IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

§ In re Application of.: § § Avi ORON Confirmation 3332 § Serial No.: § 12/513,510 § Filed: May 5, 2009 § Group Art Unit: 2472 § For: MEDIA SESSION § **IDENTIFICATION METHOD** § FOR IP NETWORKS § § Attorney Docket: 46203 § Examiner: Chi Ho A. LEE §

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RESPONSE TO FINAL FILED IN CONJUCTION WITH RCE

Sir:

This is in response to the United States Patent and Trademark Final Office Action mailed June 15, 2011, which response is being made on or before September 15, 2011, and for which no extension of time fees are due.

A Request for Continued Examination (RCE) is also enclosed herewith.

Applicant submits this response for entry into the record, in which:

Amendments to the Claims begin on page 2.

Remarks begin on page 9.

Please amend the above-identified application as follows:

In the Claims:

1. (Currently Amended) Electronic network apparatus for identifying media sessions over IP and network packets as belonging or not belonging to a media session, comprising:

a packet characteristic extraction unit configured for obtaining session <u>traffic</u> <u>packet</u> characteristics from a succession of packets, said packets respectively <u>belonging to various unknown sessions</u>, said characteristics comprising packet traffic <u>characteristics</u>;

a grouping unit associated with said packet characteristic extraction unit, configured to compare packets with other packets according to said extracted traffic <u>characteristics</u> to group together those packets whose extracted packet traffic characteristics are similar as probably belonging to a common session, and

a session analyzer configured for analyzing said grouped packets for session characteristics, therewith to identify a session type of said probable common session.

2. (Original) The apparatus of claim 1, further comprising a resource allocator for allocating at least one member of the group consisting of resources, provisioning features and control features to said session.

3. (Original) The apparatus of claim 1, wherein said session type identification comprises identifying a session managing entity generating or managing said session.

4. (Original) The apparatus of claim 1, wherein said session analyzer comprises a neural network, using characteristics automatically built into said neural network during a neural network training phase.

5. (Original) Apparatus according to claim 1, further comprising a thresholder for thresholding said traffic characteristics, and a packet session identifier configured to identify those packets whose characteristics are mutually within said thresholds for said grouping unit to group said packets as belonging to said common session.

6. (Original) The apparatus of claim 1, wherein said traffic characteristics comprise at least one member of the group consisting of packet length, inter-arrival period, and average bandwidth.

7. (Original) The apparatus of claim 1, wherein said grouping unit comprises a packet marker, associated with said packet session identifier, configured for inserting into a header of a respective packet an indication of said common session with which said respective packet has been identified.

8. (Original) The apparatus of claim 7, further comprising a session analyzer associated with said packet marker, configured to obtain packets marked as belonging to said common session and to determine, from said packets, characteristics belonging to said common session, therefrom to identify a session type.

9. (Original) The apparatus of claim 8, wherein said session analyzer is configured to obtain said characteristics belonging to said common session from parameter patterns common to said packets.

10. (Previously Presented) The apparatus of claim 8, wherein said session analyzer is configured to use at least one member of the group consisting of:

- packet length
- inter-arrival period

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- variance of inter-arrival period
- variance of length
- covariance of inter-arrival period
- covariance of length
- a statistical derivative obtained from multi records of packet length
- a statistical derivative obtained from multi records of inter-arrival period
- a histogram built of at least one of the following;
 - i. packet length
 - ii. inter-arrival period
 - iii. variance of inter-arrival period
 - iv. variance of length
 - v. covariance of inter-arrival period
 - vi. covariance of length
 - vii. a statistical derivative obtained from multi records of packet length
 - viii. a statistical derivative obtained from multi records of interarrival period
- a matrix histogram built of at least one of the following;
 - i. packet length
 - ii. inter-arrival period
 - iii. variance of inter-arrival period
 - iv. variance of length
 - v. covariance of inter-arrival period
 - vi. covariance of length
 - vii. a statistical derivative obtained from multi records of packet length
 - viii. a statistical derivative obtained from multi records of interarrival period.

11. (Original) The apparatus of claim 8, wherein said session analyzer comprises a neural network, using characteristics automatically built into said neural network during a neural network training phase.

12. (Original) The apparatus of claim 1, further comprising a resource allocator configured to allocate resources on a network according to said identified common session.

13. (Previously Presented) The apparatus of claim 8, further comprising a resource allocator, configured to allocate resources on a network according to said identified session type.

14. (Original) The apparatus of claim 1, wherein at least one of said packet session analyzer, said extraction unit and said grouping unit comprises a neural network.

15. (Currently Amended) A method of identifying session type, comprising categorizing_obtaining_passing packets_of_respectively unknown sessions and unknown session types;

<u>using_obtaining</u> traffic packet characteristics of said passing packets<u>of</u> respectively unknown session types;

comparing said obtained packets with each other using respectively obtained traffic packet characteristics;

grouping together those packets having similar values of said traffic <u>packet</u> characteristics into a presumed session, <u>;</u> and

analyzing said grouped packets of said presumed session for session characteristics,-;

thereby tousing said session characteristics to identify a session type of said presumed session.

16. (Original) The method of claim 15 wherein said identifying a session type comprises identifying a session managing entity generating or managing said session.

17. (Original) The method of claim 15 wherein said identifying a session type is followed by at least one of the group comprising: providing provisioning and providing control actions to the session.

18. (Original) Method according to claim 15, further comprising thresholding said traffic characteristics, and identifying those packets whose characteristics are mutually within said thresholds for said grouping.

19. (Original) The method of claim 15, wherein said characteristics comprise at least one member of the group consisting of packet length, inter-arrival period, and average bandwidth.

20. (Previously Presented) The method of claim 15, further comprising inserting into a header of a respective packet an indication of said presumed session with which said respective packet has been identified.

21. (Previously Presented) The method of claim 15, comprising obtaining said characteristics belonging to said presumed session from parameter patterns common to said packets.

22. (Original) The method of claim 15, comprising using at least one member of the group consisting of:

• packet length

- inter-arrival period
- variance of inter-arrival period
- variance of length
- covariance of inter-arrival period
- covariance of length
- a statistical derivative obtained from multi records of packet length
- a statistical derivative obtained from multi records of inter-arrival period
- a histogram built of at least one of the following;
 - i. packet length
 - ii. inter-arrival period
 - iii. variance of inter-arrival period
 - iv. variance of length
 - v. covariance of inter-arrival period
 - vi. covariance of length
 - vii. a statistical derivative obtained from multi records of packet length
 - viii. a statistical derivative obtained from multi records of interarrival period
- a matrix histogram built of at least one of the following;
 - i. packet length
 - ii. inter-arrival period
 - iii. variance of inter-arrival period
 - iv. variance of length
 - v. covariance of inter-arrival period
 - vi. covariance of length
 - vii. a statistical derivative obtained from multi records of packet length

viii. a statistical derivative obtained from multi records of interarrival period.

23. (Original) The method of claim 15, comprising using a neural network and characteristics automatically built into said neural network during a neural network training phase.

24. (Original) The method of claim 16, further comprising using a neural network and characteristics automatically built into said neural network during a neural network training phase.

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REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 1 -24 are in this Application. Claims 1 - 24 have been rejected under 35 U.S.C. § 103. Claims 1, and 18 have been amended herewith.

<u>Amendments To The Claims</u> <u>Informalities</u>

35 U.S.C. § 103 Rejections

Examiner rejects the independent claims over Tayyar et al.

In considering the claims, Examiner is required to give a meaning to each of the claim limitations.

In the rejection of claim 1 in section 2 of the Office Action the Examiner does not relate to the claimed feature (quote taken from the version of claim 1 prior to the current amendment) of:

a grouping unit associated with said packet characteristic extraction unit, configured to group together those packets whose extracted packet traffic characteristics are similar as probably belonging to a common session

As the Examiner *neither* points out where this feature is found, *nor* does he argue how it is rendered obvious, it is respectfully submitted that claim 1 is *allowable irrespective of the present amendment*.

Specifically, in the Examiner's rejection of claim 1, the Examiner relates only to the classifier of Tier teaching the packet extraction (it does not - as will be explained below) and the session type identification. However the feature of grouping is not related to.

In the response to arguments, Examiner states:

"nor does group together packets with similar transport characteristics. This limitation not claimed".

Yet as stated above, the claim does define:

"a grouping unit associated with said packet characteristic extraction unit, configured to group together those packets whose extracted packet traffic characteristics are similar as probably belonging to a common session".

Therefore applicant, with all due respect, has some difficulty with Examiner's argument.

Regarding claim 15 the same applies. Specifically, in the rejection of claim 15 in section 2 of the Office Action the Examiner does not relate to the claimed feature of:

"grouping together those packets having similar values of said traffic characteristics into a presumed session".

As the Examiner neither points out where this feature is found and nor does he argue how it is rendered obvious, it is respectfully submitted that claim 15 is allowable irrespective of the present amendment.

Specifically, in the Examiner's rejection of claim 1, the Examiner relates only to the classifier of Tier teaching the packet extraction (it does not - as will be explained below) and the session type identification. However the feature of grouping is not related to.

In the response to arguments, Examiner states:

"nor does group together packets with similar transport characteristics. This limitation not claimed".

Yet as stated above, the claim (version prior to present amendment) *does* define:

" grouping together those packets having similar values of said traffic characteristics into a presumed session ".

Therefore applicant, with all due respect, has some difficulty with Examiner's argument, and believes that claims 1 and 15 are allowable, even without the current amendments.

Nevertheless, in order to facilitate prosecution, applicant further amends the claims to define that the initial packets are of unknown sessions, and that the grouping is carried out by comparing packets with other packets.

The claims include *inter alia* the following integers, that the packets are of *unknown* session, that the *traffic* characteristics are extracted *from the packets*, and that the packets are grouped into *presumed sessions* based on *similarity* of the *traffic* characteristics. Following the grouping, the characteristics of the presumed session are then studied to find out a *type* of this presumed group. The session characteristics and the transport characteristics are *not* the same.

Tayyar fails to teach any of the above integers.

On the contrary, Tayyar has packets of known sessions and the sessions are of known types. No packets are grouped together and there is no teaching of presumed sessions. Although he mentions QoS, he does not mention extraction of characteristics of a first type from the packets themselves and then determine a session type from a characteristic extracted from a presumed session. As will be explained below, the QoS in Tayyar is not extracted from the packets. Tayyar never groups packets at all since they are already grouped in sessions – he merely adds the packets, according to the already known grouping, to the respective session queue, and he never teaches probable or presumed sessions or extracts characteristics from such a presumed session.

Examiner is required to give due weight *to each feature* pointed out in the claims and to either state where the feature is found, or why it is obvious, and if he cannot do so then he is required to allow the claim.

Tayyar relates to a situation in which packets are already grouped into queues of previously known sessions. Once the known sessions are queued *then* it is decided how to schedule the packets of the session queue to be sent forward. He uses the QoS

of the known session in order to decide how to schedule that queue. He does not teach *presumed* sessions and therefore it is not obvious for Tayyar to use QoS to find the session type of a *presumed* session.

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That is to say applicant is arguing that while it may or may not be obvious to use QoS to find a session type of a *known* session, it is *not* obvious to use QoS to determine a session type of a *presumed* session, and this could not be learned from Tayyar since Tayyar does not teach a *presumed* session.

In this respect Examiner's attention is directed to Tayyar paragraph 37, where it states (lines 3 - 5) that "a classifier classifies each of the incoming packets as being associated with one of a plurality of sessions". The sessions of Tayyar's plurality are *known* (note the implication from the term "plurality" that the number of these sessions is known) and it is simply a matter of placing the packet in the queue of the known session to which it belongs.

In the following sentence (Tayyar Paragraph 37 from line 5) it is mentioned that the sessions may correspond to a certain level of quality of service. At no point does paragraph 37 of Tayyar contain the information that the *quality of service* information is used to *identify which session* the packet belongs to, *or to group the packets*, contrary to the requirement of the present claims. Neither is there any information that the packets are compared with *other packets or that characteristics of traffic of the packets are analyzed*. Rather the traffic characteristics are simply *obtained*.

That is to say, it appears from the disclosure as a whole that the sessions are *already known about* and that Tayyar simply *adds* a new packet to an *existing* session. Note in particular component 22 in Figure 1 of Tayyar where the session queues appear to be present and known about. Also note Tayyar paragraph 20, where information about entities and sessions is *provided* to the scheduler.

Tayyar does not teach grouping of packets of unknown session into groups which are then taken as presumed sessions, followed by obtaining characteristics of the presumed session in order to determine a session type.

In addition, at numerous locations in Tayyar, there is reference to packets arriving that belong to an *idle* session. See for example Paragraphs 45, and 48. A single packet belonging to an idle session can *only* be considered as part of a *known* session.

In addition, Examiner's attention is drawn to paragraph 70 where it is explained that only two non-trivial calculations need to be carried out by the method, namely the calculation of the virtual time and the finish time. If indeed Tayyar had been grouping packets according to transport characteristics then the grouping itself would be an *additional* non-trivial calculation.

Therefore Tayyar teaches away from the *clearly and definitively* claimed feature that the system of the present claims *groups packets together into presumed sessions*.

Tayyar therefore fails to teach the claimed feature of:

"a grouping unit associated with said packet characteristic extraction unit, configured to *compare packets with other packets* according to said extracted traffic characteristics to group together those packets whose extracted packet traffic characteristics are similar as probably belonging to a common session, "

since this teaches grouping according to traffic characteristics to form a presumed session. The claim defines comparing packet with packet and groups together packets whose extracted traffic characteristics look similar into a presumed session – note use of the term "probably" to indicate a probabilistic grouping, not a deterministic grouping. Tayyar merely identifies a packet as part of a *known* session – that is a *deterministic* identification. Tayyar places packets having a common session *identifier* into the corresponding session queue, the session already being known about.

Tayyar fails to teach *probabilistic* identification of a presumed session, only *absolute* determination of a known session.

Tayyar further fails to teach:

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"a session analyzer configured for analyzing said grouped packets for session characteristics, therewith to identify a session type of said probable common session"

since the session type already seems to be known. Although Examiner argues that it would be obvious considering Tayyar to use QoS to identify a session type, applicant argues as discussed above, that it is at most obvious to use QoS to identify a type of a known session. There is no teaching of a probable session and therefore it is not obvious based on a reading of Tayyar combined with the skilled person's general knowledge, to extend the use of QoS to find the session type of a session which has only been probabilistically identified in the first place. Probabilistic determinations and definitive determinations are different fields of endeavor with different mathematics and different textbooks and the claim definitively recites the probability aspect.

As a further point, Tayyar clearly had no intention of using QoS as a method of identifying a session. Using several Queues, wherein each queue has different priority and is used by a group or pre-defined protocols / sessions, is common practice in maintaining required Quality-of-Server (QoS) for specific and known -e.g. by UDP or TCP Port number - or settable rule services, thus ensuring user-experience and performance for those sessions. Tayyar is referring to QoS-assurance per session, rather than identifying sessions according to QoS, which would make little sense in any event.

Examiner argues that the QoS corresponds to the claimed feature of *transport characteristics extracted from the packets*. However, Examiner's attention is drawn to the last three lines of Tayyar paragraph 37 where it is stated that the sessions may correspond to a group of packets for which *it is desired to provide* a certain level of QoS. There is no indication in this paragraph as to how the desire referred to comes about, however the Examiner's attention is again drawn to Tayyar paragraph 20 where it is quite clear that the scheduler receives entities to be scheduled and that the entities include sessions. This would be interpreted by the skilled person as meaning that the scheduler is *told* about the sessions, and the QoS characteristics are *provided* along

with the scheduling information, as *opposed* to being gleaned from the grouped packets.

In other words the QoS characteristics are not taught by Tayyar to be extracted from the packets and thus Tayyar fails to teach the claimed feature of

> "a packet characteristic extraction unit configured for obtaining traffic packet characteristics from a succession of packets, said packets respectively belonging to various unknown sessions".

For the above reasons it is believed that claim 1 as amended is new and inventive over the prior art.

Independent claim 15 has been amended to include the same features and is believed to be allowable for the same reasons.

Claims 2 - 14 and 16 - 24 are dependent claims and are believed to be allowable for at least the reason that they are dependent on allowable main claims.

In view of the above amendments and remarks it is respectfully submitted that claims 1 - 24 are now in condition for allowance. A prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

/Jason H. Rosenblum/

Jason H. Rosenblum Registration No. 56,437 Telephone: 718.246.8482

Date: September 14, 2011

Enclosures:

• Request for Continued Examination (RCE)

UNITED STATES PATENT AND TRADEMARK OFFICE



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NOTICE OF ALLOWANCE AND FEE(S) DUE

67801 7590 11/09/2011 MARTIN D. MOYNIHAN d/b/a PRTSI, INC. P.O. BOX 16446 ARLINGTON, VA 22215 EXAMINER LEE, CHI HO A

ART UNIT PAPER NUMBER
2472

DATE MAILED: 11/09/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/513,510	05/05/2009	Avi Oron	46203	3332

TITLE OF INVENTION: MEDIA SESSION IDENTIFICATION METHOD FOR IP NETWORKS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$870	\$300	\$0	\$1170	02/09/2012

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. <u>PROSECUTION ON THE MERITS IS CLOSED</u>. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN <u>THREE MONTHS</u> FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. <u>THIS STATUTORY PERIOD CANNOT BE EXTENDED</u>. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

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67801 7590 11/09/2011 MARTIN D. MOYNIHAN d/b/a PRTSI, INC. P.O. BOX 16446 - - - - -

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APPLICATION NO.	FILING DATE		FIRST NAMED INVENTOR	1	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/513,510	05/05/2009		Avi Oron		46203	3332
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nonprovisional	YES	\$870	\$300	\$0	\$1170	02/09/2012
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Tee Address" ind PTO/SB/47; Rev 03-0 Number is required.	ondence address (or Cha 3/122) attached. ication (or "Fee Address)2 or more recent) attach ND RESIDENCE DATA less an assignee is ident h in 37 CFR 3.11. Comj	inge of Correspondence " Indication form ed. Use of a Customer A TO BE PRINTED ON 7	 For printing on the particular sector of the names of up to or agents OR, alternative (2) the name of a single registered attorney or a 2 registered patent attorney in the parterney of the parterne	3 registered patent rely, e firm (having as a r gent) and the names meys or agents. If no printed. re) atent. If an assigned assignment.	nember a 2 of up to o name is 3 e is identified below, the d	ocument has been filed for
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
12/513,510	05/05/2009	Avi Oron	46203	3332	
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MARTIN D. MOYNIHAN d/b/a PRTSI, INC. P.O. BOX 16446 ARLINGTON, VA 22215			LEE, CHI HO A		
			ART UNIT	PAPER NUMBER	
			2472		
			DATE MAILED: 11/09/201	1	

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 155 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 155 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

	Application No. Applicant(s)		
	12/513,510	ORON, AVI	
Notice of Allowability	Examiner	Art Unit	
	ANDREW LEE	2472	
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1. \square This communication is responsive to <u>914/11</u> .	
2. An election was made by the applicant in response to a restriction recorder requirement and election have been incorporated into this action.	quirement set forth during the interview on; the restriction
3. ⊠ The allowed claim(s) is/are <u>1-24</u> .	
 4. Acknowledgment is made of a claim for foreign priority under 35 U.S. a) All a) Some* c) None of the: Certified copies of the priority documents have been rec Certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Copies of the certified copies of the priority documents have been rec Certified copies of the certified copies of the priority documents have been rec Certified copies of the certified copies of the priority documents have been rec Certified copies of the certified copies of the priority documents have been rec Total that the copies of the certified copies of the priority documents have been rec Applicant has THREE MONTHS FROM THE "MAILING DATE" of this connected below. Failure to timely comply will result in ABANDONMENT of the THIS THREE-MONTH PERIOD IS NOT EXTENDABLE. 5. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note INFORMAL PATENT APPLICATION (PTO-152) which gives reason (a) including changes required by the Notice of Draftsperson's Pate 1) hereto or 2) to Paper No./Mail Date	ceived. ceived in Application No nave been received in this national stage application from the mmunication to file a reply complying with the requirements his application. the attached EXAMINER'S AMENDMENT or NOTICE OF (s) why the oath or declaration is deficient. hitted.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) sho each sheet. Replacement sheet(s) should be labeled as such in the header	
7. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGIC attached Examiner's comment regarding REQUIREMENT FOR THE D	
Attachment(s) 1. □ Notice of References Cited (PTO-892) 2. □ Notice of Draftperson's Patent Drawing Review (PTO-948) 3. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 4. □ Examiner's Comment Regarding Requirement for Deposit of Biological Material /ANDREW LEE/ Primary Examiner, Art Unit 2472	 5. Notice of Informal Patent Application 6. Interview Summary (PTO-413), Paper No./Mail Date 7. Examiner's Amendment/Comment 8. Examiner's Statement of Reasons for Allowance 9. Other
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