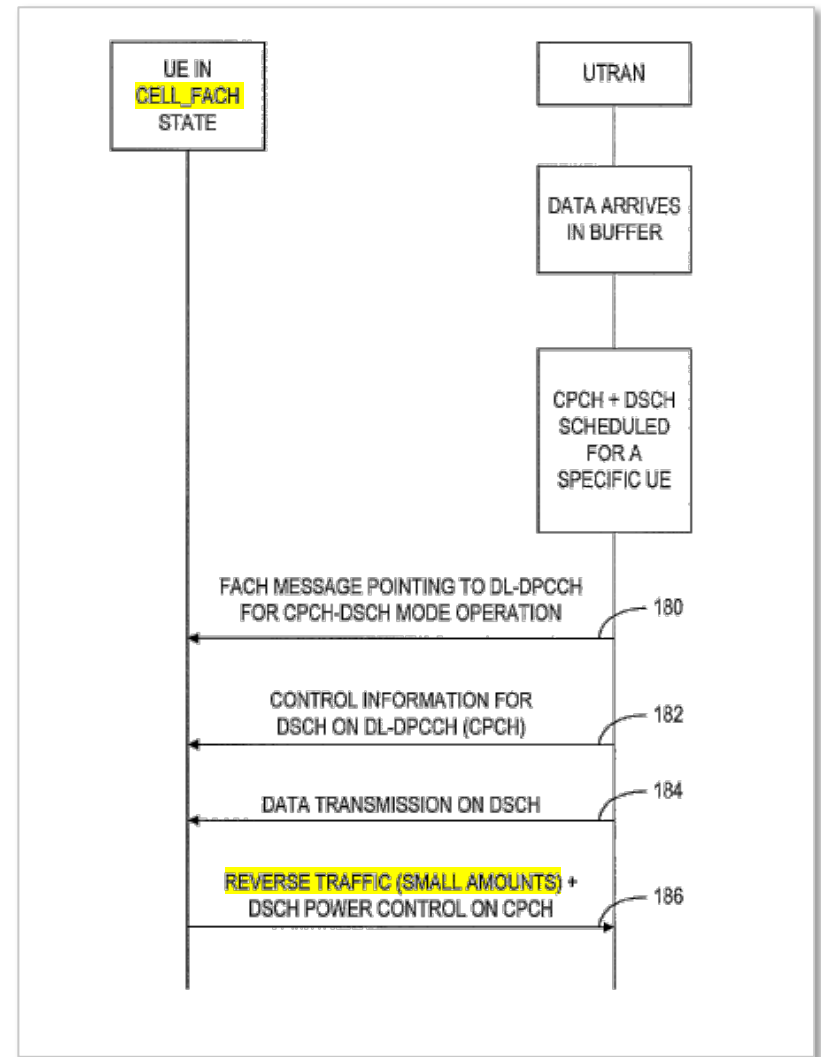


Ex.1009, Fig. 5 (partial); Petition, 54-55; Reply, 23.

Mate's pCPCH only allows data transmissions in cell_FACH state

it allocates the next period for another UE. In the cell_FACH state, the UE decodes the FACH message and, therefore, the setup delays associated with aDCH in the prior art method are eliminated. Preferably, the DSCH allocation message on the FACH transport channel is scheduled such that it is transmitted and acknowledged before the allocation starts on the DSCH. The connection procedure for downlink packet switching between the UE and UTRAN, according to the present invention, is shown in FIG. 5. As shown in FIG. 5, the UE maintains the cell_FACH state in the messaging period, without the need of switching to the cell_DCH state.

Ex, 1009, [0044]; Petition, 48, 50.



Ex, 1009, Fig. 5; Petition, 48, 50.

IV's argument is based on a false premise

Based on Mate's disclosure, a POSITA would have understood that Mate's pCPCH was limited to carrying *small* amounts of *control* information such as acknowledgements and commands. EX1009, [0043]. Based on that disclosure in Mate, a POSITA would have understood that Mate's pCPCH was not suitable for implementing a *data traffic* channel for carrying data traffic (or *user data*) at the *data rates (2-9 kbits/s) specified in the standard*. EX2017, ¶123.

POR, 61.

3. The first UE of claim 1 wherein the transmitter and the processor are further configured to transmit data over a physical shared channel in a third time slot and the transmitter and the processor are further configured to not transmit the signal over the physical control channel at a same time that data over a physical shared channel is transmitted.

Ex.1001, claim 3; Reply, 21-22.

Ground 3

“...to transmit the signal over the physical control channel when time synchronized and to transmit a signal over a random access channel when not time synchronized”

Chitrapu renders claims 4 and 8 obvious

4. The first UE of claim 1 wherein the transmitter and the processor are further configured to transmit the signal over the physical control channel when time synchronized and to transmit a signal over a random access channel when not time synchronized.

Ex.1001, claim 4.

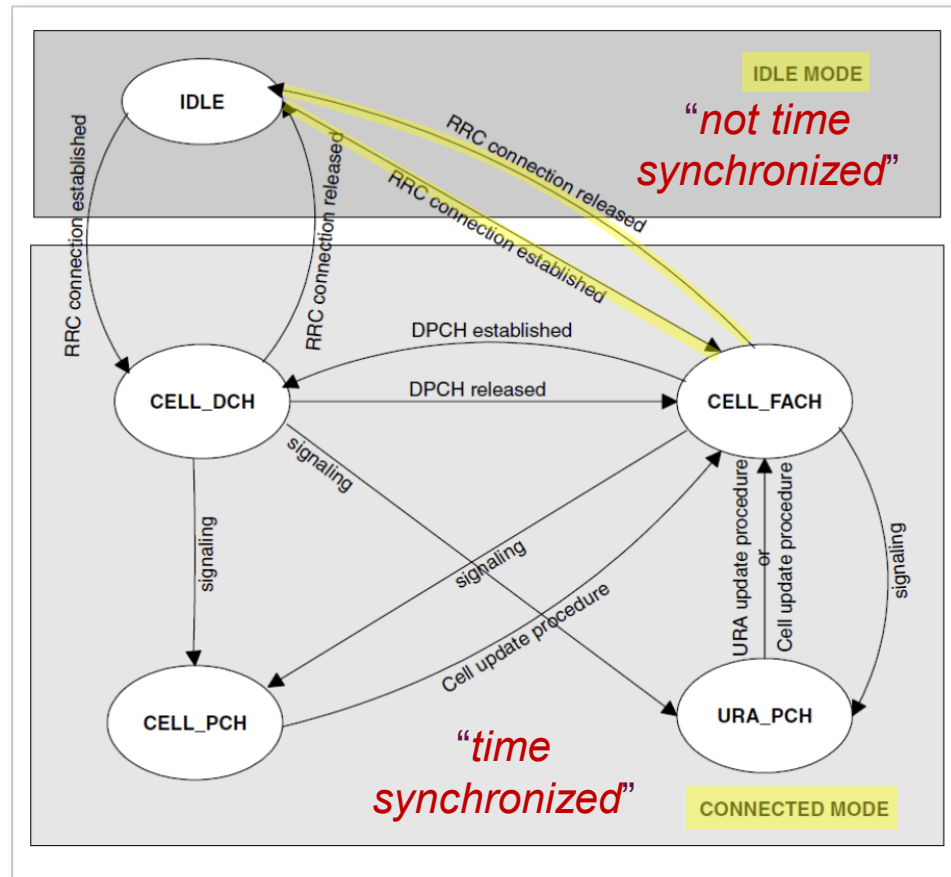
Signal	Channel	Time Synchronization
<i>"the signal"</i> (ACK/NACK signal or uplink pilot signal)	<i>"physical control channel"</i> (HS-DPCCH or DPCH)	<i>"when time- synchronized"</i>
<i>"a signal"</i>	<i>"random access channel"</i>	<i>"when not time- synchronized"</i>

Connected mode
(cell_DCH)

Idle
mode

Petition, 68-69; Reply, 24.

Claim 4 recites standard cell phone operation



Ex.1008, Fig. 5.1; Petition, 57; Reply, 24.

Ground 3

Claim construction

The language of claims 4 and 8 is clear and needs no construction

4. The first UE of claim 1 wherein the transmitter and the processor are further configured to transmit the signal over the physical control channel **when time synchronized** and to transmit a signal over a random access channel **when not time synchronized**.

Ex.1001, claim 4; Reply, 3-5.

IV's construction adds a “binary choice” and negative limitation

Dependent claim 4 requires that the first UE be configured to make a binary choice depending on whether or not the “time synchronized” condition is met. When

POR, 26; Reply, 4.

Put another way, the claim language would not be met by a UE that continued transmitting “the signal over the physical control channel” when there was “not time synchronization.” See, e.g., EX1001, 7:38-45 (“it is necessary for these UEs to

POR, 26; Reply, 4.

IV's sole quote from the '889 patent does not support its construction

Note that UEs in CELL_ACTIVE state have their transmitters active, therefore it is necessary for these UEs to monitor the status of the downlink and automatically come out of CELL_ACTIVE state if the downlink is deemed to be out-of-synchronization (for example, very high downlink errors or low received signal strength). This feature prevents UEs continuing to transmit in a state where the feedback channel may be unreliable and thus causing interference.

Ex.1001, 7:38-45; Reply, 4.

(Ground 1) Claim construction

“extract power control information...from the control message, and...transmit a signal...to a base station...at a transmission power level based on the extracted control information”

IV does not dispute that the TPCC1 message is a “control message” carrying “power control bits for a plurality of UEs”

(ii) the downlink data traffic channel (HS-DSCH), share a time slot, the first power control information (TPCC1) on the F-DPCH (mapped to “the control message”) is not used for the UE’s transmission power, as required by the Challenged Claims. EX2017, ¶105. Rather, such a control message on the F-DPCH channel and the

POR, 50; Reply, 2-3.

IV provides no intrinsic or extrinsic evidence for its construction

information.” Claim 5 recites similar limitations. This claim language requires that “*the* extracted power control information” upon which the UE bases its transmission of a signal be the *same* power control information extracted from *the control message* (singular) having *power control bits for a plurality of UEs*. Simply put, the claim language would *not* be met if “*the* extracted power control information” used for transmitting the signal came from a control message that had power control bits for *only a single UE*. EX2017, ¶69.

POR, 25-26.

Appendix

Ground 1

Additional information

Feature that led to allowance: “*control message*” + “*downlink shared channel*” in same time slot

4. Claims 2, 4, 5, 7, 9, 10, 12, 14, 15, 17, 19, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Ex.1002, 60; Petition, 17.

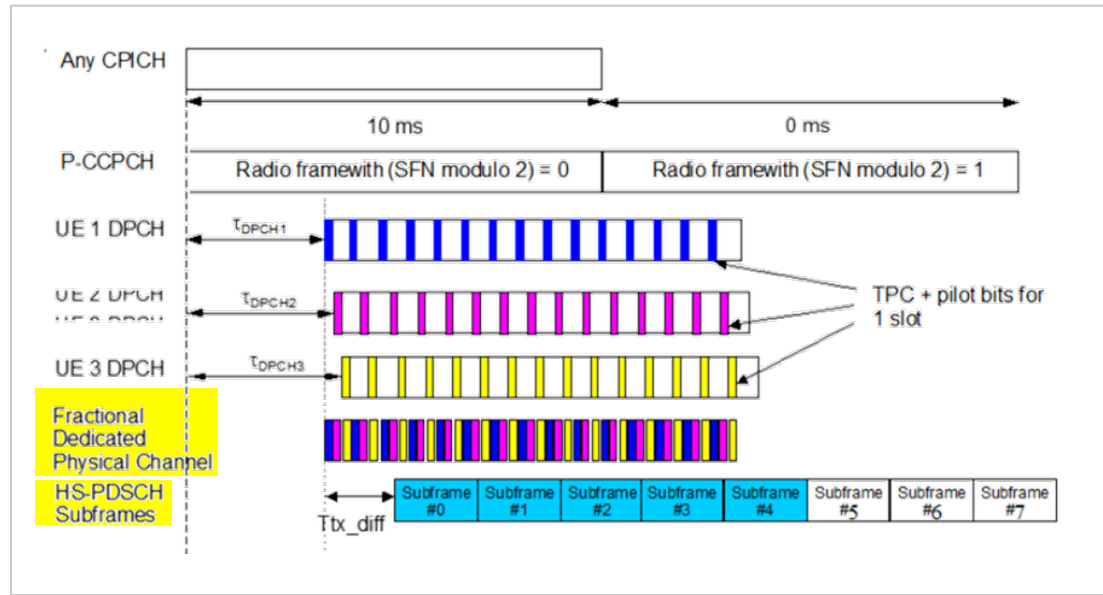
the receiver and the processor are configured to receive a control message over a physical control channel in a first time slot, wherein the control message has power control bits for a plurality of UEs, wherein the plurality of UEs include the first UE,

Ex. 1002, 28; Petition, 17-18.

2. The first UE of claim 1 wherein the first time slot also includes a downlink shared channel.

Ex. 1002, 28; Petition, 17-18.

3GPP-standardized F-DPCH discloses claim feature that led to 889 patent's allowance



Ex. 1023, 48; Petition, 13-14.

8.2 FDD Downlink

The table describes the possible combinations of FDD physical channels that can be supported in the downlink on the same frequency by one UE simultaneously.

20	F-DPCH + one or more HS-SCCH + zero, one or more HS-PDSCH	One HS-DSCH coded into a single CCTrCH	Depending on UE radio access capabilities	The maximum channel bit rate are dependent on UE radio access capabilities. NOTE 2
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Ex. 1007, 35, 37; Petition, 24; Ex.1003, ¶63.

Dateki does not disclose that the UE ignores TPCC1

Q. Does Dateki explicitly say that TPCC1 is not used or ignored by the UE?

A. He doesn't say that it is ignored, but it's implied by the rest of his discussion about the -- first of all, the timing of TPCC1 and -- which results in this communication burst occurring between TPCC1 transmissions by the base station as one -- as one point. And also he goes

Ex. 1069, 50:9-16; Reply, 9.

Q. Is it possible that it uses both?

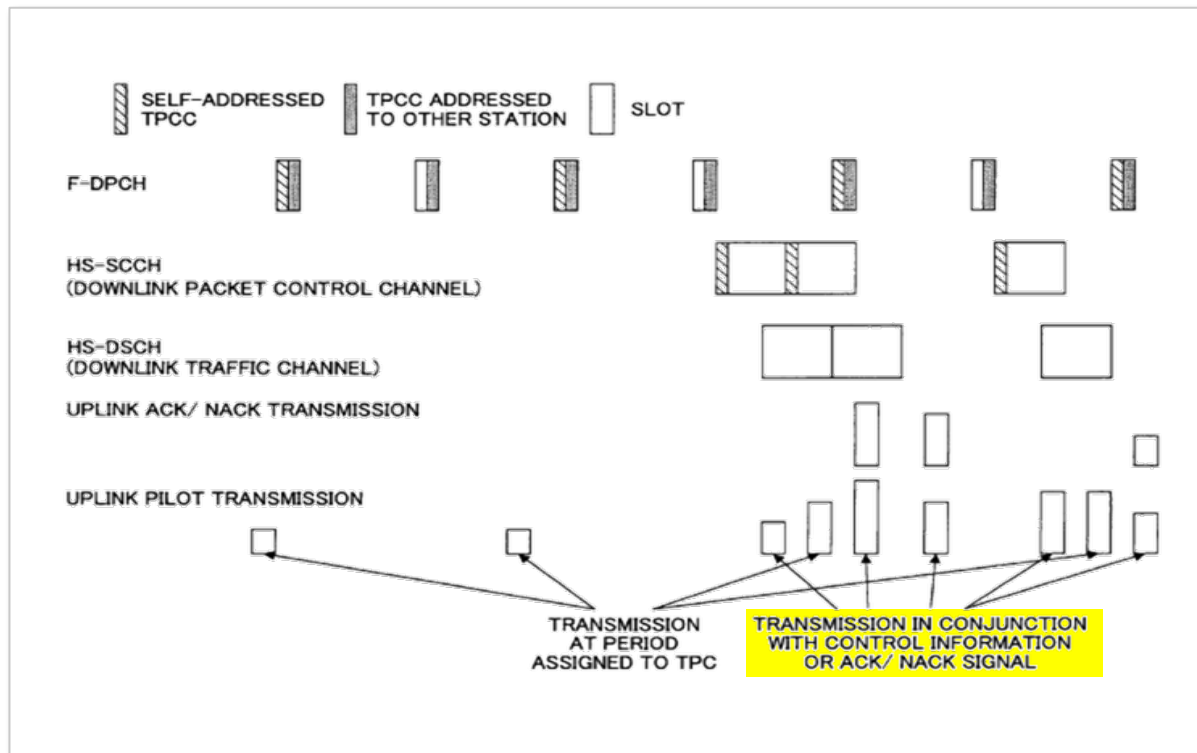
THE WITNESS: So it's physically and theoretically possible to use both, but it wouldn't make sense to use both, because it would be a waste of power and resources to send redundant signals where one is notably less reliable than the other. Why not just use the more reliable one?

Ex. 1069, 51:1-16; Reply, 9, 11, 14.

Dateki's UE transmits additional pilot signals “in conjunction with” HS-SCCH reception

It is noted that the reception of the HS-PDSCH and the transmission of the ACK/NACK signal are conducted in conjunction with the reception of the HS-SCCH, and thereby, in either case, the known signal is transmitted in conjunction with the reception of the HS-SCCH.

Ex.1005, 13:63-14:4 (characterized by IV in Sur-reply, 4).



Ex.1005, Fig. 6; Reply,9-11.

Dr. Lomp's assumptions are inconsistent with Dateki

Q. Is it possible that it uses both?

THE WITNESS: So it's physically and theoretically possible to use both, but it wouldn't make sense to use both, because it would be a waste of power and resources to send redundant signals where one is notably less reliable than the other. Why not just use the more reliable one?

Ex. 1069, 51:1-16; Reply, 9, 11, 14.

control may be conducted at a faster pace. Thus, when packet transmission is not conducted, unnecessary transmission power control processes are omitted so that the power consumption rate may be reduced. On the other hand, when packet transmission is conducted, the first transmission power control information and the second transmission power control information are transmitted so that high-pace transmission power control may be conducted with regard to state changes such as fading occurring in the wireless propagation path.

Ex. 1005, 11:56-55; Reply, 3, 8, 11.

Dateki mentions “multiple stages” as an optional feature without reference to the Fig. 6 embodiment

below, the TPCC may also be arranged to conduct transmission power control in plural stages.

Ex.1005, 9:35-42; Sur-reply, 16-17.

In this way, the transmission power control unit 38 is arranged to input a value to the multiplying unit 43 according to the updated transmission power P_{tx} . It is noted that the transmission power control information TPCC may be arranged to use plural bits so that transmission power control may be conducted in plural stages (i.e., so that transmission power may be increased or decreased in plural stages).

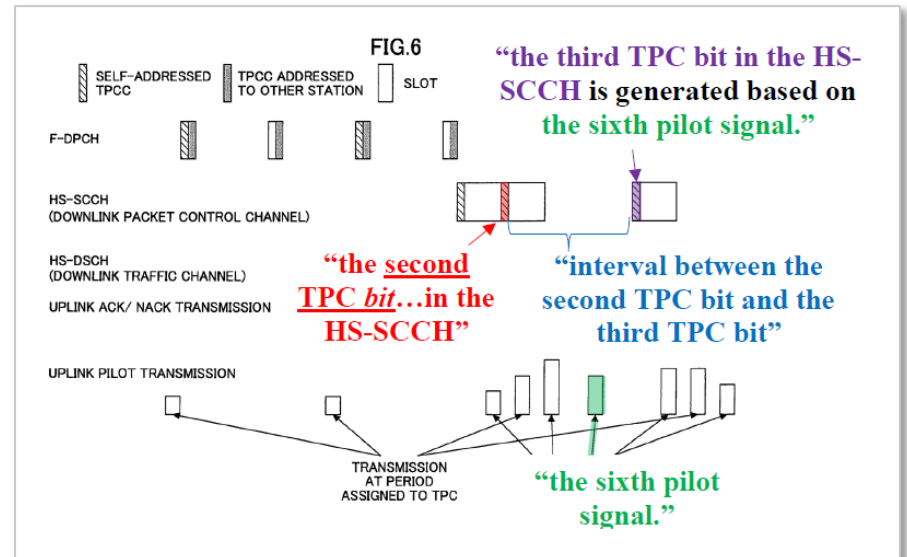
Ex.1005, 11:12-18; Reply, 16.

Dateki refers to each HS-SCCH TPCC2 in Fig. 6 as a “bit” (singular)

It is noted that in the illustrated example of FIG. 6, the leftmost TPC bit in the HS-SCCH is generated based on the most recently received pilot signal before this TPC bit (i.e., the second pilot signal from the left in FIG. 6). When a mobile station receives the third (from the left) pilot signal, the mobile station may generate the second (from the left) TPC bit in the HS-SCCH based on the third pilot signal, and thereby, accurate transmission power control may be conducted upon transmitting the first ACK signal.

Also, in the illustrated example of FIG. 6, there is an interval between the second TPC bit and the third TPC bit in the HS-SCCH; however, since a predetermined number of the pilot signals at predetermined lengths are arranged to be transmitted in conjunction with the HS-SCCH transmission in the present embodiment, the TPC bit may be generated based on a pilot signal being transmitted at a shorter period compared to the transmission period of the first transmission power control information (e.g., the third TPC bit in the HS-SCCH is generated based on the sixth pilot signal). It is

Ex.1005, 13:63-14:15; Reply, 17-18.

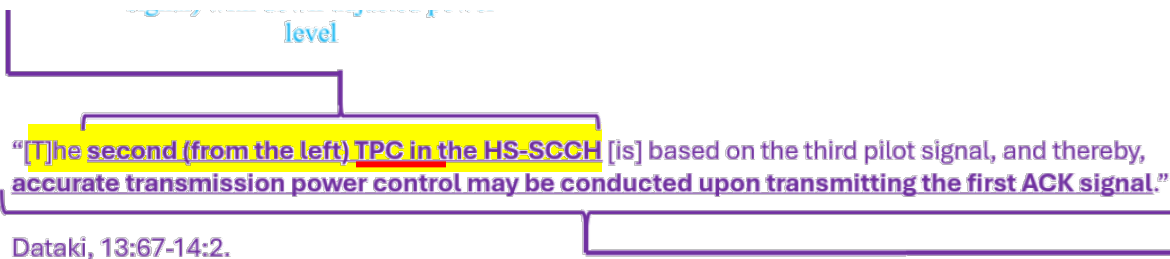


Ex.1005, FIG. 6; Reply, 18.

IV's Sur-reply removes "bit" from quotes of Dateki

The Reply fails to engage with Dateki's disclosure of Figure 6 which explicitly states that the "second from left TPC in the HS-SCCH" – rather than the

Sur-reply, 3.



level

"[T]he second (from the left) TPC in the HS-SCCH [is] based on the third pilot signal, and thereby, accurate transmission power control may be conducted upon transmitting the first ACK signal."

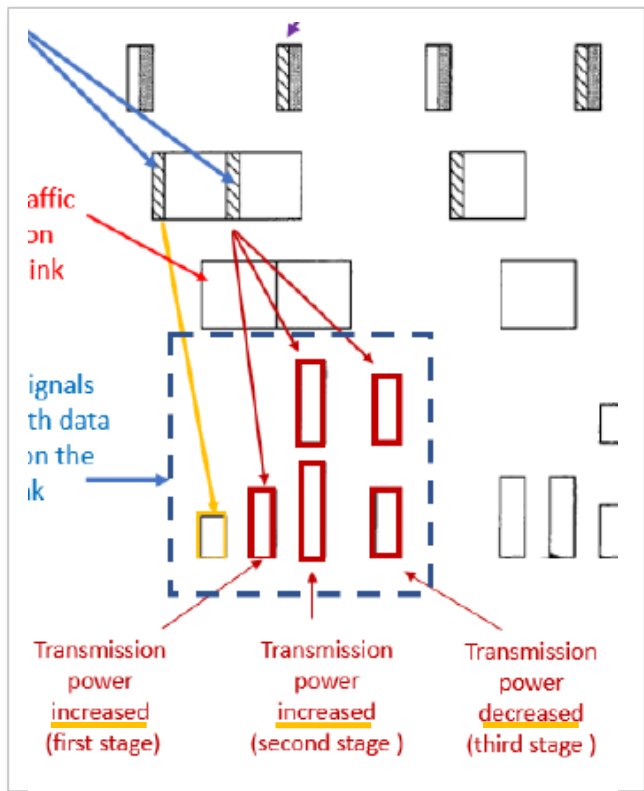
Dateki, 13:67-14:2.

Sur-reply, 3.

As previously explained in the POR (at 38-39, 45-48, 55-57) and illustrated in purple above, Dateki discloses that the "second from left TPC in the HS-SCCH" is what provides for "accurate transmission power control of the first ACK signal."

Sur-reply, 4.

IV's theory puts conflicting "increase" and "decrease" commands in a single TPCC message

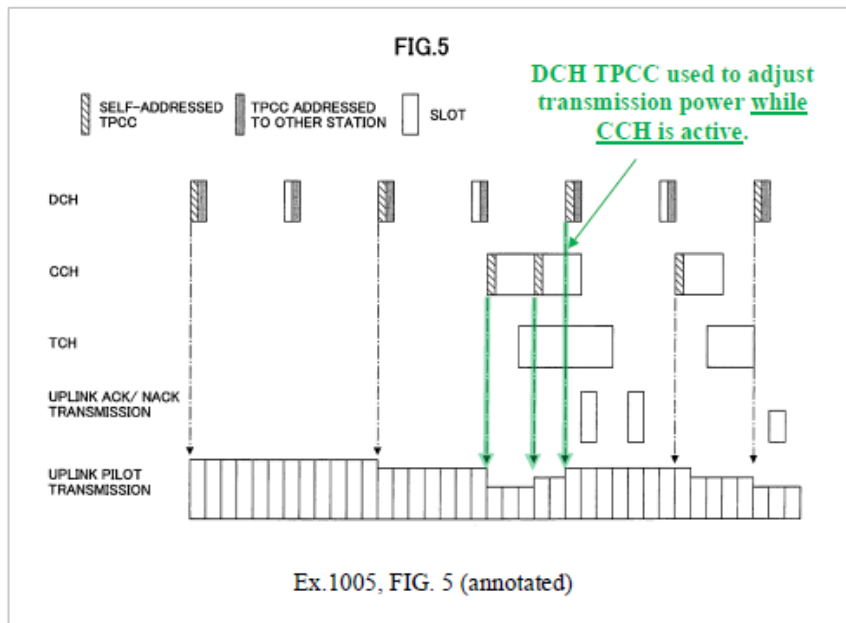


11:15-18. Using "plural bits" from one power control message to increase/decrease transmission power in "plural stages" means, for example, that power control bits from one power control message (e.g., a TPCC2 message sent on the HS-SCCH) are used by the mobile station to adjust the transmission power in stages over multiple subsequent transmissions. EX2017, ¶87.

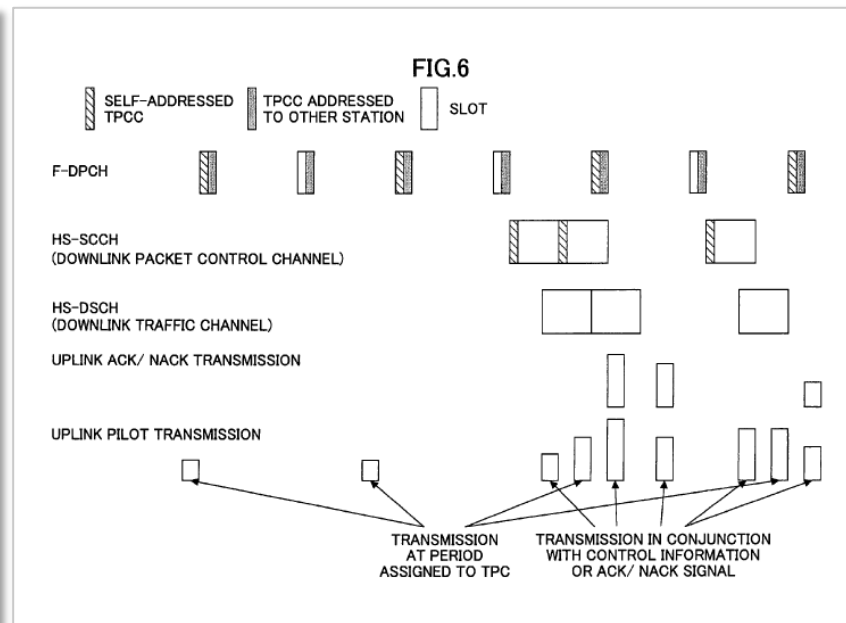
Sur-reply, 4.

Ex.1005, Fig. 6 (partial); POR, 45; Reply, 19.

Dateki's FIG. 5 informs FIG. 6



Ex. 1005, FIG. 5; Reply, 14; Petition, 41.

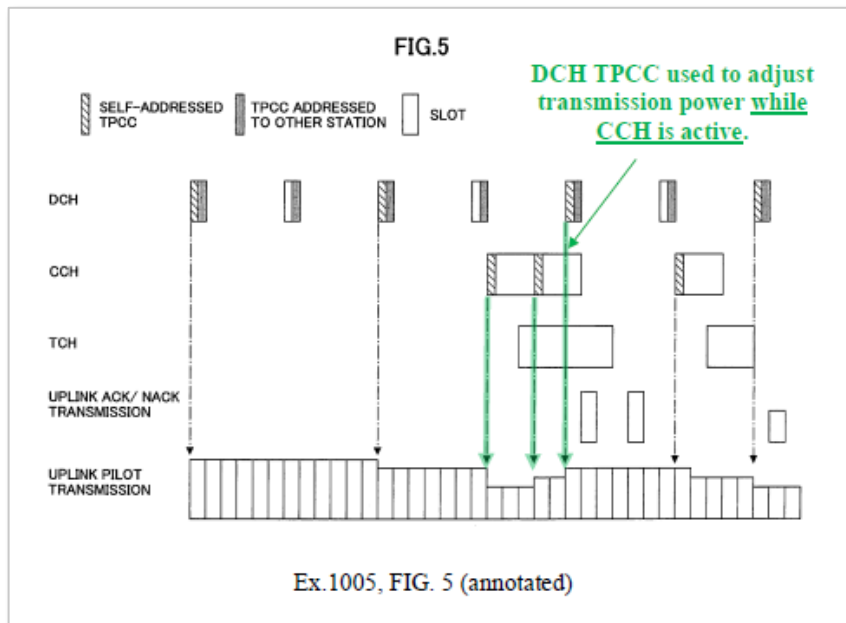


Ex. 1005, FIG. 6; Reply, 10, 12-13.

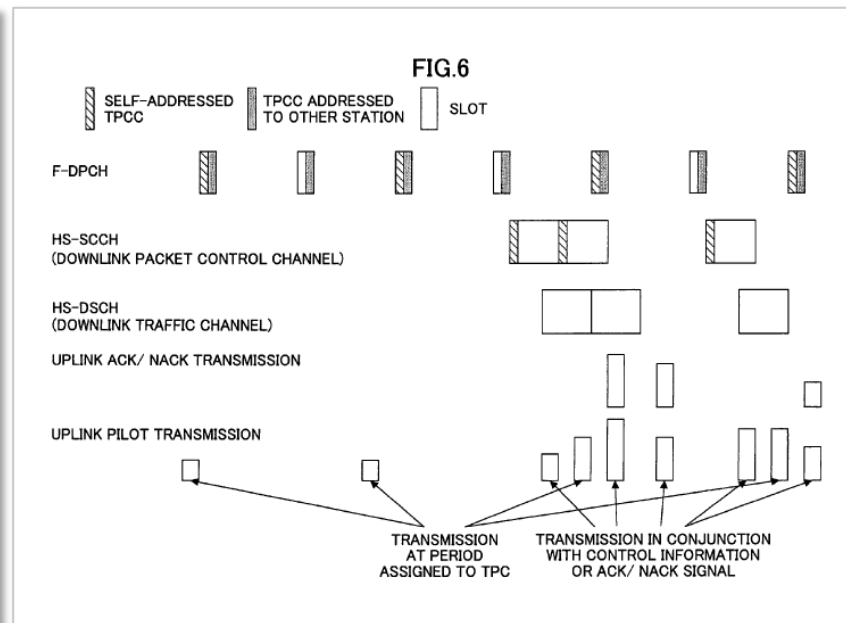
uplink ACK/NACK transmission. It is noted that in the present drawing, the transmission power levels are represented by the relative heights of the indicated signals. Given

Ex. 1005, 11:26-28; Reply, 12-13, Petition, 41.

Dateki's FIG. 5 informs FIG. 6



Ex. 1005, FIG. 5; Reply, 14; Petition, 41.



Ex. 1005, FIG. 6; Reply, 10, 12-13.

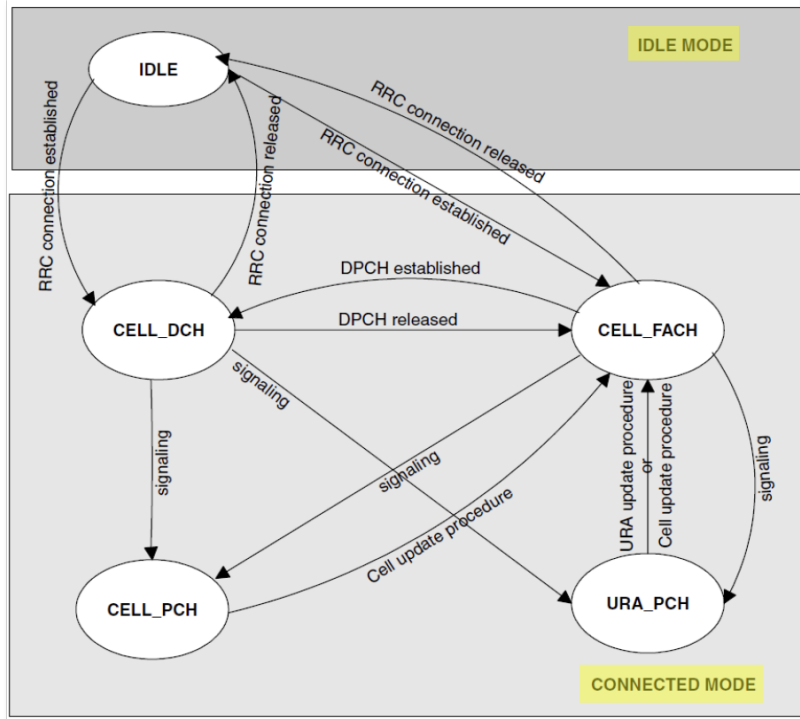
control information TPCC at a shorter periodic cycle. In this embodiment, transmission power control may be realized without having to transmit the pilot signal on a continual basis, and thereby, the power consumption rate for transmitting the pilot signal may be reduced. Also, in a case where

Ex. 1005, 13:11-15; Reply, 9, 11; Ex.1070, ¶¶ 25-26.

Ground 2

Additional information

Dateki's High-Speed channels and Mate's pCPCH are used in different connection states



Ex.1008, FIG. 5.1; Reply, 4.

Additionally, Mate explains that the pCPCH (mapped to CPCH transport channel) is used when the UE is in the "cell_FACH" state, Ex.1009, [0004].

Dateki's ACK/NACK signal (*the signal*) is transmitted on the High-Speed **Dedicated** Physical Control Channel (HS-DPCCH). Ex.1005, 2:67-3:3. Dateki's pilot signal (*the signal*, alternatively) is transmitted on the **Dedicated** Physical Channel (DPCH). Ex.1005, 4:59-62, 12:9-10. Those dedicated channels are only available when the UE is in a dedicated connected state—specifically the cell_DCH state, Ex.1009, [0004]. A POSITA would have understood that the UE would not be in the cell_DCH state and the cell_FACH state at the same time.

Petition, 54.

Once in Connected Mode, the UE can be in one of four states, maintained by the UTRAN (specifically, the entity called S-RNC DCFE – Dedicated Control Function Entity). The four states are: CELL_DCH, CELL_FACH, CELL_PCH and URA_PCH.

Ex.1008, 89; Petition, 54; Ex.1070, ¶¶16-18.

Ground 3

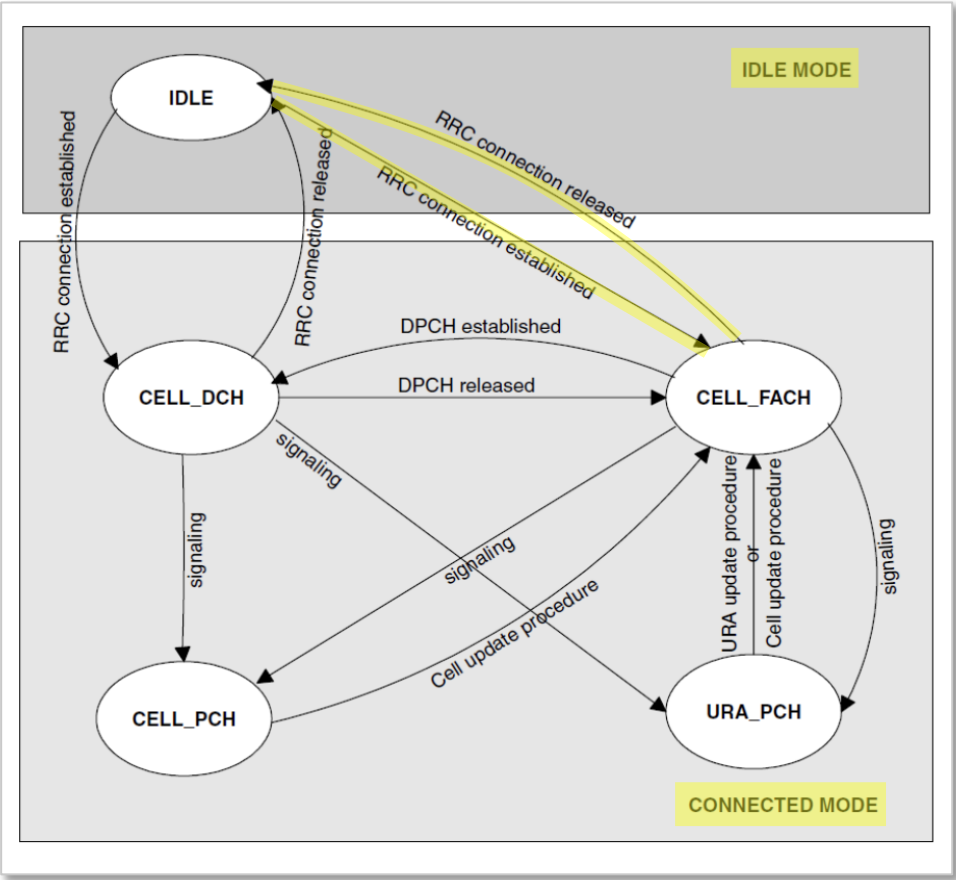
Additional information

IV's argument is entirely based on its claim construction

over a random access channel *when not time synchronized*.” EX2017, ¶130. The Petition makes no effort to demonstrate that the combination of Chitrapu and Dateki teaches a mobile station in a connected state that, upon detection of a loss of synchronization based on, e.g., high downlink errors, transitions to “transmitting a signal over a random access channel,” as required by dependent claims 4 and 8. For this reason, the Petition has failed to carry its burden with respect to Ground 3.

POR, 66; Reply, 23-24.

Claim 4 is obvious over Dateki and Chitrapu even under IV's claim construction



Ex.1008, Fig. 5.1; Petition, 57; Reply, 24.

Chitrapu discloses transitioning UEs to Idle state

As shown in Figure 5.1, the UE can transition between the Idle Mode and the Connected Mode (only CELL_FACH and CELL_DCH states) via RRC Connection Establishment and RRC Connection Release procedures.

Ex. 1008, 90; Reply, 24; Ex.1070, ¶¶ 54-56.

While the UE is in connected mode, if the UTRAN sends an 'RRC Connection Release' to the UE, then the signaling link and all radio bearers will be released, and the UE will return to Idle Mode.

Ex. 1008,105; Reply, 24; Ex.1070, ¶¶ 54-56).

UEs need tight time synchronization in Connected mode but not in Idle mode

Upon reception of the RRC Connection Setup message, the RRC layer in the UE configures the L1 and L2 using these parameters to locally establish the DCCH logical channels. In case of DCH, L1 indicates to UE-RRC when it has achieved synchronization. RLC links are locally established on both sides. The establishment can be mapped on either RACH/FACH or DCH by MAC. When the UE has established the RLC links, it transmits an RRC Connection Setup Complete message to the network using RLC-AM on the DCCH/L.

Ex. 1008,105; Reply, 24; Ex.1070, ¶¶ 54-56).

Since Random Access is used for initial access to UTRAN, the UE does not have tight time synchronization with the UTRAN. For this reason, PRACH/P uses Type-3 bursts, which have the larger guard period of 192 chips. This reduces the probability of the PRACH/P transmission spilling into an adjacent timeslot. Power Control is not used on the PRACH/P channel.

Ex. 1008, 53; Petition, 21.