

011706



20427 U.S. PTO

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c)

Express Mail Label No.: EV785689208US

112960 U.S. PTO
60/759697



011706

INVENTORS

Inventor Name	Residence (City and either State or Foreign Country)
Jun Tan	Lake Zurich, Illinois, United States

Additional inventors are being named on the 2 separately numbered sheet attached hereto

TITLE OF THE INVENTION (280 characters maximum)

PREAMBLE SEQUENCING FOR RANDOM ACCESS CHANNEL IN A COMMUNICATION SYSTEM

CORRESPONDENCE ADDRESS

Direct all correspondence to:

Customer Number 22917

OR

<input type="checkbox"/>	Firm or Individual Name				
Address					
Address					
City		State		Zip	
Country		Telephone		Fax	

ENCLOSED APPLICATION PARTS (check all that apply)

- Specification Pages Number of Pages 25 CD(s), Number
- Drawings Number of Sheets 11 Other (specify)
- Application Data Sheet. See 37 CFR 1.76

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT

- Applicant claims small entity status. See 37 CFR 1.27.
- A check or money order is enclosed to cover the filing fees

The Director is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: **502117**.

Filing Fee Amount (\$)

\$200.00

Payment by credit card. Form PTO-2038 is attached.

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

No.

Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,

Date January 17, 2006

SIGNATURE

TYPED or PRINTED NAME Brian M. Mancini

REGISTRATION NO. 39,288

(if appropriate)

TELEPHONE 847-576-3992

Docket Number: CE15637R

20427
U.S. PTO
0-1709

Effective on 12/08/2004

Reg. pursuant to the Consolidated Appropriations Act. 2005 (H.R. 4818)

FEE TRANSMITTAL
For FY 2005

Applicant claims small entity status. See 37 CFR 1.27

Complete if Known

Application Number	
Filing Date	
First Named Inventor	Tan et al.
Examiner Name	
Group Art Unit	
Attorney Docket No.	CE15637R

TOTAL AMOUNT OF PAYMENT (\$)

METHOD OF PAYMENT (check all that apply)

- Check Credit card Money Order None Other (please identify): _____
- Deposit Account Deposit Account Number: **502117** Deposit Account Name: **MOTOROLA, INC.**
- For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)
- Charge fee(s) indicated below Charge fee(s) indicated below, **except for the filing fee**
- Charge any additional fee(s) or underpayments of fee(s) Credit any overpayments
- under 37 CFR 1.16 and 1.17

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	Fee (\$)	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
		Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	Small Entity Fee (\$)	Fee (\$)	
Utility	300	150	500	250	200	100		
Design	200	100	100	50	130	65		
Plant	200	100	300	150	160	80		
Reissue	300	150	500	250	600	300		
Provisional	200	100	0	0	0	0	\$200.00	

2. EXCESS CLAIM FEES

Fee Description	Fee (\$)	Small Entity Fee (\$)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims - 20 or HP = x = Multiple Dependent Claims Fee(\$)= Fee Paid (\$)=

HP=highest number of total claims paid for, if greater than 20

Indep. Claims - 3 or HP = x = Fee Paid (\$)=

HP=highest number of independent claims paid for, if greater than 3

3. APPLICATION SIZE FEE:

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets - 100 = Extra Sheets /50 = Number of each additional 50 or fraction thereof (round up to a whole number) x Fee (\$)= Fee Paid(\$)=

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount) Fee Paid (\$)= _____

Other: _____ _____

SUBMITTED BY

Complete (if applicable)

Name (Print/Type)	Brian M. Mancini	Registration No.	39,288	Telephone	847-576-3992
Signature		Date	January 17, 2006		

**PREAMBLE SEQUENCING FOR RANDOM ACCESS CHANNEL
IN A COMMUNICATION SYSTEM**

TECHNICAL FIELD OF THE INVENTION

[001] This invention relates generally to communications and more particularly to use of a random access channel in a communication system.

BACKGROUND OF THE INVENTION

[002] Various communications protocols are known in the art. For example, the Third Generation Partnership Project (3GPP) has been working towards developing a number of protocols for use with a wireless communication path. The original scope of 3GPP was to produce globally applicable technical specifications and technical reports for a 3rd generation mobile system based on evolved Global System for Mobile communication (GSM) core networks and the radio access technologies that they support, such as Evolved Universal Terrestrial Radio Access (EUTRA) including both Frequency Division Duplex (FDD) and Time Division Duplex (TDD) modes. 3GPP's scope was subsequently amended to include the maintenance and development of GSM technical specifications and technical reports including evolved radio access technologies (e.g. General Packet Radio Service (GPRS) and Enhanced Data rates for GSM Evolution (EDGE)).

[003] Presently, EUTRA calls for a random access channel (RACH) protocol and in particular a physical random access procedure requiring reserved resources for RACH access. The RACH channel is used for initial access to the network as well as to transmit small to medium amount of control information and data packets. This 3GPP UMTS specification permits an overall procedure that allows for various protocol/operational states to suit varying degrees of needed, anticipated, and/or desired operational activity for transmission of data packets. Unfortunately, for some desired applications using small of medium amounts of control information and data packets, the amount of data transmission activity appears to underutilize these reserved RACH resources, thereby wasting transmission resources.

[004] The RACH (random access channel) is essential for initial access to the network, for the transmission of control information and data packets. The initial access channel has different names in different systems, such as RACH in the context of 3GPP, or ranging in the context of IEEE std. 802.16e. In this invention, we use RACH in its general sense to represent the initial access channel of communication systems.

[005] It is desired that the RACH include a contention channel, fast acquisition of preamble, minimization of interference, minimum impact on other scheduled data transmission, and low data rate transmission for short data/control messages. Several options are available for multiplexing between the RACH and scheduled-based channels; Time Division Multiplexing (TDM), Frequency Division Multiplexing (FDM), and Code Division Multiplexing (CDM). However, in the 3GPP system problems arise for multiplexing between RACH and scheduled-based channels using either TDM or FDM. In particular, TDM requires reservation of slots for RACH access, and FDM requires a frequency (subcarrier) reservation for RACH access. In either case, a resource reservation is allotted even if there are few RACH requests in the system, which withholds unused resources that adversely affect system capacity. CDM transmission, on the other hand, will generate interference to other uplink users.

[006] To control interference generated by CDM transmission, a MC-CDMA (multi-carrier code division multiple access) technique can be applied for RACH design without reserving system resources. This invention uses this technique for non-reserved RACH access of EUTRA communication system.

BRIEF DESCRIPTION OF THE DRAWINGS

[007] The features of the present invention, which are believed to be novel, are set forth with particularity in the appended claims. The invention, together with further objects and advantages thereof, may best be understood by making reference to the following description, taken in conjunction with the accompanying drawings, in the several figures of which like reference numerals identify identical elements, wherein:

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.