

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TCL Communication Technology Holdings Limited
TCT Mobile International Limited
TCT Mobile, Inc.
TCT Mobile (US) Inc.
TCT Mobile (US) Holdings Inc.,

Petitioner,

v.

Mitsubishi Electric Corporation,
Patent Owner.

Case No.: IPR2023-00957
U.S. Patent No. 9,635,656

**PATENT OWNER'S PRELIMINARY RESPONSE
PURSUANT TO 35 U.S.C. § 313 AND 37 C.F.R. § 42.107**

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2002	Markman Order from Parallel District Court Litigation
2003	CV of Todor Cooklev

I. INTRODUCTION

Pursuant to 35 U.S.C. § 313 and 37 C.F.R. § 42.107(a), Patent Owner Mitsubishi Electric Corporation (“Patent Owner” or “MELCO”) respectfully submits this Preliminary Response to the Petition for *Inter Partes* Review (Paper No. 1) (“the Petition”) filed by Petitioner TCL Communication Technology Holdings Limited, TCT Mobile International Limited, TCT Mobile, Inc., TCT Mobile (US) Inc., TCT Mobile (US) Holdings Inc. (collectively “Petitioner” or “TCL”). The Petition seeks *Inter Partes* Review (“IPR”) of claim 3 (“the Challenged Claim”) of U.S. Patent No. 9,635,656 (“’656 Patent”).

Petitioner has failed to meet its burden to show that institution is warranted because the UMESH reference fails to disclose or suggest conditioning the stopping of the transmission of a quality notification signal “when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter” as recited in claim 3 of the ’656 Patent. Not only do all of Petitioner’s invalidity theories (Grounds 1-3) rely on the UMESH reference, they also rely exclusively on the UMESH reference to meet this claimed condition. But instead of stopping transmission of the quality notification signal “when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter,” the UMESH reference either predetermines when the quality notification signal and scheduling request signal are sent such that the

transmission of these signals *never* coincides or transmits a notification signal, not a scheduling request signal, in place of the quality notification signal. As such, none of the invalidity grounds can meet the claimed condition.

The Board should therefore deny institution under 35 U.S.C. § 314(a) because Petitioner has not met its burden of demonstrating that it is more likely than not claim 3 of the '656 Patent is unpatentable under any of Petitioner's asserted grounds.

II. BACKGROUND

A. The '656 Patent Discloses And Claims An Innovative Solution to a Transmission Conflict in LTE Mobile Communications

The '656 Patent describes a new and innovative way to resolve conflicts or collisions between the transmission of certain signals in an LTE communications system. When receiving data from a base station in an LTE communications system, a mobile terminal transmits a signal indicating either the quality of the received data or the quality of the downlink communication path to the base station via an uplink transmission. EX1001, 2:25-30. The quality information indicating the quality of the received data or the quality of the downlink communication path is a quality notification signal, such as a CQI (Channel Quality Indicator). *Id.*, 2:30-35. Conversely, when the mobile terminal has data to transmit to the base station, the mobile terminal transmits a signal requesting allocation of uplink radio resources to the base station. *Id.*, 2:46-49. This request signal can be termed a scheduling

request, an uplink resource request, or an uplink scheduling request signal. *Id.*, 2:49-52; *see also* EX2001, ¶33.

Since at times the mobile terminal can be tasked with sending the quality notification signal when the scheduling request signal also needs to be sent, it is possible their transmission would coincide. EX1001, 3:15-26; 4:37-43; 5:28-36; 6:3-24. Because the quality notification and scheduling request signals have no correlation among them, conventional LTE communication systems transmit the signals with multi-carrier transmission. *Id.*, 7:10-35. But when such uncorrelated signals are transmitted at the same time, the peak to average power ratio (“PAPR”) becomes high due to the high peak of the transmission signals time waveforms. *Id.*, 7:36-39. The high PAPR increases the power consumption of the mobile terminal and correspondingly narrows the cell coverage. *Id.*, 7:39-42. In addition, the coincidental transmission of the signals creates an interference wave affecting other mobile terminals in the conventional LTE communications system. *Id.*, 7:42-44; *see also* EX2001, ¶34.

The invention of the ’656 Patent provides a communications system that is capable of solving these problems. EX1001, 7:45-51. For example, in the event that the transmission of the quality notification signal (e.g., CQI) coincides with the transmission of the scheduling request signal (e.g., SR), the transmission of the quality notification is stopped while transmitting the scheduling request signal. *Id.*,

16:7-21; 18:37-43. By stopping transmission of the quality notification signal while transmitting the scheduling request signal, the mobile terminal can prevent an increase in the radio resources load on the communication system and implement transmission with a correspondingly lower PAPR. *Id.*, 15:9-33; 18:44-54. The prior art cited in the Grounds of the Petition neither recognizes these problems nor discloses or suggests the inventive solution disclosed in the '656 Patent and recited in claim 3. EX2001 ¶35.

The '656 Patent claims priority to a Japanese patent application filed on October 27, 2006. EX1001, 1 (foreign application priority data). Petitioner does not dispute that the challenged claim is entitled to at least a priority date of October 27, 2006. *See* Pet. 18 (citing October 27, 2006 as the relevant date); EX1003 ¶86 (same).

III. LEGAL STANDARDS

“In an inter partes review, the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ 35 U.S.C. §316(e), and that burden never shifts to the patentee.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1375 (Fed. Cir. 2016). Specifically, the Petition must “identif[y] in writing *and with particularity*, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the

challenge to each claim.”¹ 35 U.S.C. § 312(a)(3); *see also Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“[i]t is of the utmost importance that petitioners . . . adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’”). An IPR cannot 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.” 35 U.S.C. § 314(a).

In addition, the Board must make its determination regarding institution based on what the Petition *actually presents* and not what it could have reasonably contained had it been reformulated. *Magnum Oil*, 829 F.3d at 1381 (holding that the Board is *not* “free to adopt arguments on behalf of petitioners that could have been, but were not, raised by the petitioner during [a post-grant proceeding]”). The Board cannot “deviate from the grounds in the petition and raise its own” theories of invalidity. *Sirona Dental Sys. GmbH v. Institut Straumann AG*, 892 F.3d 1349, 1356 (Fed. Cir. 2018).

Petitioner raises grounds based solely on 35 U.S.C. § 103. To prevail on obviousness under 35 U.S.C. § 103, Petitioner must demonstrate based on “record evidence” that the claimed “structural features . . . were known prior art

¹ Emphases added in this Preliminary Response unless otherwise indicated.

elements.” *K/S Himpp v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365 (Fed. Cir. 2014). “[W]hile ‘common sense’ can be invoked, even potentially to supply a limitation missing from the prior art, it must still be supported by evidence and a reasoned explanation.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1363 (Fed. Cir. 2016). Moreover, “[o]bviousness requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim.” *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). “Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal courses of research and development to yield the claimed invention.” *Id.* These additional requirements cannot be met by “conclusory statements”—“there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006); *see also KSR Int’l. Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

IV. CLAIM CONSTRUCTION

Petitioner identifies three terms for construction. Subsequent to the Petition’s filing, the District Court issued a Markman order construing all three terms and finding against each of Petitioner’s proposed constructions. EX2002 at 6-11. Patent Owner maintains that these terms need no construction and need only apply the plain and ordinary meaning for each term. Nevertheless, as explained herein, the Petition

lacks merit whether the Board applies plain and ordinary meaning, the Markman order's constructions, or Petitioner's constructions.

V. PERSON OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art (“POSA”) at the time of the ’656 Patent’s earliest priority date would have held at least a degree in electrical engineering, computer engineering, computer science or a similar discipline, with at least two years of relevant industry or research experience, including experience designing, planning, or implementing cellular networks. Additional work or research experience can substitute for less or different education, and vice-versa. A person of ordinary skill in the art would also have had familiarity with the 3GPP LTE technical standards. EX2001, ¶21.

VI. RESPONSE TO PETITIONERS' ARGUMENTS

A. Grounds 1-3: Petitioner's Arguments Based On UMESH Lack Merit

1. **Claim 3 conditions the stopping of the transmission of a quality notification signal to “when a transmission of said quality notification signal *coincides* with that of said scheduling request signal in said transmitter”**

Claim 3 recites, *inter alia*, that a transmitter of a mobile terminal is configured to transmit both a quality control signal and a scheduling request signal to a base station. In addition, claim 3 recites that a controller is configured to perform a second control process that includes, “when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter, stopping transmitting said quality notification signal during a time interval during which said transmitter transmits said request signal.”

This second control process therefore *conditions* stopping transmission of the quality notification signal on the transmission of the quality notification signal *coinciding* with the transmission of the scheduling request signal. According to the Markman order, this condition for stopping the quality control signal transmission is met “when a transmission of the quality notification signal is scheduled to transmit or is transmitting at the same time as that of said scheduling request signal in said transmitter.” EX2002 at 10. Petitioner asserts the condition is met “when said [quality notification signal] is transmitted by the transmitter simultaneously with the transmission of the scheduling request signal.” Pet. 15. But UMESH never

conditions stopping transmission of the quality control signal according to either construction or under a plain and ordinary meaning. See EX2001, ¶37.

2. Ground 1: UMESH in View of the Knowledge of a POSITA Does Not Render Obvious Claim 3

Petitioner has not met its burden of showing that UMESH, whether alone or in combination with the knowledge of a POSITA, discloses each limitation of independent claim 3, such as conditioning the stopping of the transmission of a quality notification signal “when a transmission of said quality notification signal *coincides* with that of said scheduling request signal in said transmitter,” and thus has not shown that it is more likely than not that UMESH in view of the knowledge of a POSITA renders obvious claim 3 of the ’656 Patent. See *id.*

- (a) UMESH never conditions transmission of the quality control signal on whether or not there is a potentially coincident scheduling request signal; instead, UMESH always (i.e., unconditionally) bumps the quality control signal every time the scheduling request signal is to be transmitted**

UMESH fails to teach a critical element of claim 3 of the ’656 Patent. Specifically, UMESH fails to disclose a second control process for mediating conflict between a scheduling request signal and a quality notification signal. In fact, UMESH teaches a notably different approach, to wedge the scheduling request signal into a timeslot in place of a quality notification signal. Thus, UMESH teaches a method devoid of the nuanced circumstance in which a scheduling request signal

and a quality notification signal may both be transmitted without coincidence (i.e., conflict). In such a method, there is no need for two control processes to govern the transmission of the scheduling request signal, one for initially setting the transmission of the scheduling request signal and one for mediating when a conflict between coinciding quality notification and scheduling request signals being sent at the same time. *See also id.*, ¶38.

Putting UMESH into context, as shown in Fig. 1, UMESH discloses that a mobile communication system 100 includes a base station 10, mobile stations 20a to 20c, and a radio control device 30 that controls radio communication between base station 10 and mobile stations 20a to 20c. EX1010, ¶0032. Mobile stations 20a to 20c and base station 10 transmit via dedicated physical channels as shown in Fig. 2 below. *Id.*, ¶¶0032-0033.

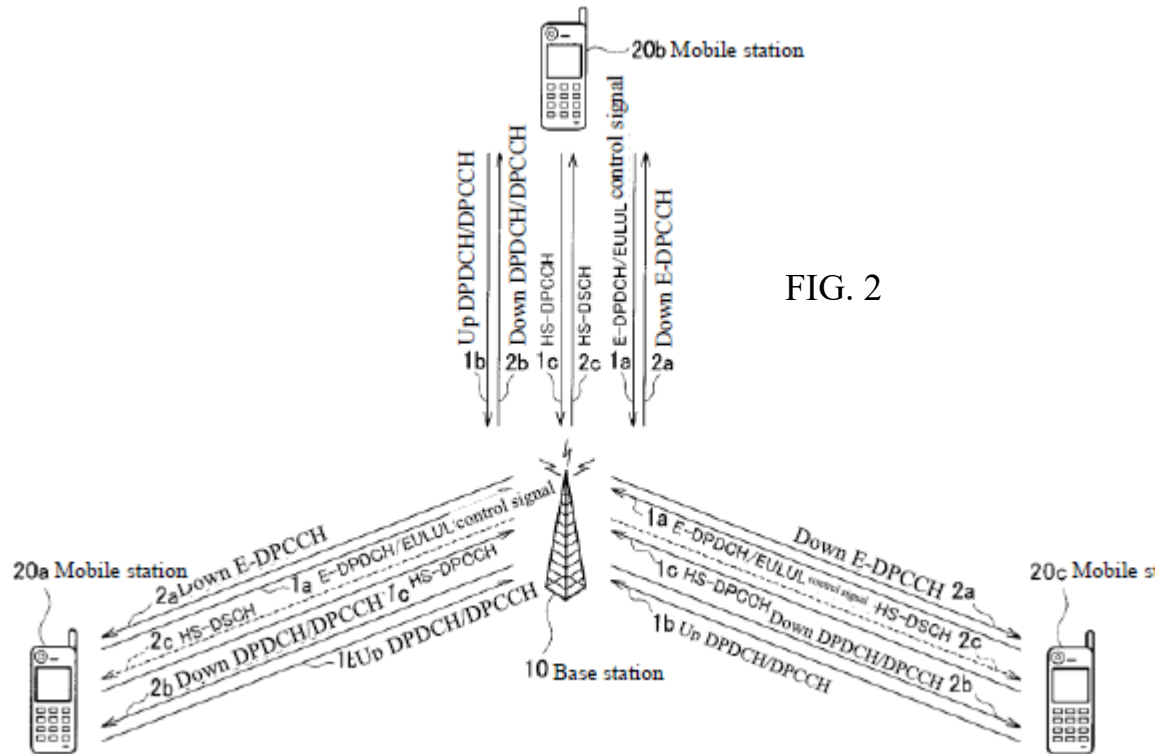


FIG. 2

For uplink communication, mobile stations 20a to 20c use E-DPDCH/EULUL control signal 1a, DPDCH/DPCCH 1b, and HS-DPCCH 1c. *Id.*, ¶0033. E-DPDCH/EULUL control signal 1a is an enhanced dedicated physical data channel that performs enhanced transmission of user data and an EULUL control signal, where the EULUL control signal is an enhanced uplink physical control signal conforming to the enhanced uplink. *Id.*, ¶0035. HS-DPCCH 1c is a high-speed uplink physical control channel conforming to high-speed packet access. *Id.*, ¶0036.

HS-DPCCH includes a subframe 3 (outlined in red in annotated Fig. 3 below) that is subjected to code-division multiplexing using three different spread codes and transmitted simultaneously with DPDCH and DPCCH. *Id.*, ¶0041.

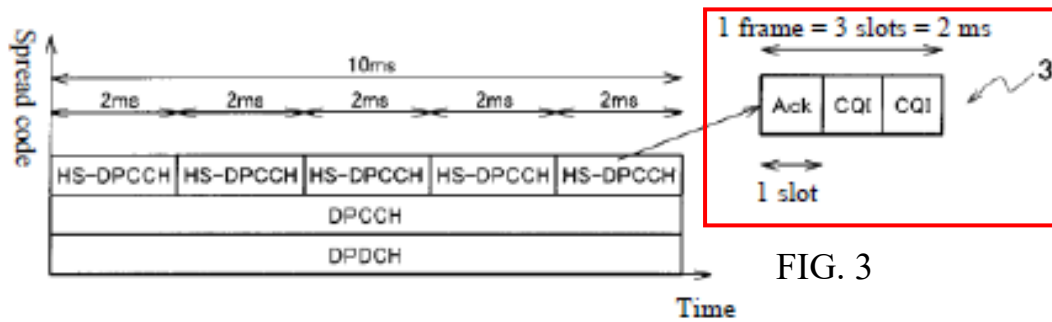


FIG. 3

HS-DPCCH subframe 3 includes three time slots with one time slot transmitting an acknowledgment (Ack) in an ACK slot and two time slots transmitting a channel quality indicator (CQI) in respective CQI slots. *Id.*, ¶0042. Since the slot pattern of HS-DPCCH subframe 3 is fixed, base station 10 can distinguish between Ack and CQI when receiving data on the HS-DPCCH. *Id.* The CQI provides information regarding downlink radio quality between each mobile station 20a to 20c and base station 10. *Id.*, ¶0044. Petitioner asserts that the CQI corresponds to the “quality notification signal” of claim 3. Pet. 26-28.

According to UMESH, mobile stations 20a to 20c can transmit the CQI in all frames of HS-DPCCH or at intervals. EX1010, ¶0047. In other words, instead of transmitting CQI in every frame, the CQI can be transmitted at fixed transmission intervals in select frames, which makes the CQI slot available to transmit other signals in frames lacking CQI. EX2001, ¶ 42; *see also* EX1010, ¶0053 (transmission interval for CQI can be in all HS-DPCCH frames or once every certain number of frames such as 2, 4, 5, or 10). With this in mind, UMESH indicates a EULUL control signal can be transmitted in the CQI slot when not used to send the CQI. EX1010,

¶¶0047-0048. UMESH also notes that the EULUL control signal can be a rate request/scheduling information (RR/SI) signal. *Id.*, ¶0075. Petitioner asserts that the EULUL control signal, when configured as an RR/SI signal, corresponds to the “scheduling request signal” of claim 3. Pet. 28-30.

(i) The first transmission method in UMESH stops transmission of the quality control signal according to a predetermined schedule

UMESH discloses first and second transmission methods for transmitting the CQI signal and the EULUL signal over the same channel, i.e., the HS-DPCCH. EX1010, ¶¶0068-0085. In the first transmission method, UMESH discloses mobile station 20a transmits the EULUL control signal in the CQI slot according to a *cycle known* in the base station 10. *Id.*, ¶0069. To set this known cycle, a setting unit 41 in control device 40 sets a timing for transmitting the EULUL control signal and notifies mobile station 20a and base station 10 so that the *set timing* is known in both mobile station 20a and base station 10. *Id.*, ¶¶0070-0073. With this set timing, also referred to as “a constant transmission cycle,” a radio control unit 23 of mobile station 20a controls radio unit 21 transmits the EULUL control signal in the CQI slot instead of the CQI signal every certain number of frames, such as three. *Id.*, ¶0073; *see also* EX2001, ¶43.

Based on this description, UMESH’s first transmission method predetermines or fixes the timing for transmission of the CQI signal and the EULUL control signal.

See id., ¶44. This predetermined nature of the transmission is shown in the relevant annotated excerpt of Fig. 10 of UMESH, below. *Id.* As shown, subframes 1, 2, 4, and 5 include CQI (highlighted in blue) and subframes 3 and 6 include RR/SI (highlighted in green).



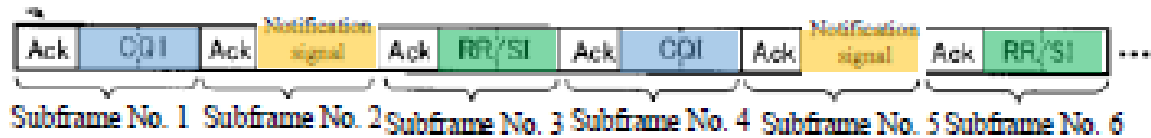
This arrangement of CQI and RR/SI (a version of the EULUL control signal according to EX1010, ¶0075) in Fig. 10 shows a ***predetermined repeating*** pattern in which every three subframes includes two CQIs followed by one EULUL control signal. EX2001, ¶45. This repeating pattern thus confirms the predetermined manner in which CQI and the EULUL control signals are transmitted according to UMESH's first transmission method. *Id.*

Since the scheduling and timing of the transmission of both the CQI and the EULUL control signals are set in advance and are known in advance by both mobile station 20a and base station 10, the transmission timing for both signals is necessarily predetermined in the first transmission method. *Id.*, ¶46. And since the transmission timing is predetermined, the CQI and the EULUL control signal can neither be scheduled nor transmitted at the same time, and thus can never coincide as required by claim 3. *Id.*

(ii) The second transmission method in UMESH stops transmission of the quality control signal to send a notification signal

In the second transmission method, UMESH discloses that a transmission notification unit 26 of mobile station 20a first notifies base station 10 of an upcoming transmission of the EULUL control signal. EX1010, ¶0076. The notification enables base station 10 to identify and distinguish the EULUL control signal from among time-division multiplexed signals received by base station 10 by providing base station 10 with advanced notice of the upcoming transmission of the EULUL control signal. *Id.* To send the notification signal, mobile station 20a transmits the notification signal to base station 10 in the CQI slot in place of the CQI signal. *Id.*, ¶0077. Then, subsequent to the transmission of the notification signal, mobile station 20a transmits the EULUL control signal to base station 10 in the next subframe. *Id.*; *see also* EX2001, ¶47.

Based on this description, UMESH's second transmission method requires swapping CQI transmission in favor of sending a notification signal and then subsequently sending the EULUL control signal. EX2001, ¶48. This ordering of transmission is shown in the relevant annotated excerpt of Fig. 11 of UMESH, below. *Id.* As shown, subframes 1 and 4 include CQI (highlighted in blue), subframes 2 and 5 include the notification signal (highlighted in orange), and subframes 3 and 6 include RR/SI (highlighted in green).



This arrangement of CQI, notification signal, and RR/SI (a version of the EULUL control signal according to EX1010, ¶0075) in Fig. 11 confirms both that CQI transmission is exchanged in favor of sending a notification signal and that the notification signal must be sent prior to the EULUL control signal in UMESH's second transmission method. EX2001, ¶48.

Thus, according to the second transmission method, mobile station 20a sends a notification signal to base station 10 in place of a CQI signal. *Id.*, ¶49. Only after sending the notification signal does mobile station 20a then send the EULUL control signal in the next subframe. *Id.* Moreover, since mobile station 20a conditions the exchanging CQI transmission to the sending of the *notification signal*, and the notification signal must be sent *prior to the EULUL control signal*, the CQI and the EULUL control signal can neither be scheduled nor transmitted at the same time in the second transmission method. *Id.* In particular, once mobile station 20a sends the notification signal, the CQI signal cannot be scheduled or transmitted in the next subframe; rather, only the EULUL control signal can be transmitted then. *Id.*

- (b) Petitioner has not shown UMESH discloses the second control process that conditions stopping transmission of a quality notification signal “when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter”**

Petitioner fails to provide evidence that UMESH has a second control process that conditions the stopping of the transmission of a quality notification signal “when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter.” EX2001, ¶50.

- (i) UMESH’s transmission methods do not condition stopping the transmission of a quality notification signal “when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter”**

As explained above in Section VI.A.2.(a), UMESH stops transmission of the quality control signal according to a predetermined schedule or to send a notification signal, not when transmission of the quality control signal coincides with transmission of the scheduling request signal. *See id.*, ¶51.

The Petitioner’s reference to ¶0073 of UMESH fails to support the contention that CQI transmission is stopped when transmission of the quality notification signal “coincides” with the scheduling request signal. Pet. 34-35. As explained in Section VI.A.2.(a)(1) regarding UMESH’s first transmission method, which includes the description of ¶0073, UMESH teaches that setting unit 41 in control device 40 sets a repeated, constant transmission cycle for scheduling and transmitting the CQI

signal and the EULUL control signal and notifies mobile station 20a and base station 10 of the cycle so both mobile station 20a and base station 10 know the cycle in advance of transmission. EX1010, ¶¶0070-0073; EX2001, ¶52.

Since the scheduling and timing of the transmission of both the CQI signal and the EULUL control signal are set to a repeated, constant cycle and are known in advance by both mobile station 20a and base station 10, the scheduling and transmission timing for both signals is necessarily predetermined in the first transmission method. EX2001, ¶53. With this predetermined timing and advanced notice, transmission of the CQI signal (asserted to be the “quality control signal”) and the EULUL control signal (asserted to be the “scheduling request signal”) can never “coincide.” *Id.* In other words, since predetermined scheduling and transmission of the CQI signal and the EULUL control signal means such scheduling and transmission are known and set in advance, the CQI signal and the EULUL control signal cannot be scheduled at the same time, cannot be transmitted at the same time, and cannot coincide. *Id.*

The Petitioner’s subsequent citation to ¶0058 of UMESH likewise misses the mark. Pet. 35. In this paragraph, UMESH merely discloses that an EULUL control signal can be sent in the CQI slot. EX1010, ¶0058; EX2001, ¶54. That the EULUL control signal can be sent in the CQI slot is not in dispute. *See id.* But ¶0058 in no way discloses or suggests that the EULUL control signal and CQI signal are

transmitted simultaneously, are scheduled to be transmitted simultaneously, or in any way have their transmission coincide. *Id.* In fact, addressing the timing, UMESH then discloses in ¶0059, radio control unit 23 of mobile station 20a can “set the transmission interval” of the EULUL control signal and the CQI signal such that they are transmitted according to the “set transmission interval,” “a transmission interval designated by the base station 10,” or “a transmission interval set in advance by operation.” EX1010, ¶0059; *see also* EX2001, ¶55. The “set transmission interval” is nothing more than a description of UMESH’s first transmission method of a repeated, constant transmission cycle in which the scheduling and transmission timing of the CQI signal and the EULUL control signal are predetermined at set transmission intervals. EX2001, ¶55; *see also* EX1010, ¶0053 (transmission interval for CQI signal can be once every certain number of frames such as 2, 4, 5, or 10). Such predetermined timing necessarily prevents the CQI signal and EULUL control signal from ever coinciding. *See* EX2001, ¶55.

Since the evidence cited by Petitioner does not show conditioning the stopping of the transmission of a quality notification signal “when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter,” UMESH cannot meet this limitation of claim 3. *Id.*, ¶56.

(ii) UMESH never performs the claimed second control process of checking if there is coincidence of the quality notification signal and the scheduling request signal

UMESH does not condition the rescheduling of the quality notification signal on whether or not it will coincide (i.e., conflict) with the scheduling request signal because UMESH teaches a much simpler operation. *Id.*, ¶57. The scheduling request signal (or notification thereof) is always inserted into a slot that simply bumps the quality notification signal. *Id.* In this way, the simple technique disclosed in UMESH never performs and has no need to perform the “second control process” of claim 3. *Id.* According to claim 3, a controller performs a “first control process” to transmit the scheduling request signal to the base station when the mobile terminal has not been allocated a radio resource for transmitting the transmission data. The controller of claim 3 also performs a “second control process” to stop transmitting the quality notification signal during a time interval during which said transmitter transmits the scheduling request signal when a transmission of the quality notification signal coincides with that of the scheduling request signal. While Petitioner asserts that UMESH performs the recited “first control process” to transmit a scheduling request signal, UMESH never performs the required “second control process.” *Id.*, ¶58.

UMESH discloses two different transmission methods discussed in detail in Sections VI.A.2(a)(i), (ii). In the first transmission method, when the EULUL

control signal needs to be sent, UMESH establishes a predetermined schedule for sending the CQI signal and the EULUL control signal in a fixed pattern, such as two CQI signals for every EULUL control signal. EX2001, ¶59. In the second transmission method, when the EULUL control signal needs to be sent, UMESH sends a notification signal to provide the base station with advanced notice of the subsequently sent EULUL control signal. *Id.* Thus, when the EULUL control signal is a scheduling request signal (*see* EX1010, ¶0075), it is asserted by Petitioner that UMESH performs “the first control process.” EX2001, ¶59.

But having already scheduled the transmission of the EULUL control signal, no “second control process” is performed because UMESH never checks to determine if there is any actual or potential coincidence, conflict, or collision between the transmission of the CQI signal and the transmission of the EULUL controls signal. *Id.*, ¶60. Regardless of the transmission method used, UMESH has already scheduled the transmission of the EULUL control signal. *Id.* And since it is already scheduled, UMESH provides no teaching that the transmission of the CQI signal and the EULUL control signal would ever coincide and consequently no reason for UMESH to even check if there could be coincidence. UMESH therefore fails to perform the “second control process” as required by claim 3. *Id.*

(c) Knowledge of a POSITA Cannot Cure UMESH's Deficiencies

To the extent Ground 1 relies on the knowledge of a POSITA, Petitioner's evidence for meeting limitation 3[5] in claim 3 relies solely on UMESH and makes no reference or citation to the knowledge of a POSITA. *See* Pet. 34-36. Accordingly, even if combinable, Petitioner has failed to meet its burden of demonstrating that each and every limitation of the '656 Patent claim 3 is disclosed by UMESH in view of the knowledge of a POSITA. *Magnum Oil*, 829 F.3d at 1375 (“In an inter partes review, the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ 35 U.S.C. §316(e), and that burden never shifts to the patentee.”); *Id.* at 1381 (holding that the Board is *not* “free to adopt arguments on behalf of petitioners that could have been, but were not, raised by the petitioner during [a post-grant proceeding]”).

(d) Petitioner has not shown UMESH discloses the “first control process” that transmits the scheduling request signal to the base station “when the mobile terminal has not been allocated a radio resource for transmitting said transmission data”

Petitioner's contention that UMESH transmits a scheduling request signal to the base station “when the mobile terminal has not been allocated a radio resource for transmitting said transmission data” is not supported by the evidence. To support this contention, Petitioner refers to ¶0075 of UMESH. Pet. 33-34. That paragraph states that:

The mobile station 20a can transmit, for example, RR (rate request) / SI (scheduling information) as the EULUL control signal to the base station 10. RR/SI is one of the EULUL control signals being discussed by 3GPP. RR and SI are information necessary in enhanced access for the base station 10 to calculate uplink radio resources to assign to the mobile station 20a.

EX1010, ¶0075. But even when the EULUL control signal is the RR/SI, asserted to be a scheduling request signal, nothing in this paragraph indicates the RR/SI is sent when the mobile terminal has not been allocated a radio resource for transmitting transmission data. *See also* EX2001, ¶62.

Moreover, UMESH expressly teaches that the RR/SI information is necessary in *enhanced access* for the base station to calculate uplink radio resources. EX1010, ¶0075; *see also* EX2001, ¶63. UMESH discloses that 3G mobile systems include a dedicated physical data channel (DPDCH) as a W-CDMA uplink physical channel. EX1010, ¶0002. The “enhanced access” referred to in ¶00075 of UMESH is for configuring of the enhanced transmission of user data using an enhanced DPDCH (E-DPDCH). *Id.*, ¶0003. UMESH further indicates that it is “an object to transmit an enhanced uplink physical control signal conforming to enhanced access *without affecting existing physical channels* or increasing a peak-to-average ratio in transmission power of a mobile station.” *Id.*, ¶0010. In other words, the enhanced access using the E-DPDCH is configured when there are already existing physical

channels including the DPDCH. EX2001, ¶64. Accordingly, contrary to Petitioner's contention, the EULUL control signal as an RR/SI signal is sent when the mobile terminal *has already been allocated a radio resource* (i.e., DPDCH) for transmitting transmission data because the E-DPDCH is an enhanced and additional radio resource for transmitting transmission data supplemental to the already existing DPDCH. *Id.*

Therefore, for all of the above reasons, Petitioner has failed to meet its burden, and Ground 1 of the Petition must fail.

3. Ground 2: UMESH in View of TS 25.309 Does Not Render Claim 3 Obvious

Even if combinable, Petitioner has failed to meet its burden of demonstrating that each and every limitation of the '656 Patent claim 3 is disclosed by UMESH in view of TS 25.309. Section VII.B.2.f. of the Petition, relating to claim 3's limitation of "a second control process that includes, when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter, stopping transmitting said quality notification signal during a time interval during which said transmitter transmits said scheduling request signal," relies exclusively on the evidence cited in Section VII.A.6 in Ground 1. Pet. 43. Similarly, Section VII.B.2.e. of the Petition, relating to claim 3's limitation of "a first control process," relies exclusively on UMESH to teach the scheduling request signal is sent "when the mobile terminal has not been allocated a radio resource for

data transmission. Pet. 43. In other words, Ground 2 also relies solely on UMESH to address these limitations of claim 3 absent from UMESH without any reference or citation to TS 25.309. *See also* EX2001, ¶65.

Accordingly, Petitioner has failed to meet its burden of demonstrating that each and every limitation of the '656 Patent claim 3 is disclosed by UMESH in view of TS 25.309.

Having failed to meet its burden, Ground 2 of the Petition must fail.

4. Ground 3: UMESH in View of TS R1-060583 Does Not Render Claim 3 Obvious

Even if combinable, Petitioner has failed to meet its burden of demonstrating that each and every limitation of the '656 Patent claim 3 is disclosed by UMESH in view of R1-060583. Section VII.C.2.f. of the Petition, also relating to claim 3's limitation of "a second control process that includes, when a transmission of said quality notification signal coincides with that of said scheduling request signal in said transmitter, stopping transmitting said quality notification signal during a time interval during which said transmitter transmits said scheduling request signal," relies exclusively on the evidence cited in Section VII.A.6 in Ground 1. Pet. 50. In other words, Ground 3 again relies solely on UMESH to address this limitation of claim 3 absent from UMESH without any reference or citation to R1-060583. *See also* EX2001, ¶67.

Accordingly, Petitioner has failed to meet its burden of demonstrating that each and every limitation of the '656 Patent claim 3 is disclosed by UMESH in view of R1-060583.

Having failed to meet its burden, Ground 3 of the Petition must fail.

VII. CONCLUSION

In view of the foregoing, Patent Owner respectfully submits that the Board should deny institution of all Grounds of the Petition.

Dated: September 14, 2023

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CERTIFICATE OF LENGTH (37 C.F.R. §§ 42.24(D))

The undersigned hereby certifies that, according to the word-processing system used to prepare the foregoing document, this document has 5488 words and thus complies with the applicable word limit.

Dated: September 14, 2023

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CERTIFICATE OF SERVICE (37 C.F.R. §§ 42.6(E), 42.105(A))

The undersigned hereby certifies that the foregoing document was served in its entirety on September 14, 2023 upon the following parties via Electronic Mail addresses jeremy.peterson@pvuslaw.com, bradford.cangro@pvuslaw.com, and TCLMELCOIPRService@pvuslaw.com:

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