

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,676,194 B2
APPLICATION NO. : 10/919515
DATED : March 9, 2010
INVENTOR(S) : Theodore S. Rappaport

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Column 24, Line 18, delete “display terminal, a gaming devices” and insert -- display terminal, a gaming device --.

Signed and Sealed this
Fourth Day of February, 2025

A handwritten signature in black ink, appearing to read "Coke Morgan Stewart", with a stylized flourish at the end.

Coke Morgan Stewart
Acting Director of the United States Patent and Trademark Office



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United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA	5602

7590 02/04/2025
Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

EXAMINER

REGO, DOMINIC E

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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02/04/2025

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

APPLICATION NO.	ISSUE DATE	PATENT NO.
10/919,515	04-Feb-2025	07676194

Whitham, Curtis & Christofferson, PC
Suite 340
Reston, VA 20190

ELECTRONIC CERTIFICATE OF CORRECTION NOTIFICATION

Your electronic certificate of correction is now available, and can be accessed via Patent Center at <https://patentcenter.uspto.gov>.

The electronic certificate of correction is the official certificate of correction under 35 U.S.C. 254 or 255. For more information, please visit <https://www.uspto.gov/electronicgrants>.

UNITED STATES
PATENT AND TRADEMARK OFFICEP.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov**ELECTRONIC ACKNOWLEDGEMENT RECEIPT**APPLICATION #
10/919,515RECEIPT DATE / TIME
12/23/2024 04:08:41 PM Z ETATTORNEY DOCKET #
08610001AA**Title of Invention**

BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

Application InformationAPPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # 7676194

CONFIRMATION # 5602

FILED BY Michael Whitham

PATENT CENTER # 68497719

FILING DATE 08/17/2004

CUSTOMER # -

FIRST NAMED
INVENTOR Theodore S. RappaportCORRESPONDENCE
ADDRESS Whitham, Curtis & Christofferson, PC,
-
Suite 340, 11491 Sunset Hills Rd.
Reston, VIRGINIA 20190
UNITED STATES

AUTHORIZED BY -

Documents**TOTAL DOCUMENTS: 2**

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
certificatePatentC.pdf	1	Miscellaneous Incoming Letter	15 KB
US Pat. No. 7676194 - Certificate of Correction.pdf	2	Request for Certificate of Correction	185 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
certificatePatentC.pdf	1C80B140C0942AFF027B8B778798476C6F18D4F64AE1B47EF A20AA81E6ABA98B4C2903B3B75E099DAA89B5CC39AE5A5A CC7F35E30B56D7DAAEAB93B4A8099D23

US Pat. No. 7676194 -
Certificate of Correction.pdf

BE7A8F172077D0837C924E75B26CE65D09470A92AC6A0AFE5
68AC8028D849DA366678C33A42FB0088C5577270B9396EFB0
0F6656E20336D916A59FF0F0281A94

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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ELECTRONIC PAYMENT RECEIPT

APPLICATION #
10/919,515

RECEIPT DATE / TIME
12/23/2024 04:08:41 PM Z ET

ATTORNEY DOCKET #
08610001AA

Title of Invention

BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # 7676194

CONFIRMATION # 5602

FILED BY Michael Whitham

PATENT CENTER # 68497719

AUTHORIZED BY -

CUSTOMER # -

FILING DATE 08/17/2004

CORRESPONDENCE ADDRESS Whitham, Curtis & Christofferson, PC,
- Suite 340, 11491 Sunset Hills Rd.
Reston, VIRGINIA 20190
UNITED STATES

FIRST NAMED INVENTOR Theodore S. Rappaport

Payment Information

PAYMENT METHOD
CARD / 6511

PAYMENT TRANSACTION ID
E2024BMG09335500

PAYMENT AUTHORIZED BY
Michael Whitham

FEE CODE	DESCRIPTION	ITEM PRICE(\$)	QUANTITY	ITEM TOTAL(\$)
2811	CERTIFICATE OF CORRECTION	160.00	1	160.00
TOTAL AMOUNT:				\$160.00

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re US Patent 7,676,194 of Rappaport Issued March 9, 2010
From US Serial No. 10/919515 Confirmation No. 5602
Filed August 17, 2004
For Broadband Repeater with Security for Ultrawideband Technologies

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

**REQUEST FOR CERTIFICATE OF CORRECTION UNDER
37 C.F.R. 1.323**

Sir:

An error has been found in the patent as detailed by form PTO/SB/44 filed concurrently herewith. From a review of the file, these error is minor and clerical. The fee for the certificate of correction accompanies this filing, and if there are any deficiencies in fees, the Commissioner is authorized to charge attorney's deposit account 50-2041 (WCF IP).

Respectfully submitted,
/Michael E. Whitham/
Michael E. Whitham
Reg. No. 32,635

WCF IP
11491 Sunset Hills Road, Suite 340
Reston, VA 20190
Tel. (703) 787-9400
Fax. (703) 787-7557
Customer No.: 164319

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**Page 1 of 1

PATENT NO. : 7,676,194
APPLICATION NO.: 10/919,515
ISSUE DATE : March 9, 2010
INVENTOR(S) : Theodore S. Rappaport

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 24, Line 18, delete "display terminal, a gaming devices" and insert -- display terminal, a gaming device --.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Whitham, Cook & Fields P.C.
11491 Sunset Hills Road, STE 340
Reston, VA 20190

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Routine uses of the information in this record may include disclosure to: 1) law enforcement, in the event that the system of records indicates a violation or potential violation of law; 2) a Federal, state, local, or international agency, in response to its request; 3) a contractor of the USPTO having need for the information in order to perform a contract; 4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record; 5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record; 6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations; 7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals; 8) another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)); 9) the Office of Personnel Management (OPM) for personnel research purposes; and 9) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
10/919,515

RECEIPT DATE / TIME
12/23/2024 04:03:46 PM Z ET

ATTORNEY DOCKET #
08610001AA

Title of Invention

BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	7676194
CONFIRMATION #	5602	FILED BY	Michael Whitham
PATENT CENTER #	68497155	FILING DATE	08/17/2004
CUSTOMER #	—	FIRST NAMED INVENTOR	Theodore S. Rappaport
CORRESPONDENCE ADDRESS	Whitham, Curtis & Christofferson, PC, — Suite 340, 11491 Sunset Hills Rd. Reston, VIRGINIA 20190 UNITED STATES	AUTHORIZED BY	—

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
certificatePatentC.pdf	1	Miscellaneous Incoming Letter	15 KB
US Pat. No. 7676194 - Certificate of Correction.pdf	2	Request for Certificate of Correction	185 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
certificatePatentC.pdf	1C80B140C0942AFF027B8B778798476C6F18D4F64AE1B47EF A20AA81E6ABA98B4C2903B3B75E099DAA89B5CC39AE5A5A CC7F35E30B56D7DAAEAB93B4A8099D23

US Pat. No. 7676194 -
Certificate of Correction.pdf

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68AC8028D849DA366678C33A42FB0088C5577270B9396EFB0
0F6656E20336D916A59FF0F0281A94

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Respectfully submitted,
/Michael E. Whitham/
Michael E. Whitham
Reg. No. 32,635

WCF IP
11491 Sunset Hills Road, Suite 340
Reston, VA 20190
Tel. (703) 787-9400
Fax. (703) 787-7557
Customer No.: 164319

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**Page 1 of 1

PATENT NO. : 7,676,194
APPLICATION NO.: 10/919,515
ISSUE DATE : March 9, 2010
INVENTOR(S) : Theodore S. Rappaport

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	03/09/2010	7676194	08610001AA	5602

7590 02/17/2010

Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 1516 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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 Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Theodore S. Rappaport, Austin, TX;

TRANSMITTAL OF PAYMENT OF ISSUE FEE (Small Entity) (37 C.F.R. 1.311)	Docket No. 08610001AA
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Applicant(s): T. Rappaport

Application No. 10/919,515	Filing Date 8/17/2004	Examiner D. Rego	Customer No. 30743	Group Art Unit 2618	Confirmation No. 5602
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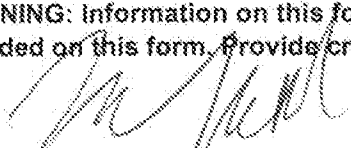
Invention: Broadband Repeater with Security for Ultrawideband Technologies

Mail Stop Issue Fee
COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, VA 22313-1450

Transmitted herewith are the following for the above-identified application.

- ☒ Issue Fee Transmittal Form PTOL-85
- ☒ Utility Fee: \$ 785.00 ☐ Design Fee: ☐ Plant Fee:
- ☒ Publication Fee: \$ 300.00
- ☐ A check in the amount of is attached.
- ☒ The Director is hereby authorized to charge and credit Deposit Account No. 50-2041 as described below.
- ☒ Charge the amount of \$1,085.00
- ☒ Credit any overpayment.
- ☒ Charge any additional fee required.
- ☐ Payment by credit card. Form PTO-2038 is attached.

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.



Dated: Jan. 20, 2010

Signature

Michael E. Whitham
Reg. No. 32,635

Whitham Curtis Christofferson & Cook, PC
11491 Sunset Hills Road - #340
Reston, VA 20190
Customer No. 30743

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Typed or Printed Name of Person Mailing Correspondence

Samstag, 19. Jan. 2010, 10:47:24

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

7599

10/21/2009

Whitham, Curtis & Christofferson, PC
 Suite 340
 11491 Sunset Hills Rd.
 Reston, VA 20190

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Certificate of Mailing or Transmission

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(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	08/17/2004	Theodore S. Rappaport	08810091AA	5602

TITLE OF INVENTION: BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	01/21/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
REGO, DOMINIC E	2618	455-011100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

Whitham Curtis
 Christofferson & Cook, PC

2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☒ Advance Order - # of Copies 10

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 50-2041 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant, a registered attorney or agent, or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

Date Jan. 20, 2010

Typed or printed name Michael E. Whitham

Registration No. 32,635

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal

Application Number:	10919515			
Filing Date:	17-Aug-2004			
Title of Invention:	BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES			
First Named Inventor/Applicant Name:	Theodore S. Rappaport			
Filer:	Michael E. Whitham/karen lumpkins			
Attorney Docket Number:	08610001AA			
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	755	755
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Printed copy of patent - no color	8001	10	3	30
Total in USD (\$)				1085

Electronic Acknowledgement Receipt

EFS ID:	6846267
Application Number:	10919515
International Application Number:	
Confirmation Number:	5602
Title of Invention:	BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES
First Named Inventor/Applicant Name:	Theodore S. Rappaport
Correspondence Address:	Whitham, Curtis & Christofferson, PC - Suite 340 11491 Sunset Hills Rd. Reston VA 20190 US 7037879400 -
Filer:	Michael E. Whitham/karen lumpkins
Filer Authorized By:	Michael E. Whitham
Attorney Docket Number:	08610001AA
Receipt Date:	20-JAN-2010
Filing Date:	17-AUG-2004
Time Stamp:	15:22:39
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 1085

RAM confirmation Number	1781				
Deposit Account	502041				
Authorized User					
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	08610001AA-payIF.PDF	358630	no	2
			3cd0792e019cf68b20f3eeced57c112c778c74c9		
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	33896	no	2
			aa64b5dcf14443389b79ded4ef00d1b4b2e8e189		
Warnings:					
Information:					
Total Files Size (in bytes):			392526		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

10919515

CE 11/24/09

INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)	ATTY DOCKET NO.	APPLICATION NO.
	08610001AA	Not Assigned
	APPLICANT(S)	
	Rappaport	
	FILING DATE	GROUP ART UNIT
	Concurrently	Not Assigned

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
/DR/	6,505,032	06/07/03	McCorkle et al.			
/DR/	6,590,545	07/08/03	McCorkle			

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
/DR/	20020198977	12/26/02	Cho			
/DR/	20030096578	05/22/03	McCorkle et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		Intel Technology Journal; Vol. 7, Issue 3; August 2003
		"Pick Your Wireless Solution"; publication date and source/author unknown

EXAMINER

/Dominic Rego/

DATE CONSIDERED

01/18/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 10/21/2009

Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

EXAMINER

REGO, DOMINIC E

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 10/21/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/919,515

08/17/2004

Theodore S. Rappaport

08610001AA

5602

TITLE OF INVENTION: BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	01/21/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. 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 THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. 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.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

7590 10/21/2009

Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/919,515 08/17/2004 Theodore S. Rappaport 08610001AA 5602

TITLE OF INVENTION: BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional YES \$755 \$300 \$0 \$1055 01/21/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
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REGO, DOMINIC E 2618 455-011100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA	5602

7590 10/21/2009

Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

EXAMINER

REGO, DOMINIC E

ART UNIT	PAPER NUMBER
----------	--------------

2618

DATE MAILED: 10/21/2009

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 873 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 873 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.

Notice of Allowability	Application No.	Applicant(s)	
	10/919,515	RAPPAPORT, THEODORE S.	
	Examiner	Art Unit	
	DOMINIC E. REGO	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY 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.

1. ☒ This communication is responsive to 06/29/2009.
2. ☒ The allowed claim(s) is/are 1,2,4,6,7,11-13,16-19,24,25,29-32,34,37-39 and 41-43.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. ☐ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson'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 | <ol style="list-style-type: none"> 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 _____. |
|---|--|

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-2,4,6-7,11-13,16-19,24-25,29-32,34,37-39, and 41-43 are allowed.
2. The examiner's reason for allowing the independent claims 1,18,38, and 41 is presented based on Applicant's Remarks filled on 06/29/2009.

Regarding claims 2,4,6-7,11-13,16-17,19,24-25,29-32,34,37,39, and 42-43, the claims are allowed as being dependent of claims 1,18,38, and 41, respectively.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOMINIC E. REGO whose telephone number is (571)272-8132. The examiner can normally be reached on Monday-Friday, 9:00 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc M. Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2618

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dominic E Rego/
Examiner, Art Unit 2618
Tel 571-272-8132

/Duc Nguyen/
Supervisory Patent Examiner, Art Unit 2618

Search Notes 	Application/Control No. 10919515	Applicant(s)/Patent Under Reexamination RAPPAPORT, THEODORE S.
	Examiner DOMINIC E REGO	Art Unit 2618

SEARCHED			
Class	Subclass	Date	Examiner
455	3.02,427,7,11.1,12.1,13.1,13.2,16	1/22/08	DR
370	226,243,246,274,279,293,315,316,492,501	1/22/08	DR
above	Updated	10/14/2009	DR

SEARCH NOTES		
Search Notes	Date	Examiner
East search	1/22/08	DR
Google, Inventor and updated east search	2/19/2009	DR
East- See Search History Printout	10/14/2009	DR

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	PGPUB- Text Search- See Interference Search Printout	10/14/2009	DR

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EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	72937	(repeater relay\$3 re\$transmi\$5 booster).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:15
L4	1481	(ultra\$wide\$band ultra adj wide \$band).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:15
L5	73	3 and 4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:15
L6	1	2 and 5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:16
L8	25	((ultra\$wide\$band ultra adj wide \$band) same (repeater relay\$3 re\$transmi\$5 booster)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:17
L9	14	8 and (@ad <= "20030822" @rlad <= "20030822" @pd <= "20030822")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:18

10/ 14/ 2009 11:20:28 PM**C:\ Documents and Settings\ drego\ My Documents\ EAST\ Workspaces\ 10919515c.wsp**

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	75	(theodore near2 rappaport).in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:14
L8	25	((ultra\$wide\$band ultra adj wide \$band) same (repeater relay\$3 re\$transmi\$5 booster)).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:17
L9	14	8 and (@ad <= "20030822" @rlad <= "20030822" @pd <= "20030822")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/14 23:18
S4	171	(repeater relay\$3 re\$transmi\$6) same (ultra\$wide \$band ultra adj wide\$band)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/05 22:05
S5	35	S4 same (controller control \$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/05 22:06
S6	10	S5 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/05 22:07

S7	36	repeater same (ultra\$wide\$band ultra adj wide \$band)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/05 22:33
S8	21	S7 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/05 22:33
S9	4	repeater same (ultra\$wide\$band ultra adj wide \$band) near2 (device terminal unit)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/10/06 11:53

10/14/2009 11:20:54 PM

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA	5602

7590 08/21/2009
Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

EXAMINER

REGO, DOMINIC E

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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08/21/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Interview Summary	Application No. 10/919,515	Applicant(s) RAPPAPORT, THEODORE S.	
	Examiner DOMINIC E. REGO	Art Unit 2618	

All participants (applicant, applicant's representative, PTO personnel):

(1) DOMINIC E. REGO, Assistant Examiner. (3)_____.

(2) Michael E. Whitham, Attorney, Reg. No. 32,635. (4)_____.

Date of Interview: 19 August 2009.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.

If Yes, brief description: _____.

Claim(s) discussed: N/A.

Identification of prior art discussed: N/A.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: An advisory Action was given to this application on 07/30/09 which has been vacated. Prior to the Advisory action, a final action was given on 02/27/2009 which supposed to be non-Final .

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Dominic E. Rego/
Examiner, Art Unit 2618



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA	5602

7590 07/30/2009
Whitham, Curtis & Christofferson, PC
Suite 340
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Reston, VA 20190

EXAMINER

REGO, DOMINIC E

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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07/30/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Advisory Action Before the Filing of an Appeal Brief	Application No. 10/919,515	Applicant(s) RAPPAPORT, THEODORE S.	
	Examiner DOMINIC E. REGO	Art Unit 2618	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 06 July 2009 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☒ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
- (a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ They raise the issue of new matter (see NOTE below);
- (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
- The status of the claim(s) is (or will be) as follows:
- Claim(s) allowed: _____.
- Claim(s) objected to: _____.
- Claim(s) rejected: 1,2,4,6,7,11-13,16-19,24,25,29-32,34,37-39, and 41-43.
- Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

/Duc Nguyen/
Supervisory Patent Examiner, Art Unit 2618

Do not enter
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Rappaport

Confirmation No. 5602

Serial No. 10/919,515

Group Art Unit 2661

Filed August 17, 2004

Examiner D. Rego

For BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND
TECHNOLOGIES

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

PETITION FOR A TWO MONTH EXTENSION OF TIME AND
AMENDMENT UNDER 37 C.F.R. 1.111

Sir:

Applicant hereby petitions for a two month extension of time to respond to the office action mailed February 27, 2009. The Commissioner is authorized to charge attorney's deposit account 50-2041 (Whitham, Curtis, Christofferson & Cook) for the extension of time fee and for any other fees required to gain entry and consideration of this amendment.

Applicant and the undersigned thank Examiner Rigo for the interview which took place on June 29, 2009. This amendment makes the substance of the interview of record in the case.

In response to the office action mailed February 27, 2009, the applicant requests entry of the following amendments and reconsideration in view of the following remarks..

Listing of the Claims: begin on page 2

Remarks: begin on page 8



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA	5602

7590 07/06/2009
Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

EXAMINER

REGO, DOMINIC E

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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07/06/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<i>Interview Summary</i>	Application No. 10/919,515	Applicant(s) RAPPAPORT, THEODORE S.	
	Examiner DOMINIC E. REGO	Art Unit 2618	

All participants (applicant, applicant's representative, PTO personnel):

(1) DOMINIC E. REGO, ASSISTANT EXAMINER. (3) _____.

(2) MICHAEL E. WHITHAM, REG. NO. 32,635. (4) _____.

Date of Interview: 29 June 2009.

Type: a) ☐ Telephonic b) ☐ Video Conference
c) ☒ Personal [copy given to: 1) ☒ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: _____.

Claim(s) discussed: 1, 18, 38, and 41.

Identification of prior art discussed: Proctor, JR. et al. (US Pub. No. 2006/0063484) and Matsuda (US Pub. No. 2002/0072357).

Agreement with respect to the claims f) ☒ was reached. g) ☐ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Agreed to amend the above claims in such a way in order to overcome prior arts.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

	/Duc Nguyen/ Supervisory Patent Examiner, Art Unit 2618
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Rappaport

Confirmation No. 5602

Serial No. 10/919,515

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Filed August 17, 2004

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TECHNOLOGIES

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In response to the office action mailed February 27, 2009, the applicant requests entry of the following amendments and reconsideration in view of the following remarks..

Listing of the Claims: begin on page 2

Remarks: begin on page 8

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1. (Currently amended) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband wireless devices in a network, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller, which is either pre-programmed or programmable with network information which at least identifies said one or more ultrawideband wireless devices, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes for said network,

said controller controlling reception of electronic signals or data by said at least one receiver from said one or more ultrawideband wireless devices and transmission by said at least one transmitter to said one or more ultrawideband wireless devices,

said controller further providing for the collecting, reporting, or storing of network usage, network statistics, or network information for said network.

2. (Currently amended) The broadband repeater of claim 1 wherein said network information includes one or more of IDs for each of the components to be used in said a network, and IDs for users permitted to be used in said a network.

3. (Canceled)

4. (Currently amended) The broadband repeater of claim 1 wherein said network

information includes one or more of a specified coverage area for wireless devices to permit use of said a network, and specified applications permitted to be used in said a network.

5. (Canceled)

6. (Previously presented) The broadband repeater of claim 1 further comprising a buffer memory for storing received or to be transmitted electronic signals for processing by said controller.

7. (Previously presented) The broadband repeater of claim 1 wherein either or both said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals by either or both a wireless or a wired link.

8-10. (Canceled)

11. (Previously presented) The broadband repeater of claim 1 wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an AC outlet, a room fixture, a display terminal, a gaming device, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer.

12. (Previously presented) The broadband repeater of claim 1 wherein said controller permits one or more of network information to be modified and support of position location capabilities for use by a network.

13. (Previously presented) The broadband repeater of claim 1 wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or

wired connectivity.

14-15. (Canceled)

16. (Original) The broadband repeater of claim 1 where network provisioning information is passed to or pre-programmed with said controller, for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data and transmission of data to or from said repeater.

17. (Original) The broadband repeater of claim 1 wherein said transmitter and said receiver have reversible input/output directions.

18. (Currently amended) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband wireless devices in a network, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller which is either pre-programmed or programmable with provisioning information which at least identifies said one or more ultrawideband wireless devices for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter to said one or more ultrawideband wireless devices, said controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter to said one or more ultrawideband wireless devices.

19. (Previously presented) The broadband repeater of claim 18 wherein said provisioning information prioritizes by one or more of network user type of data

being received by said at least one receiver, type of data being transmitted by said at least one transmitter, and the particular type of application being used by one or more users of the network being transmitted by said at least one transmitter.

20-23. (Canceled)

24. (Previously presented) The broadband repeater of claim 18 further comprising a buffer memory for storing received or to be transmitted electronic signals or data for processing by said controller.

25. (Previously presented) The broadband repeater of claim 18 wherein either or both said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals or data by either or both a wireless or a wired link.

26-28 . (Canceled)

29. (Previously presented) The broadband repeater of claim 18 wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an AC outlet, a room fixture, a display terminal, a gaming devices, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer.

30. (Previously presented) The broadband repeater of claim 18 wherein said controller permits one or more of provisioning information to be modified and support of position location capabilities for use by a network .

31. (Original) The broadband repeater of claim 18 wherein said provisioning information supplied to said controller is communicated using either a wireless or wired link.

32. (Previously presented) The broadband repeater of claim 31 wherein said provisioning information is further supplied to said controller by one or more of

over-the-air ultrawideband signaling, and wired connections from another device.

33. (canceled)

34. (Previously presented) The broadband repeater of claim 18 wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

35-36. (Canceled)

37. (Original) The broadband repeater of claim 18 wherein said transmitter and said receiver have reversible input/output directions.

38. (Currently amended) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband wireless devices in a network, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller which is either pre-programmed or programmable to collect traffic information or security information related to received and transmitted data at least some of which is received from or sent to said one or more ultrawideband wireless devices in said network, said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter.

39. (Previously presented) The broadband repeater of claim 38 further comprising one or more of

a means for exporting traffic information or security information to one or more computer processors or devices, and

a means for adjusting one or more operations of said controller based on said traffic information or security information.

40. (Canceled)

41. (Original) A broadband repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband wireless devices and at least some of said signals being sent by a wired link, said one or more ultrawideband wireless devices being in a network which includes said wired link, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller for controlling reception of electronic signals by said at least one receiver from said one or more ultrawideband wireless devices and said wired link and transmission by said at least one transmitter to said one or more ultrawideband wireless devices and said wired link,

wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater.

42. (Original) The broadband repeater of claim 1 wherein either pre-programmed or programmable network information supplied to said controller is communicated using either a wireless or wired link.

43. (Previously presented) The broadband repeater of claim 42 wherein said network information is further supplied to said controller by one or more of over-the-air ultrawideband signaling, and a wired connection from other devices

44. (Canceled)

REMARKS

Claims 1, 2, 4, 18, 38 and 41 have been amended. The application includes claims 1, 3, 5-7, 11-13, 16-19, 24, 29-32, 34, 37-39, and 41-43.

The amendments highlight the broadband wireless repeater's involvement with ultrawideband (UWB) wireless devices in a network (it being understood that the network can include wired links as well). By contrasting Figures 1 and 2 of the application, it can be seen as an example in household personal area network (PAN) a plurality of different devices (desktop computers, tablet computers 16, televisions 18, phones 20, wrist watches 22, etc.) can be in communication with a host device 12 without wiring up the local area (Figure 1), but devices further away from the host 12 will be more susceptible to interference from undesired users or noise sources and will be more susceptible to spam attacks (see the application page 16, lines 1-11).

As discussed during the interview, the controller, as set forth in the claims (being in an ultrawideband repeater and performing specified functions) distinguishes the invention from the prior art of record. When the broadband wireless repeater 24 (Figure 2) of the claimed invention is employed, the repeater effectively extends the range of the network to outlying users (see the application at page 16, line 18), and because of the controller employed in the repeater a variety of benefits are added to the network (e.g., as set forth in claim 1, the controller either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes for said network; as set forth in claim 18, the controller provides for network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter to said one or more ultrawideband wireless devices; as set forth in claim 38, the controller is either pre-programmed or programmable to collect traffic information or security information related to received and transmitted data at least some of which is received from or sent to said one or more wireless devices in said network, said controller controlling reception of electronic signals 1004, Page 50 of 249

at least one receiver and transmission by said at least one transmitter; and as set forth in claim 41 the controller controls reception of electronic signals by said at least one receiver from said one or more ultrawideband wireless devices and said wired link and transmission by said at least one transmitter to said one or more ultrawideband wireless devices and said wired link, wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater.

As explained in the paragraph on page 17 lines 1-24, and with reference to Figure 7, the controller, in addition to its additional functions specified in the claims, at least has knowledge of the ultrawideband wireless devices (e.g., a listing of equipment that are in the network, a count of equipment, a coverage area of particular wireless devices). Claims 1, 18, 38 and 41 all specify that the repeater is used in a network that includes one or more ultrawideband wireless devices, and the controller has information which identifies at least these one or more ultrawideband wireless devices.

As noted in the previous response, broadband consumption is rapidly increasing across the world, and people are now using a variety of devices (e.g., computers, Ipods, video games, media devices, etc.) within a small area (e.g., home, office, vehicle). With the rapid evolution of this area, security and data screening has become more and more important as networks become open, and as more and more content is served over the Internet. The fundamental tradeoff between power and bandwidth can be addressed by repeaters that allow retransmission of signals at sufficient strength across rooms, floors, partitions, inside and outside buildings, etc. However, security and provisioning issues will be extremely important for handling ultrawideband signals where networks which include one or a plurality of wireless devices are employed (it being clear that allowing networks to include more and more wireless devices provides the optimum in terms of flexibility and convenience). Only the present invention solves the unique challenges and enables networks of ultrawideband devices including wireless devices to have sufficient security, protection from spammers, filtering of noise and unwanted signals, suitable provisioning, etc. Before the filing date of this application, because of the lack of focus on high bandwidth delivery into homes and offices, it would not have been obvious to one of ordinary skill in the art at the time of the invention.

skill in the art to provide a repeater which would commingle data that was originated or transferred by either wireline or wireless sources since ultrawideband products were not yet commercially available and consumers did not yet have the devices or equipment that could accept such broadband data rates. In addition, screening of data in a broadband wireless repeater device would not have been obvious to one of ordinary skill in the art because the problems of spam and denial of service attacks were not generally known to be an issue for wireless local area networks at the time of the applications filing date.

Claims 1, 2, 4, 6, 7, 11, 38, 39, 42, and 43 were rejected as being obvious over a combination of U.S. Patent Publication 2006/0063484 to Proctor in view of U.S. Patent 6,272,640 to Sokol. Claim 12 was rejected as being obvious over the Proctor/Sokol combination further in view of U.S. Patent Publication 2005/0208889 to Baker. Claim 13 was rejected as being obvious over the Proctor/Sokol combination further in view of U.S. Patent Publication 2003/0124976 to Tamaki. Claim 16 was rejected as being obvious over the Proctor/Sokol combination further in view of U.S. Patent Publication 2002/0093928 to LoGalbo. Claim 17 was rejected as being obvious over the Proctor/Sokol in view of U.S. Patent 6,110,221 to Pai. Claims 18, 19, 25, 29, 31, and 32 were rejected as being obvious over Proctor in view of LoGalbo. Claim 24 was rejected as being obvious over Proctor in view of U.S. Patent Publication 2006/0106961 to Ebata. Claim 30 was rejected as being obvious over a combination of Proctor, LoGalbo, and Baker. Claim 34 was rejected as being obvious over a combination of Proctor, LoGalbo and Tamaki. Claim 41 has been rejected as being obvious over Proctor in view of U.S. Patent Publication 2002/0072357 to Matsuda. Each of these rejections is traversed.

The undersigned appreciates the arguments to the previous rejections were fully considered and were persuasive (see office action at page 18).

However, there are some fundamental errors that have persisted in the present office action, particularly with respect to the Proctor reference. Contrary to the assertions made in the office action, Proctor does not teach a controller that passes, ignores, rejects, redirects, modifies or kills received data as required in claim 1. Proctor does not teach a controller that performs a provisioning function as required in claim 18. As indicated in the last amendment, in Proctor the

repeater only does frequency translation and does no controlling. The Examiner has relied on paragraphs [0022]-[0024] in connection with these asserted features and these paragraphs are reproduced below:

[0022] To address the difficulties posed by obstructions as described above and attendant attenuation of the signal strength along obstructed paths and thus to enhance the coverage and/or communication data rate to client unit 105, exemplary wireless repeater 200, as shown in FIG. 1, may be used to retransmit packets beyond a range limited by propagation path constraints through, for example, frequency translation. Packets transmitted on a first frequency channel 201 from AP 100 are received at repeater 200 and **re-transmitted, preferably with a greater power level, on a second frequency channel 202.** Client unit 105 preferably operates on second frequency channel 202 as if AP 100 were also operating on it, such as with no knowledge that AP 100 is really operating on first frequency channel 201 such that the frequency translation is transparent. To perform return packet operations, repeater unit 200 detects the presence of a transmitted return packet on second frequency channel 202 from client unit 105, and is preferably configured to receive the packet on second frequency channel 202, and to retransmit the data packet to, for example AP 100, on first frequency channel 201.

[0023] Wireless repeater 200 is preferably capable of receiving two different frequencies simultaneously, such as first frequency channel 201 and second frequency channel 202 determining which channel is carrying a signal associated with, for example, the transmission of a packet, **translating from the original frequency channel to an alternative frequency channel and retransmitting the frequency translated version of the received signal on the alternative channel.** Details of internal repeater operation may be found in co-pending PCT Application No. PCT/US03/16208 the contents of which are incorporated herein by reference.

[0024] **Repeater 200 may thus receive and transmit packets at the same time on different frequency channels** thereby extending the

coverage and performance of the connection between AP 100 and client unit 105, and between peer-to-peer connections such as from one client unit to another client unit. When many units are isolated from one another, repeater unit 200 further acts as a wireless bridge allowing two different groups of units to communicate where optimum RF propagation and coverage or, in many cases, any RF propagation and coverage was not previously possible.

As noted from the highlighted portions of the textual passages in Proctor, it is quite clear that Proctor only contemplates frequency translation (i.e., converting from one frequency to another for retransmission), and the Proctor does not perform any function similar to passing, ignoring, rejecting, redirecting, modifying or killing received data, or provisioning of data.

U.S. Patent 6,272,640 to Sokol does not make up for the deficiencies of Proctor.

First, it should be recognized by the Examiner that Proctor and Sokol differ in that Proctor exclusively deals with wireless transmissions and Sokol exclusively deals with wired local area networks. Thus, the two references address different issues and would not be put together as the Examiner has proposed.

Second, Sokol is directed to a security system which prevents eavesdropping in a communications network and transmission of sensitive or confidential information to unintended network devices on a communication network. In particular, Sokol contemplates the use of the HALT symbol (defined in the IEEE 802.3u Standard) to designate data in a data packet as invalid. As explained in column 3, lines 19-32, those network devices with source addresses not matching the destination address receive the packet forwarded in a modified form (i.e., the HALT symbol is substituted for the data in the packet. Those network devices with source address matching the destination address receive the packet forwarded in a non-modified form. Hence, use of the HALT symbol provides a mechanism for unintended network devices to know the data is invalid, and use of the HALT symbol provides a value independent of the data contained within the packet such that no information about the original data is transmitted to the unintended network devices in the communications network.

Column 4, line 45 to Column 5, line 10 of Sokol, which was referenced in the office action, repeats this same discussion of using a matching of source addresses and designation addresses for deciding whether or not to modify the packet to include the HALT symbol.

Thus, while Sokol provides a security feature, the security feature is not the same as used in the present invention (i.e., the present invention does not retransmit a signal in a modified form (HALT symbol) or unmodified form to all devices connected in the network). Rather, the present invention requires that the controller at least have information that identifies the one or more ultrawideband wireless devices, and uses this information controlling reception by and transmission to these devices in order to pass, ignore, reject, redirect, or kill received data. Sokol teaches a wired system where the repeater sends data across copper lines in parallel, where the “eavesdropper” can only be another hard wired/connected circuit within the cabinet. This is very different from a wireless repeater, such as taught in Proctor, where an arbitrary user or interferer can move in and out of range of the repeater and where arbitrary users may share the same frequency. The radio transmissions of devices in a wireless network are designed in the context of radio frequency spectrum efficiency, power control, and other access issues which are quite different than those used for the hard wired LAN system taught in Sokol where all users are hardwired through a LAN switch or router. Hence, the combination would not be made by one of ordinary skill in the art. Moreover, since Proctor does not show passing, ignoring, rejecting, redirecting or killing received data and only shows translation of one signal to another, and since Sokol does not show use of a repeater in a network with one or more ultrawideband wireless devices where the controller uses the identification information for the ultrawideband wireless devices when controlling reception and transmission in order to pass, ignore, reject, redirect, or kill received data, then no combination of Proctor and Sokol would make the claimed invention defined by claim 1 and its dependent claims obvious. Moreover, Baker, Tamaki, LoGalbo, and Pai do not make up for the basic deficiencies of Proctor and Sokol, thus dependent claims 12, 13, 16, and 17 cannot be obvious.

Sokol also does not discuss collecting of traffic information on the network. With reference to column 7, lines 16-22 referenced by the Examiner, the

Samsung Ex. 1004, Page 55 of 249

text of which is reproduced below, it can be seen that Sokol only describes the security measure discussed in detail above.

FIG. 5A is a flowchart illustrating the general flow performed for **eavesdropping security** according to the present invention. At blocks 100 and 110 the source address register 54 is updated by reading the source addresses from transmitted PDUs 20 when the controller 56 is in an initialization or programming mode. At block 100 the controller 56 reads **the source addresses from the source address field** 40 of transmitted PDUs 20.

Therefore, since neither Proctor nor Sokol show or describe a controller for collecting traffic information and since Sokol also does not contemplate usage in a system where received and transmitted data at least some of which is received from or sent to said one or more ultrawideband wireless devices in said network with the controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter, no combination of Proctor and Sokol would make claims 38 and 39 obvious to one of ordinary skill in the art.

LoGalbo has been relied on for its teachings related to provisioning in a wireless communication system. However, it is clear that LoGalbo does not show or suggest a repeater including a controller which is either pre-programmed or programmable with provisioning information which at least identifies said one or more ultrawideband wireless devices for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter to said one or more ultrawideband wireless devices, said controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter to said ultrawideband wireless devices (as is required in claim 18). Rather, LoGalbo describes the repeater as having a function in assigning an acknowledgment slot (see block 1208 in Figure 12; see also paragraph [0026] where it is described the repeater receives the first block of data and determined if the data requires an acknowledgment, and, if so, the repeater forms a time slot including a second block of data targeted for a second device. As noted in the

Abstract of LoGalbo, the acknowledgment method provides for the detection of errors (not provisioning of traffic) over the wireless link and for the selective retransmission of transmissions received in error.

Therefore, since Proctor does not disclose a repeater which does anything more than translate from one frequency to another, and since LoGalbo shows only the function of identifying when an acknowledgment is required, no combination of Proctor and LoGalbo would make the claimed invention specified in claim 18 and its dependent claims obvious to one of ordinary skill in the art.

Ebata, Baker, Tamaki, and Pai do not make up for the deficiencies of the Proctor/LoGalbo combination. Thus, dependent claims 24, 30, 34 and 37 cannot be obvious.

With respect to claim 41, as noted and discussed in detail above, Proctor does not show anything other than re-transmitting a received signal at one frequency at a different frequency. Thus, Proctor does not show a controller for controlling reception of electronic signals by said at least one receiver from said one or more ultrawideband wireless devices and said wired link and transmission by said at least one transmitter to said one or more ultrawideband wireless devices and said wired link, wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater, as is required in claim 41. Matsuda does not make up for the deficiency of Proctor. With reference to Figure 2 of Matsuda it can be seen that the sole function of repeaters 15 and 16, positioned on opposite sides of a wall, is to allow for a wireless transmission 110 through the wall. Matsuda, like Proctor, does not show a controller for controlling reception of electronic signals by said at least one receiver from said one or more ultrawideband wireless devices and said wired link and transmission by said at least one transmitter to said one or more ultrawideband wireless devices and said wired link, wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater, as is required in claim 41.

As discussed at the interview, the Examiner indicated all references listed in the PTO A820 document affixed to the February 27, 2009 office action have been considered as is evidenced by the notation "All references considered except where lined through". As noted in the interview, four of the seven "other

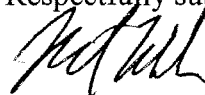
documents” noted in the PTO A820 document appeared in the August 17, 2004 IDS, and are now of record in the case (as are the additional three reference in the February 27, 2009 A820 form and all other non-crossed out references in the August 17, 2004 filing). The references which have been submitted represent prior art of which should be considered. As all references remain in the case, the applicant will undertake determining whether additional identifying information is readily available.

In view of the above, claims 1, 3, 5-7, 11-13, 16-19, 24, 29-32, 34, 37-39, and 41-43 should be in condition for allowance. Reconsideration and allowance at an early date is requested.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephone or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney’s Deposit Account No. 50-2041 (Whitham, Curtis, Christofferson & Cook P.C.)

Respectfully submitted,



Michael E. Whitham

Reg. No. 32,635

Whitham, Curtis, Christofferson & Whitham, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190

Tel. (703) 787-9400
Fax. (703) 787-7557

Customer No.: 30743

Electronic Patent Application Fee Transmittal

Application Number:	10919515			
Filing Date:	17-Aug-2004			
Title of Invention:	Broadband repeater with security for ultrawideband technologies			
First Named Inventor/Applicant Name:	Theodore S. Rappaport			
Filer:	Michael E. Whitham			
Attorney Docket Number:	08610001AA			
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 2 months with \$0 paid	2252	1	245	245

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				245

Electronic Acknowledgement Receipt

EFS ID:	5609301
Application Number:	10919515
International Application Number:	
Confirmation Number:	5602
Title of Invention:	Broadband repeater with security for ultrawideband technologies
First Named Inventor/Applicant Name:	Theodore S. Rappaport
Correspondence Address:	Whitham, Curtis & Christofferson, PC - Suite 340 11491 Sunset Hills Rd. Reston VA 20190 US 7037879400 -
Filer:	Michael E. Whitham
Filer Authorized By:	
Attorney Docket Number:	08610001AA
Receipt Date:	29-JUN-2009
Filing Date:	17-AUG-2004
Time Stamp:	18:36:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 245

RAM confirmation Number	4993				
Deposit Account	502041				
Authorized User					
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		08610001aares2.PDF	695238 bb955df949bcbdbd862b541cf7af199c6dd3ccec6	yes	17
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	7	
	Applicant Arguments/Remarks Made in an Amendment		8	17	
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	30072 2ecda3d5ccbb2a291e284b6cf2a0d58b4924c7f2	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			725310		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/919,515		Filing Date 08/17/2004		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$	=		X \$	=			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=		X \$	=			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	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).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL		TOTAL			
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	06/29/2009	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 25	Minus	** 44	= 0	X \$26 =	0		X \$	=
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X \$110 =	0		X \$	=
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
						TOTAL ADD'L FEE	0		TOTAL ADD'L FEE	
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$	=		X \$	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$	=		X \$	=
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

Legal Instrument Examiner:
/ROSALIND BALL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA	5602

7590 02/27/2009
Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

EXAMINER

REGO, DOMINIC E

ART UNIT	PAPER NUMBER
----------	--------------

2618

MAIL DATE	DELIVERY MODE
-----------	---------------

02/27/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/919,515	Applicant(s) RAPPAPORT, THEODORE S.	
	Examiner DOMINIC E. REGO	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6,7,11-13,16-19,24,25,29-32,34,37-39 and 41-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,7,11-13,16-19,24,25,29-32,34,37-39 and 41-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/24/08</u> . | 6) ☐ Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 08/17/2004 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because under “the other documents”, some of the documents do not have either author’s name or date or pertinent page. These documents cannot be considered. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2618

3. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Matsuda (US Pub. No. 2002/0072357).

Regarding claim 41, Proctor, Jr. teaches a broadband repeater (Figure 1, element 200), comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultra-wideband devices (Paragraph 0011) and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter (Paragraphs 0022-0024); and

a controller for controlling reception of electronic signals by said at least one receiver and transmission by said at least one transmitter (Paragraphs 0022-0024), wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater (Paragraph 0049), except for at least some of said signals being sent by a wired link.

However, in related art, Matsuda teaches at least some of said signal being sent by a wired link (Para. 0055 and 0073). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Matsuda to Proctor, Jr. in order to transmit data to other terminals.

4. Claims 1-2,4,6-7,11,38-39, and 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Sokol (US Patent #6,272,640).

Regarding claim 1, Proctor, Jr. teaches a broadband wireless repeater (Figure 1, element 200), comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices (Paragraph 0011), and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter (Paragraphs 0022-0024), except for a controller, which is either pre-programmed or programmable with network information, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes, said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter, said controller further providing for the collecting, reporting, or storing of network usage, network statistics, or network information.

However, in related art, Sokol teaches a controller (Fig. 2, item 58), which is either pre-programmed or programmable with network information (Col 7, lines 16-22), which controls the screening of data received by said at least one receiver (*Col 4, line 45-Col 5, line 10, after the communications network device 10 receives the PDU 20 from the transceiver 22, the communications network device 10 compares (screening) the destination address (data) 38 against known sources derived from the source address field 40 of all previously tracked sources*), and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data (Col 4, lines 45-Col 5, lines 10, especially Col 4, lines 58-Col 5, line 10) for network security, network management, or interference mitigation purposes (Col 1, lines 56-Col 2, line 26; Col 2, line 65-Col 3, line 32), said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter (Col 4, lines 21-45), said controller further providing for the collecting, reporting, or storing of network usage, network statistics, or network information (Col 1, lines 50-55; Col 3, lines 14-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Sokol to Proctor, Jr. in order to filter out unwanted signal and reduce interferences in desire signal.

Regarding claim 2, the combination of Proctor, Jr. and Sokol teach all the claimed elements in claim 1. In addition, Sokol teaches the broadband repeater wherein said network information includes one or more of IDs for each of the components to be used in a network, and IDs for users permitted to be used in a network (Col 3, lines 14-

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24; Col 2, lines 4-17).

Regarding claim 4, the combination of Proctor, Jr. and Sokol teach all the claimed elements in claim 1. In addition, Proctor, Jr. teaches the broadband repeater wherein said network information includes one or more a specified coverage area for wireless devices to permit use of a network, and specified applications permitted to be used in a network (Para. 0002, 0004, 0021,0022,0024,).

Regarding claim 6, the combination of Proctor, Jr. and Sokol teach all the claimed elements in claim 1. In addition, Sokol teaches the broadband repeater further comprising a buffer memory for storing received or to be transmitted electronic signals for processing by said controller (Col 1, lines 50-56).

Regarding claim 7, , the combination of Proctor, Jr. and Sokol teach all the claimed elements in claim 1. In addition, Proctor, Jr. teaches the broadband repeater wherein said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals by either or both a wireless or a wired link (Paragraphs 0023-0024).

Regarding claim 11, the combination of Proctor, Jr. and Sokol teach all the claimed elements in claim 1. In addition, Proctor, Jr. teaches the broadband repeater wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an AC outlet, a room fixture, a display terminal, a gaming device, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer (Paragraph 0021).

Regarding claim 38, Proctor, Jr. teaches a broadband wireless repeater (Figure 1, element 200), comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices (Paragraph 0011), and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter(Paragraphs 0022-0024), except for a controller which is either pre-programmed or programmable to collect traffic information or security information related to received and transmitted data, said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter.

However, in related art, Sokol teaches a controller (Fig. 2, item 58) which is either pre-programmed or programmable (Col 7, lines 16-22) to collect traffic information or security information related to received and transmitted data (Col 1, lines 56-Col 2, line 26; Col 2, line 65-Col 3, line 32), said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter (Col 4, lines 21-45).Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Sokol to Proctor, Jr. in order to filter out unwanted signal and reduce interferences in desire signal.

Regarding claim 39, the combination of Proctor, Jr. and Sokol teach all the claimed elements in claim 38. In addition, Sokol teaches the broadband repeater further comprising one or more of a means for exporting traffic information or security information to one or more computer processors or devices, and a means for adjusting one or more operations of said controller based on said traffic information or security information (Col 3, lines 14-32; Col 4, line 20-col 5, line 10).

Regarding claim 42, the combination of Proctor, Jr. and Sokol teach all the claimed elements in claim 1. In addition, Sokol teaches the broadband repeater wherein either pre-programmed or programmable network information supplied to said controller is communicated using either a wireless or wired link (Col 7, lines 16-22; Col 8, lines 40-53; Col 4, lines 20-45).

Regarding claim 43, the combination of Proctor, Jr. and Sokol teach all the claimed elements in claim 1. In addition, Proctor, Jr. teaches the broadband repeater wherein said network information is further supplied to said controller by over-the-air ultrawideband signaling (Paragraph 0011), and Sokol teaches a wired connection from another device (Col 7, lines 16-22; Col 8, lines 40-53; Col 4, lines 20-45).

5. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Sokol (US Patent #6,272,640), and further in view of Baker et al. (US Pub. No. 2005/0208889).

Regarding claim 12, the combination of Proctor, Jr. and Sokol teach all the

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claimed elements in claim 1. In addition, Sokol teaches the broadband repeater wherein said controller permits one or more network information to be modified (Col 4, line 45-Col 5, line 10), except for support of position location capabilities for use by a network.

However, in related art, Baker teaches support of position location capabilities for use by a network (Paragraph 0017). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Baker to Proctor, Jr. and Sokol in order to improve the quality of position assistance information generated and sent to subscriber units of the wireless communication system.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Sokol (US Patent #6,272,640), and further in view of Tamaki et al. (US Pub. No. 2003/0124976).

Regarding claim 13, the combination of Proctor, Jr. and Sokol fail to teach the broadband repeater wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

However, in related art, Tamaki teaches the broadband repeater wherein said controller either or both a) uses adaptive or steerable antennas or MIMO technologies

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to control the direction or coverage zones or capacity or quality of transmissions or reception (Paragraphs 0063-0065, 0067, 0106, and 0115), and b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Tamaki to Proctor, Jr. and Sokol in order to receive or transmit signal properly.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Sokol (US Patent #6,272,640), and further in view of LoGalbo et al. (US Pub. No. 2002/0093928).

Regarding claim 16, the combination of Proctor, Jr. and Sokol fail to teach the broadband repeater where network provisioning information is passed to or pre-programmed with said controller, for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data and transmission of data to or from said repeater.

However, in related art, LoGalbo teaches the broadband repeater where network provisioning information is passed to or pre-programmed with said controller, for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data and transmission of data to or from said repeater (Para. 0034).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of LoGalbo to Proctor, Jr. and Sokol in order to prioritize data for transmission over the wireless link and control access of the communication units.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Sokol (US Patent #6,272,640), and further in view of Pai et al. (US Patent #6,110,221).

Regarding claim 17, the combination of Proctor, JR. and Sokol fail to teach the broadband repeater wherein said transmitter and said receiver have reversible input/output directions.

However, in related art, Pai teaches the broadband repeater wherein said transmitter and said receiver have reversible input/output directions (Col 2, lines 10-18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Pai to Proctor, Jr. and Sokol for the direction of the lines needing repeating in the channel.

9. Claims 18-19,25,29, and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of LoGalbo et al. (US Pub. No. 2002/0093928).

Regarding claim 18, Proctor, Jr. teaches a broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices (Paragraph 0011), and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter (Paragraphs 0022-0024), said controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter (*Para. 0013, a modem may be used in parallel with an exemplary frequency translating repeater to function as a wireless connection to overhead and control management from the network, which modem communicates to and from the control processor of the repeater means repeater 200 has transceiver for bi-directionally communicating with other units and control processor 386 for controlling reception and transmission of data (Also, See Fig. 1 and 2 and Para. 0005- 0007, 0015,0027,0029)*) except for a controller which is either pre-programmed or programmable with provisioning information for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter.

However, in related art, LoGalbo teaches a controller which is either pre-programmed or programmable with provisioning information for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter (Para. 0034). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of LoGalbo to Proctor, Jr. in order to prioritize data for transmission over the wireless link and control access of the communication units.

Regarding claim 19, the combination of Proctor, Jr. and LoGalbo teach all the claimed elements in claim 18. In addition, LoGalbo teaches the broadband repeater wherein said provisioning information prioritizes by one or more network user, type of data being received by said at least one receiver, type of data being transmitted by said at least one transmitter, and the particular type of application being used by one or more users of the network being transmitted by said at least one transmitter (Para. 0034).

Regarding claim 25, the combination of Proctor, Jr. and LoGalbo teach all the claimed elements in claim 18. In addition, Proctor, Jr. teaches the broadband repeater wherein either or both said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals or data by either or both a wireless or a wired link (Paragraphs 0023-0024).

Regarding claim 29, the combination of Proctor, Jr. and LoGalbo teach all the claimed elements in claim 18. In addition, Proctor, Jr. teaches the broadband repeater wherein said at least one receiver and said at least one transmitter and said controller

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are stationary or mobile/portable and are associated with one or more of an AC outlet, a room fixture, a display terminal, a gaming devices, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer (Paragraph 0021).

Regarding claim 31, the combination of Proctor, Jr. and LoGalbo teach all the claimed elements in claim 18. In addition, Proctor, Jr. teaches the broadband repeater wherein said provisioning information supplied to said controller is communicated using either a wireless or wired link (Paragraphs 0023-0024).

Regarding claim 32, the combination of Proctor, Jr. and LoGalbo teach all the claimed elements in claim 31. In addition, Proctor, Jr. teaches the broadband repeater wherein said provisioning information is further supplied to said controller by one or more of over-the-air ultrawideband signaling, and wired connections from another device (Paragraph 0011).

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of LoGalbo et al. (US Pub. No. 2002/0093928) and further in view of Ebata et al. (US Pub. No. 2006/0106961).

Regarding claim 24, the combination of Proctor, Jr. and LoGalbo fail to teach the broadband repeater further comprising a buffer memory for storing received or to be transmitted electronic signals or data for processing by said controller.

However, in related art, Ebata teaches the broadband repeater further comprising a buffer memory for storing received or to be transmitted electronic signals or data for processing by said controller (Para. 0012,0016 and claim 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Ebata to Proctor, Jr. and LoGalbo in order to avoid large delay in data delivery (Ebata, abstract).

11. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of LoGalbo et al. (US Pub. No. 2002/0093928), and further in view of Baker et al. (US Pub. No. 2005/0208889).

Regarding claim 30, the combination of Proctor, Jr. and LoGalbo teach all the claimed elements in claim 18. In addition, Proctor, Jr. teaches the broadband repeater wherein said controller permits one or more of provisioning information to be modified (Paragraph 0034), except for support of position location capabilities for use by a network.

However, in related art, Baker teaches support of position location capabilities for use by a network (Paragraph 0017).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Baker to Proctor, Jr. and LoGalbo

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in order to improve the quality of position assistance information generated and sent to subscriber units of the wireless communication system.

12. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of LoGalbo et al. (US Pub. No. 2002/0093928), and further in view of Tamaki et al. (US Pub. No. 2003/0124976).

Regarding claim 34, the combination of Proctor, Jr. and LoGalbo fail to teach the broadband repeater wherein said controller either or both a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

However, in related art, Tamaki teaches the broadband repeater wherein said controller either or both a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception (Paragraphs 0063-0065, 0067, 0106, and 0115), and b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to

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provide the above teaching of Tamaki to Proctor, Jr. and LoGalbo so that signal can be receive or transmit properly.

13. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of LoGalbo et al. (US Pub. No. 2002/0093928), and further in view of Pai et al. (US Patent #6,110,221).

Regarding claim 37, the combination of Proctor, JR. and LoGalbo fail to teach the broadband repeater wherein said transmitter and said receiver have reversible input/output directions.

However, in related art, Pai teaches the broadband repeater wherein said transmitter and said receiver have reversible input/output directions (Col 2, lines 10-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Pai to Proctor, Jr. and LoGalbo in order to bi-directionally communicating with other device.

14. Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed

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invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. SEE MPEP 2141.02 [R-5] VI. PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS: A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004). >See also MPEP §2123.

Response to Arguments

15. Applicant's arguments, see pages 8-12, filed 06/24/2008, with respect to the rejection(s) of claim(s) 1-2,4,6-7,11-13,16-19,24-25,29-32,34,37-39, and 42-43 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mazar et al. (US Pub. No. 2008/0065416, .claim 3), Treatch (US Patent #5,898,382), Schmutz (US Patent #6,718,160), Wojcik et al. (US Pub. No. 2002/0188530, Para. 0162), Godwin (US Patent #6,741,834, Claim 15), Sherman (US Patent #5,974,236).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOMINIC E. REGO whose telephone number is (571)272-8132. The examiner can normally be reached on Monday-Friday, 8:30 am-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc M. Nguyen can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dominic E. Rego
/Dominic E Rego/
Examiner, Art Unit 2618
Tel 571-272-8132

/Duc Nguyen/

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Supervisory Patent Examiner, Art Unit 2618

Notice of References Cited	Application/Control No. 10/919,515		Applicant(s)/Patent Under Reexamination RAPAPORT, THEODORE S.	
	Examiner DOMINIC E. REGO		Art Unit 2618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0072357	06-2002	Matsuda, Jun-Ichi	455/422
*	B	US-6,272,640	08-2001	Sokol, Michael A.	726/23
*	C	US-2006/0106961	05-2006	Ebata et al.	710/052
*	D	US-2008/0065416	03-2008	Mazar et al.	705/002
*	E	US-5,898,382	04-1999	Treatch, James E.	340/2.71
*	F	US-6,718,160	04-2004	Schmutz, Thomas R.	455/11.1
*	G	US-2002/0188530	12-2002	Wojcik et al.	705/28
*	H	US-6,741,834	05-2004	Godwin, John P.	455/3.01
*	I	US-5,974,236	10-1999	Sherman, Michael J.	709/221
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i> 	Application/Control No. 10919515	Applicant(s)/Patent Under Reexamination RAPPAPORT, THEODORE S.
	Examiner DOMINIC E REGO	Art Unit 2618

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
CLAIM		DATE													
Final	Original	01/18/2008	02/19/2009												
	1	✓	✓												
	2	✓	✓												
	3	-	-												
	4	✓	✓												
	5	-	-												
	6	✓	✓												
	7	✓	✓												
	8	-	-												
	9	-	-												
	10	-	-												
	11	✓	✓												
	12	✓	✓												
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	26	-	-												
	27	-	-												
	28	-	-												
	29	✓	✓												
	30	✓	✓												
	31	✓	✓												
	32	✓	✓												
	33	-	-												
	34	✓	✓												
	35	-	-												
	36	-	-												

<i>Index of Claims</i> 	Application/Control No. 10919515	Applicant(s)/Patent Under Reexamination RAPPAPORT, THEODORE S.
	Examiner DOMINIC E REGO	Art Unit 2618

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE							
Final	Original	01/18/2008	02/19/2009						
	37	✓	✓						
	38	✓	✓						
	39	✓	✓						
	40	-	-						
	41	✓	✓						
	42	✓	✓						
	43	✓	✓						
	44	-	-						

Search Notes 	Application/Control No. 10919515	Applicant(s)/Patent Under Reexamination RAPPAPORT, THEODORE S.
	Examiner DOMINIC E REGO	Art Unit 2618

SEARCHED			
Class	Subclass	Date	Examiner
455	7,11.1,13.1,16	1/22/08	DR
370	226,243,246,274,279,293,315,316,492,501	1/22/08	DR

SEARCH NOTES		
Search Notes	Date	Examiner
East search	1/22/08	DR
Google, Inventor and updated east search	2/19/2009	DR

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	26	repeater same priorit\$6 same control\$4 with \$4program\$5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 10:36
L3	111	repeater same priorit\$6 near4 (data information packet\$5 video stream\$3 messag \$3 email) same control\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 10:57
L4	89	3 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 10:58
L5	55	3 same receiv\$3 same transmi\$6	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 11:06
L6	49	5 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 11:06
L18	21	repeater same priorit\$6 near4 (data information packet\$5 video stream\$3 messag \$3 email) with user	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 12:45
L19	18	repeater and provision\$3 with priorit\$6 with (data information packet \$5 video stream\$3 messag\$3 email) with user	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 12:48

L20	4790	repeater same (data information packet\$5 video stream\$3 messag \$3 email) same control\$4 same (stor\$3 memory buffer\$3 record\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 13:01
L22	98	repeater with control\$4 with (memory stor\$3 memory buffer\$3 record\$3) near5 received near5 (signal data information packet \$5 video stream\$3 messag\$3 email)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 13:04
L23	84	22 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/25 13:05
S5	15	wireless same wired and broad \$band near2 repeater	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/19 20:15
S6	1740	wireless same wired same repeater	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/19 20:16
S7	1132	S6 same (data traffic)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/19 20:17
S8	858	S7 same (controller control near unit)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/19 20:17

S10	193	S8 same network	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/19 20:18
S11	12	S10 same information	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/19 20:18
S13	31	wireless same wired same repeater near6 (controller control near2 unit) with (information data traffic stream video)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/19 20:28
S15	8	wireless near6 wired near6 repeater near6 (controller control near2 unit)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/19 20:34
S16	23	wireless same wired same repeater near6 (controller control near2 unit) near2 (compris\$3 includ \$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/20 17:17
S19	66	repeater with control\$4 with network near2 information	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/20 17:37
S20	47	S19 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/20 17:38

S22	4	repeater same (scan\$4 screen\$3) near3 (data information) same security	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 18:59
S23	3	repeater and (scan\$4 screen\$3) near3 (data information) near3 received same security	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 19:01
S25	180	wireless near5 wired near5 repeater	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 19:05
S26	65	S25 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 19:05
S27	7	repeater same (scan\$4 screen\$3) near6 (data information) same security	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 19:45
S28	22	repeater and control\$4 with (scan\$4 screen\$3) near6 (data information) same security	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 20:13
S29	15	S28 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 20:14
S30	189	repeater same (scan\$4 screen\$3) near3 (data information)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 20:32

S31	97	S30 same control \$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 20:33
S32	61	S31 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 20:33
S34	70	S33 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 22:35
S36	81	repeater near5 (scan\$4 screen\$3) with control\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 22:38
S37	71	S36 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 22:38
S38	33	repeater with (scan \$4 screen\$3) near3 data	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 23:29
S39	28	S38 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 23:30
S40	316	S35 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/21 23:39

S42	211	screening with data same (network near2 security network near2 management interference)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 14:28
S43	5	S42 same (desired undesired)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 14:29
S44	163	S42 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 14:30
S45	8	S44 and repeater	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 14:30
S46	7	screening with received same (network near2 security)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 14:32
S47	95	screening near4 (data information) same (network near2 security)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 23:43
S48	83	S47 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 23:43
S50	40	(scan\$4 screening) with (data information) with transmi\$6 same (network near2 security)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 23:47

S51	30	S50 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/22 23:47
S52	87	repeater same (network near2 security)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/23 12:34
S53	73	S52 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/23 12:35
S54	87	repeater same (network near2 security)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/23 17:38
S55	73	S54 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/23 17:38
S60	307	repeater same priorit\$6 near4 (data information packet\$5 video stream\$3 messag \$3 email)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/24 21:17
S61	154	S60 same receiv\$3 same transmi\$6	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/24 21:18
S62	82	S61 and (@ad <= "20030828" @rlad <= "20030828" @pd <= "20030828")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/02/24 21:18

2/ 25/ 2009 2:17:23 PM

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Receipt date: 06/24/2008 INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>	Docket Number (Optional) 08610001aa	Application Number 10/919,515 GAU: 2618 10/919,515
Applicant(s) Theodore S. Rappaport		
Filing Date January 30, 2008		Group Art Unit 2661

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

		R. Buehrer, Dong Ha., J. Reed, D. McKinstry, N. Kumar "Range Extension for UWB Communications," May 30, 2002, White Paper, Virginia Tech
		"WiDeFi Repeats History," Unstrung, April 9, 2004, by Dan Jones, Site Editor for Unstrung (www.unstrung.com/document.asp?oc id=50796)

EXAMINER /Dominic Rego/	DATE CONSIDERED 02/25/2009
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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

receipt date: 06/24/2008		Docket Number (Optional) 08610001aa	Application Number 10/919,515
INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>		Applicant(s) Theodore S. Rappaport	
		Filing Date January 30, 2008	Group Art Unit 2661
*EXAMINER INITIAL	OTHER DOCUMENTS <i>(Including Author, Title, Date, Pertinent Pages, Etc.)</i>		
	Intel Technology Journal, "Wireless Technologies," Vol. 7, Issue 3, August 19, 2003, ISSN-864X		
	"Pick Your Wireless Solution", White Paper, Published by the University of Texas at Austin IT Staff, May 2002		
	R. J. Fontana, "Recent Applications of Ultra Wideband Radar and Communications Systems," appearing in Kluwer Academic Press/Plenum Publishers book: "Ultra-Wideband, Short-Pulse Electromagnetics," c. 2002, ISBN 978-0-306-47338-8 and ISBN 978-0-306-4798-9		
	"802.15.3 MAC layer Overview and Proposed Enhancements to Support UWB PHY", Masters Thesis of Nishant Kumar, Virginia Polytechnic Institute and State University, May, 2004, http://scholar.lib.vt.edu/theses/index.html		
	"MAC and physical layer design for ultra-wideband communications," Masters Thesis of Nishant Kumar, Virginia Polytechnic Institute and State University, May 2004, http://scholar.lib.vt.edu/theses/available/etd-05172004-123657/unrestricted/Thesis NishantKumar.pdf		
EXAMINER	/Dominic Rego/		DATE CONSIDERED 02/25/2009
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Rappaport

Confirmation No. 5602

Serial No. 10/919,515

Group Art Unit 2661

Filed August 17, 2004

Examiner Dominic Rego

For BROADBAND REPEATER WITH SECURITY FOR ULTRA WIDEBAND
TECHNOLOGIES

Commissioner for Patents

PO Box 1450

Alexandria, Virginia 22313-1450

PETITION FOR A TWO MONTH EXTENSION OF TIME AND
AMENDMENT UNDER 37 C.F.R. 1.111

Sir:

Applicant hereby petitions for a two month extension of time to respond to the office action mailed January 30, 2008. The Commissioner is authorized to charge attorney's deposit account 50-2041 (Whitham, Curtis, Christofferson & Cook) for the extension of time fees, any fees due for the concurrently filed information disclosure statement, and any other fees which may be required for the consideration of this amendment.

In response to the office action mailed January 30, 2008, the applicant requests reconsideration.

Listing of the Claims: begin on page 2

Remarks: begin on page 8

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1. (Original) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller, which is either pre-programmed or programmable with network information, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes,

said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter,

said controller further providing for the collecting, reporting, or storing of network usage, network statistics, or network information.

2. (Previously presented) The broadband repeater of claim 1 wherein said network information includes one or more of IDs for each of the components to be used in a network, and IDs for users permitted to be used in a network.

3. (Canceled)

4. (Previously presented) The broadband repeater of claim 1 wherein said network information includes one or more of a specified coverage area for wireless devices to permit use of a network, and specified applications permitted to be used in a network.

5. (Canceled)

6. (Previously presented) The broadband repeater of claim 1 further comprising a buffer memory for storing received or to be transmitted electronic signals for processing by said controller.

7. (Previously presented) The broadband repeater of claim 1 wherein either or both said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals by either or both a wireless or a wired link.

8-10. (Canceled)

11. (Previously presented) The broadband repeater of claim 1 wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an AC outlet, a room fixture, a display terminal, a gaming device, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer.

12. (Previously presented) The broadband repeater of claim 1 wherein said controller permits one or more of network information to be modified and support of position location capabilities for use by a network .

13. (Previously presented) The broadband repeater of claim 1 wherein said controller either or both

- a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and

- b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

14-15. (Canceled)

16. (Original) The broadband repeater of claim 1 where network provisioning information is passed to or pre-programmed with said controller, for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data and transmission of data to or from said repeater.

17. (Original) The broadband repeater of claim 1 wherein said transmitter and said receiver have reversible input/output directions.

18. (Original) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller which is either pre-programmed or programmable with provisioning information for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter, said controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter.

19. (Previously presented) The broadband repeater of claim 18 wherein said provisioning information prioritizes by one or more of network user, type of data being received by said at least one receiver, type of data being transmitted by said at least one transmitter, and the particular type of application being used by one or more users of the network being transmitted by said at least one transmitter.

20-23. (Canceled)

24. (Previously presented) The broadband repeater of claim 18 further comprising a buffer memory for storing received or to be transmitted electronic signals or data for processing by said controller.

25. (Previously presented) The broadband repeater of claim 18 wherein either or both said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals or data by either or both a wireless or a wired link.

26-28 . (Canceled)

29. (Previously presented) The broadband repeater of claim 18 wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an AC outlet, a room fixture, a display terminal, a gaming devices, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer.

30. (Previously presented) The broadband repeater of claim 18 wherein said controller permits one or more of provisioning information to be modified and support of position location capabilities for use by a network .

31. (Original) The broadband repeater of claim 18 wherein said provisioning information supplied to said controller is communicated using either a wireless or wired link.

32. (Previously presented) The broadband repeater of claim 31 wherein said provisioning information is further supplied to said controller by one or more of over-the-air ultrawideband signaling, and wired connections from another device.

33. (canceled)

34. (Previously presented) The broadband repeater of claim 18 wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

35-36. (Canceled)

37. (Original) The broadband repeater of claim 18 wherein said transmitter and said receiver have reversible input/output directions.

38. (Original) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller which is either pre-programmed or programmable to collect traffic information or security information related to received and transmitted data, said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter.

39. (Previously presented) The broadband repeater of claim 38 further comprising one or more of

a means for exporting traffic information or security information to one or more computer processors or devices, and

a means for adjusting one or more operations of said controller based on said traffic information or security information.

40. (Canceled)

41. (Original) A broadband repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices and at least some of said signals being sent by a wired link, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller for controlling reception of electronic signals by said at least one receiver and transmission by said at least one transmitter,

wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater.

42. (Original) The broadband repeater of claim 1 wherein either pre-programmed or programmable network information supplied to said controller is communicated using either a wireless or wired link.

43. (Previously presented) The broadband repeater of claim 42 wherein said network information is further supplied to said controller by one or more of over-the-air ultrawideband signaling, and a wired connection from another device.

44. (Canceled)

REMARKS

Claims 41-43 were rejected as being anticipated by U.S. Patent Publication 2006/0063484 to Proctor. Claims 1, 2, 4, 6, 7, and 11 were rejected as being obvious over Proctor in view of U.S. Patent 5,634,196 to Alford. Claims 12 has been rejected as being obvious over Proctor/Alford in view of U.S. Patent Publication 2005/0208889 to Baker. Claim 13 has been rejected as being obvious over Proctor/Alford in view of U.S. Patent Application 2003/0124976 to Tamaki. Claim 16 has been rejected as being obvious over Proctor/Alford in view of U.S. Patent Application 2002/0111137 to Walkup. Claim 17 has been rejected as being obvious over Proctor/Alford in further view of U.S. Patent 6,110,221 to Pai. Claims 18, 19, 24, 25, 29, 31 and 32 have been rejected as being obvious over Proctor/Alford/Walkup. Claim 34 has been rejected as being obvious over Proctor/Alford/Walkup/Tamaki. Claim 37 has been rejected as being obvious over Proctor/Walkup/Alford/Pai. Claims 38 and 39 have been rejected as being obvious over Proctor/Alford in view of U.S. Patent 6,373,833 to Suonvieri. Each of these rejections is traversed.

U.S. Patent Publication 2006/0063484 to Proctor describes a dual frequency repeater that does translation of frequencies for data coming and out of a repeater used in a wireless network. The Proctor repeaters is specifically limited to handling only wireless data. Proctor discloses a way that the repeater may communicate data signals to a remote network device (such as a wireless access point) using in-band amplitude modulation separate from the IEEE 802.11 standard. Proctor describes a repeater controller that is capable of creating the modulated signals for this in-band communication “management” link (see paragraphs [0029] and [0051]). In addition, Proctor indicates that the repeater may be addressed using 802.11 higher layers (see paragraph [0033]). The processor/controller of Proctor can produce lights for a user to know if it is turned on (paragraph [0044]), as well as determining if different frequencies have energy or are being used, and provides for demodulation of waveforms for the management link, timing recover, CRC verification, higher layer protocol functions and the like (paragraph [0043]). However, Proctor wholly lacks the

features set forth in the claims and the conclusions drawn in the office action are not correct.

With respect to claims 41-43 , it is noted that claim 41 requires that the receiver which receives signals some of which are from ultrawideband devices has “at least some of said signals being sent by a wired link”, and claim 41 requires that the controller allows for “commingling of both wireless and wired traffic within said broadband repeater”. Claim 42, which depends from claim 1, requires “either pre-programmed or programmable network information supplied to said controller is communicated using either a wireless or wired link”. These features are wholly absent in Proctor. Reference to paragraph [0022] to [0024] for the controller in Proctor is not on point since in Proctor the repeater only does frequency translation (f1/f2) and does no controlling as contemplated by the present invention. That is to say, Proctor does not contemplate the ability to screen data which passes through repeater 200 for purposes of network security, management or interference mitigation. He also does not contemplate another aspect of the present invention, which is the ability to allow the controller to be programmable with network information, or pre-programmed, in order to control the screening of data that passes through the repeater. Also, Proctor provides no ability to fuse wireless and wireline data together. Contrary to the Examiner’s reference of paragraph [0049], it is noted that paragraph [0049] is related to use of a wireless LAN AP, and NOT the repeater, to connect to wireline for backhaul. That is, the examiner appears to have mistaken the Proctor repeater invention as including a wireline backhaul data source or connection. Procter’s frequency translating repeater 200 (not the access point 100) only has the ability to receive and transmit wireless data (see Figure 1 of Procter). Paragraph [0049] of Procter pertains to the access point 100, not the repeater 200. As discussed in the Background section of the present application (see, e.g., page 5 at line 5) the backhaul can be wired or wireline. What is different is that the present application discloses and claims a broadband repeater that can be connected to either wireless or wireline. This is not the case in Proctor. With reference to paragraph [0049] (cited by the Examiner), Proctor clearly discusses the repeater 200 as SEPARATE from the WLAN AP 100. This clearly shows how Proctor’s system deals with the ability to address or communicate as the repeater is intended only for wireless data

transmission/reception. Proctor does not show or suggest a repeater device that is able to, on its own, process incoming data and to selectively repeat (not just repeat), or act upon the actual data streams that are sent or received by other components of the wireless network.

With respect to claims 1, 2, 4, 6, 7, and 11, claim 1 requires that the repeater have a “controller, which is either pre-programmed or programmable with network information, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes”. As discussed in detail above, Proctor’s repeater 200 does frequency translation, but does not controlling that allows data to be killed/alterd and does not allow for security, bandwidth provisioning, and position locationing. U.S. Patent 5,634,196 to Alford does not make up for these deficiencies.

The focus of Alford is on an end-user mobile radio that can store logs of activity. The repeaters in Alford do not themselves have the intelligence or processing capabilities that are required by claim 1 of the present application. Rather, unlike in the present application, the repeaters in Alford simply pass data, and do not operate or actively interpret the “payload” sent by other users in the wireless network (note particular the discussion in column 6, lines 37 and 38 where different repeater channels are discussed). Col. 2, lines 66-Col. 3, line 18, referenced by the Examiner merely discusses having different systems of repeaters in a coverage area, and scanning for ID codes a different frequencies to identify calls that are to be received. Col. 7, line 66-Col. 8, line 21, discusses the system information memory of the mobile radio. It does not discuss repeaters with controllers as specified in claim 1 of the present application, and furthermore, does not disclose the ability to have a repeater which may be pre-programmed or programmed with network information, and where the controller of such repeater is able to screen the data which passes through the repeater .

As best can be surmised, the Examiner is suggesting that the memory functions and control functions of the mobile radio be incorporated into a repeater. However, this concept does not spring from either Alford or Proctor as neither

reference shows a repeater with these types of attributes. Rather, both Proctor and Alford merely show repeaters that can pass data. As such, no combination of Proctor and Alford would make claim 1 or its dependent claims obvious.

Claims 12, 13, 16, and 17 depend from claim 1. None of Baker, Tamaki, Walkup and Pai make up for the deficiencies of Proctor/Alford. That is, no reference of record shows or suggests a repeater that includes a controller that is either pre-programmed or programmable with network information, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes. As such, each of these claims are not obvious over the prior art of record.

Claim 18 is an independent claim and is also drawn to a broadband repeater. Claim 18, similar to claim 1, requires that the broadband repeater include a controller that “is either pre-programmed or programmable with provisioning information for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter, said controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter”. As discussed in detail above, none of the references of record show or suggest incorporating a controller, as required by claim 18, into a broadband repeater. As such, claim 18 and all of its dependent claims would not be obvious to one of ordinary skill in the art.

The present invention represents a novel device that would not have been obvious or anticipated by inventions prior to more recent developments in the internet age. None of the cited inventions consider the use of repeaters in home or office environments, where the data rates and types of wireless and wired devices have exploded since the time of the present application's disclosure. In fact, this patent application was filed before the company Google went public, before the video web company YouTube was created, and before broadband delivery to homes and businesses by either wireless or fiber/wireline means was a common

topic of interest. Before the filing date of this application, because of the lack of focus on high bandwidth delivery into homes and offices, it would not have been obvious to contemplate a repeater that could commingle data that was originated or transferred by either wireline or wireless sources, since wireless ultrawideband products were not yet commercially available, and consumers did not yet have the devices or equipment that could accept such broadband data rates. Also, it would not have been obvious to contemplate the screening of data in such a broadband repeater device, because the problems of spam and denial of service attacks were not generally known to be an issue for wireless local area networks at the time of the application's original filing.

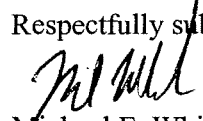
Today, broadband consumption is increasing rapidly across the world, and computers, Ipods, video games, and other computer/media devices are evolving such that there are a large number of devices growing within a small area in the home or office or vehicle. Security and data screening will become more important as networks become open, and as more and more content is served over the internet. At the same time, because of the fundamental tradeoff between power and bandwidth, it will become important to provide repeaters that allow ultrawideband signals to be retransmitted to have sufficient signal strength across rooms, through floors, between partitions inside and outside of buildings, between or inside vehicles, etc. As broadband providers contemplate delivery through wired and wireless techniques, the present invention will be critical for both security as well as coverage. None of the prior inventions cited by the examiner, or the prior art provided with the original application, anticipate or make obvious the features and capabilities of the present invention.

In view of the above, claims 1, 3, 5-7, 11-13, 16-19, 24, 29-32, 34, 37-39, and 41-43 should be in condition for allowance. Reconsideration and allowance at an early date is requested.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephone or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis, Christofferson & Cook P.C.)

Respectfully submitted,



Michael E. Whitham
Reg. No. 32,635

Whitham, Curtis, Christofferson & Whitham, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190

Tel. (703) 787-9400
Fax. (703) 787-7557

Customer No.: 30743

Electronic Patent Application Fee Transmittal

Application Number:	10919515			
Filing Date:	17-Aug-2004			
Title of Invention:	Broadband repeater with security for ultrawideband technologies			
First Named Inventor/Applicant Name:	Theodore S. Rappaport			
Filer:	Michael E. Whitham			
Attorney Docket Number:	08610001AA			
Filed as Small Entity				
Utility Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 2 months with \$0 paid	2252	Samsung Ex. 1004, Page 113 of 249	2252	0.00

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				230

Electronic Acknowledgement Receipt

EFS ID:	3511279
Application Number:	10919515
International Application Number:	
Confirmation Number:	5602
Title of Invention:	Broadband repeater with security for ultrawideband technologies
First Named Inventor/Applicant Name:	Theodore S. Rappaport
Correspondence Address:	Whitham, Curtis & Christofferson, PC - Suite 340 11491 Sunset Hills Rd. Reston VA 20190 US 7037879400 -
Filer:	Michael E. Whitham
Filer Authorized By:	
Attorney Docket Number:	08610001AA
Receipt Date:	24-JUN-2008
Filing Date:	17-AUG-2004
Time Stamp:	17:26:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$230

RAM confirmation Number	2651				
Deposit Account	502041				
Authorized User					
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		08610001aares.PDF	469161 6afe502a07ad3103df1bd4df053a7d6f4c2bedf	yes	13
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Amendment - After Non-Final Rejection	1	1		
	Claims	2	7		
	Applicant Arguments/Remarks Made in an Amendment	8	13		
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8154 dde5fb10ed872e98a9d59ab97ca796359b5ffce4	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			477315		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Rappaport

Confirmation No. 5602

Serial No. 10/919,515

Group Art Unit 2661

Filed August 17, 2004

Examiner (Not Known)

For BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND
TECHNOLOGIES

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

INFORMATION DISCLOSURE STATEMENT

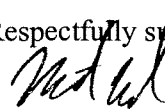
Sir:

Under the provisions of 37 C.F.R. 1.97 through 1.98 and pursuant to the applicant's duty of disclosure under 37 C.F.R. 1.56, applicant respectfully brings the following references listed in the attached form PTO-1449 to the attention of the Examiner. Copies of the listed documents are provided herewith for the convenience of the Examiner, and some of the listed documents were provided with the first IDS submission (this submission providing full identification information for the references).

The citation does not constitute an admission that the references are relevant to the claims. The references are only cited as constituting related art of which the applicant is aware.

It is respectfully requested that the documents be considered by the Examiner and be formally made of record in the application.

Respectfully submitted,



Michael E. Whitham
Reg. No. 32,635

Whitham, Curtis, Christofferson & Whitham, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190

Tel. (703) 787-9400
Fax. (703) 787-7557
Customer No.: 30743

INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>	Docket Number (Optional) 08610001aa	Application Number 10/919,515
	Applicant(s) Theodore S. Rappaport	
	Filing Date January 30, 2008	Group Art Unit 2661

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

		R. Buehrer, Dong Ha., J. Reed, D. McKinstry, N. Kumar "Range Extension for UWB Communications," May 30, 2002, White Paper, Virginia Tech
		"WiDeFi Repeats History," Unstrung, April 9, 2004, by Dan Jones, Site Editor for Unstrung (www.unstrung.com/document.asp?oc id=50796)

EXAMINER	DATE CONSIDERED
-----------------	------------------------

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>		Docket Number (Optional) 08610001aa	Application Number 10/919,515
		Applicant(s) Theodore S. Rappaport	
		Filing Date January 30, 2008	Group Art Unit 2661
*EXAMINER INITIAL	OTHER DOCUMENTS <i>(Including Author, Title, Date, Pertinent Pages, Etc.)</i>		
	Intel Technology Journal, "Wireless Technologies," Vol. 7, Issue 3, August 19, 2003, ISSN-864X		
	"Pick Your Wireless Solution", White Paper, Published by the University of Texas at Austin IT Staff, May 2002		
	R. J. Fontana, "Recent Applications of Ultra Wideband Radar and Communications Systems," appearing in Kluwer Academic Press/Plenum Publishers book: "Ultra-Wideband, Short-Pulse Electromagnetics," c. 2002, ISBN 978-0-306-47338-8 and ISBN 978-0-306-4798-9		
	"802.15.3 MAC layer Overview and Proposed Enhancements to Support UWB PHY", Masters Thesis of Nishant Kumar, Virginia Polytechnic Institute and State University, May, 2004, http://scholar.lib.vt.edu/theses/index.html		
	"MAC and physical layer design for ultra-wideband communications," Masters Thesis of Nishant Kumar, Virginia Polytechnic Institute and State University, May 2004, http://scholar.lib.vt.edu/theses/available/etd-05172004-123657/unrestricted/Thesis NishantKumar.pdf		
EXAMINER		DATE CONSIDERED	
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

Electronic Patent Application Fee Transmittal

Application Number:	10919515			
Filing Date:	17-Aug-2004			
Title of Invention:	Broadband repeater with security for ultrawideband technologies			
First Named Inventor/Applicant Name:	Theodore S. Rappaport			
Filer:	Michael E. Whitham			
Attorney Docket Number:	08610001AA			
Filed as Small Entity				
Utility Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
Total in USD (\$)				180

Electronic Acknowledgement Receipt

EFS ID:	3511502
Application Number:	10919515
International Application Number:	
Confirmation Number:	5602
Title of Invention:	Broadband repeater with security for ultrawideband technologies
First Named Inventor/Applicant Name:	Theodore S. Rappaport
Correspondence Address:	Whitham, Curtis & Christofferson, PC - Suite 340 11491 Sunset Hills Rd. Reston VA 20190 US 7037879400 -
Filer:	Michael E. Whitham
Filer Authorized By:	
Attorney Docket Number:	08610001AA
Receipt Date:	24-JUN-2008
Filing Date:	17-AUG-2004
Time Stamp:	17:43:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$180

RAM confirmation Number	2854				
Deposit Account	502041				
Authorized User					
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed	08610001aaid1.PDF	609106 ea67103cd628b82a2cabbcb04e380c83c40757ad	no	19
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Information Disclosure Statement (IDS) Filed	08610001aaid1000.PDF	5197330 a2305b339a4e10a22bcbff364d2d18f3c4fe148c	no	68
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Information Disclosure Statement (IDS) Filed	08610001aaid3.PDF	1029577 cf73d4370746e1ceb307756c5016b3d6292661bc	no	24
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
4	Information Disclosure Statement (IDS) Filed	08610001aaid4.PDF	847724 8aa1385107cf00b355e1b4d3261d67d855a9a70c	no	37
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Information:					
This is not an USPTO supplied IDS fillable form					
5	Information Disclosure Statement (IDS) Filed	08610001aaid5.PDF	1955298 3ded3900dc4213df1950383561419a8948ceef75f	no	67
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
Samsung Ex. 1004, Page 124 of 249					

This is not an USPTO supplied IDS fillable form					
6	Information Disclosure Statement (IDS) Filed	08610001aaid6.PDF	1659157 468f8b8abe3eb63ea331152615a9d66a25a70476	no	60
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
7	Information Disclosure Statement (IDS) Filed	08610001aaid7.PDF	1130220 0c105e9982ea44308b1ed7ac39327c8a834010f5	no	43
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
8	Fee Worksheet (PTO-06)	fee-info.pdf	8182 2bf75a47d1a12ebc85210cbe802704a2f94d9f90	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			12436594		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA	5602

7590 01/30/2008
Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

EXAMINER

REGO, DOMINIC E

ART UNIT	PAPER NUMBER
----------	--------------

2618

MAIL DATE	DELIVERY MODE
-----------	---------------

01/30/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/919,515	RAPPAPORT, THEODORE S.	
	Examiner	Art Unit	
	Dominic E. Rego	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6,7,11-13,16-19,24,25,29-32,34,37-39 and 41-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,7,11-13,16-19,24,25,29-32,34,37-39 and 41-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/17/2004</u> . | 6) ☐ Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 08/17/2004 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because under “the other documents”, some of the documents do not have either author’s name or date or pertinent page. These documents cannot be considered. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 41-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Proctor, Jr. et al. (US Pub. No. 2006/0063484).

Regarding claim 41, Proctor, Jr. teaches a broadband repeater (Figure 1, element 200), comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices (Paragraph 0011) and at least some of said signals being sent by a wired link, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter (Paragraphs 0022-0024); and

a controller for controlling reception of electronic signals by said at least one receiver and transmission by said at least one transmitter (Paragraphs 0022-0024), wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater (Paragraph 0049).

Regarding claim 42, Proctor, Jr. teaches the broadband repeater wherein either pre-programmed or programmable network information supplied to said controller is communicated using either a wireless or wired link (Paragraph 0049).

Regarding claim 43, Proctor, Jr. teaches the broadband repeater wherein said network information is further supplied to said controller by over-the-air ultrawideband signaling (Paragraph 0011), and a wired connection from another device (Paragraph 0049).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,2,4,6,7, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Alford (US Patent #5,634,196).

Regarding claim 1, Proctor, Jr. teaches a broadband wireless repeater (Figure 1, element 200), comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices (Paragraph 0011), and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter (Paragraphs 0022-0024), except for a controller, which is either pre-programmed or programmable with network information, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and

undesired data for network security, network management, or interference mitigation purposes, said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter, said controller further providing for the collecting, reporting, or storing of network usage, network statistics, or network information.

However, in related art, Alford teaches a controller, which is either pre-programmed or programmable with network information, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes (Col 2, line 66-Col 3, line 18; Col 7, line 66-Col 8, line 21), said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter (Col 1, lines 30-60), said controller further providing for the collecting, reporting, or storing of network usage, network statistics, or network information (Col 10, lines 7-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Alford to Proctor, Jr. in order to filter out unwanted signal and reduce interferences in desire signal.

Regarding claim 2, the combination of Proctor, Jr. and Alford teach all the claimed elements in claim 1. In addition, Alford teaches the broadband repeater wherein said network information includes one or more of IDs for each of the components to be used in a network, and IDs for users permitted to be used in a network (Col 1, lines 20-

30; Col 2, lines 28-65; Col 8, line 55-col 9, line 21).

Regarding claim 4, the combination of Proctor, Jr. and Alford teach all the claimed elements in claim 1. In addition, Alford teaches the broadband repeater wherein said network information includes one or more a specified coverage area for wireless devices to permit use of a network, and specified applications permitted to be used in a network (Co. 1, line 45-60; Col 2, line 61-Col 3, line 18).

Regarding claim 6, the combination of Proctor, Jr. and Alford teach all the claimed elements in claim 1. In addition, Alford teaches the broadband repeater further comprising a buffer memory for storing received or to be transmitted electronic signals for processing by said controller (Col 4, lines 12-62; Col 5, line 40-col 6, line 5; Col 6, line 56- Col 7, line 30).

Regarding claim 7, the combination of Proctor, Jr. and Alford teach all the claimed elements in claim 1. In addition, Proctor, Jr. teaches the broadband repeater wherein said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals by either or both a wireless or a wired link (Paragraphs 0023-0024).

Regarding claim 11, the combination of Proctor, Jr. and Alford teach all the claimed elements in claim 1. In addition, Proctor, Jr. teaches the broadband repeater wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an AC outlet, a room fixture, a display terminal, a gaming device, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer (Paragraph 0021).

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Alford (US Patent #5,634,196), and further in view of Baker et al. (US Pub. No. 2005/0208889).

Regarding claim 12, the combination of Proctor, Jr. and Alford teach all the claimed elements in claim 1. In addition, Proctor, Jr. teaches the broadband repeater wherein said controller permits one or more network information to be modified (Paragraph 0034), except for support of position location capabilities for use by a network.

However, in related art, Baker teaches support of position location capabilities for use by a network (Paragraph 0017).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Baker to Proctor, Jr. and Alford in order to improve the quality of position assistance information generated and sent to subscriber units of the wireless communication system.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Alford (US Patent #5,634,196), and further in view of Tamaki et al. (US Pub. No. 2003/0124976).

Regarding claim 13, the combination of Proctor, Jr. and Alford fail to teach the broadband repeater wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

However, in related art, Tamaki teaches the broadband repeater wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception (Paragraphs 0063-0065, 0067, 0106, and 0115), and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Tamaki to Proctor, Jr. and Alford so that signal can be receive or transmit properly.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Alford (US Patent #5,634,196), and further in view of Walkup (US Pub. No. 2002/0111137).

Regarding claim 16, the combination of Proctor, Jr. and Alford fail to teach the broadband repeater where network provisioning information is passed to or pre-programmed with said controller, for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data and transmission of data to or from said repeater.

However, in related art, Walkup teaches the broadband repeater where network provisioning information is passed to or pre-programmed with said controller, for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data and transmission of data to or from said repeater (See Abstract and claim 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Walkup to Proctor, Jr. and Alford in order to prioritize received or transmitted signal.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Alford (US Patent #5,634,196), and further in view of Pai et al. (US Patent #6,110,221).

Regarding claim 17, the combination of Proctor, JR. and Alford fail to teach the broadband repeater wherein said transmitter and said receiver have reversible input/output directions.

However, in related art, Pai teaches the broadband repeater wherein said transmitter and said receiver have reversible input/output directions (Col 2, lines 10-18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Pai to Proctor, Jr. and Alford for the direction of the lines needing repeating in the channel.

10. Claims 18,19,24,25,29,31, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Walkup (US Pub. No. 2002/0111137), and further in view of in view of Alford (US Patent #5,634,196)

Regarding claim 18, Proctor, Jr. teaches a broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices (Paragraph 0011), and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter (Paragraphs 0022-0024), except for a controller which is either pre-programmed or programmable with provisioning information for purposes of network traffic provisioning, wherein said controller uses

said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter, said controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter.

However, in related art, Walkup teaches a controller which is either pre-programmed or programmable with provisioning information for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter (See Abstract and claim 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Walkup to Proctor, Jr in order to prioritize received or transmitted signal.

The combination of Proctor, Jr. and Walkup fail to teach controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter.

However, in related art, Alford teaches controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Alford to Proctor, Jr. and Walkup in order to transmit or receive signal without creating any interferences.

Regarding claim 19, the combination of Proctor, Jr., Walkup, and Alford teach all the claimed elements in claim 18. In addition, Walkup teaches the broadband repeater wherein said provisioning information prioritizes by one or more network user, type of data being received by said at least one receiver, type of data being transmitted by said at least one transmitter, and the particular type of application being used by one or more users of the network being transmitted by said at least one transmitter (See Abstract and claim 10).

Regarding claim 24, the combination of Proctor, Jr., Walkup, and Alford teach all the claimed elements in claim 18. In addition, Alford teaches the broadband repeater further comprising a buffer memory for storing received or to be transmitted electronic signals or data for processing by said controller (Col 4, lines 12-62; Col 5, line 40-col 6, line 5; Col 6, line 56- Col 7, line 30).

Regarding claim 25, the combination of Proctor, Jr., Walkup, and Alford teach all the claimed elements in claim 18. In addition, Proctor, Jr. teaches the broadband repeater wherein either or both said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals or data by either or both a wireless or a wired link (Paragraphs 0023-0024).

Regarding claim 29, the combination of Proctor, Jr., Walkup, and Alford teach all the claimed elements in claim 18. In addition, Proctor, Jr. teaches the broadband repeater wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an

AC outlet, a room fixture, a display terminal, a gaming devices, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer (Paragraph 0021).

Regarding claim 31, the combination of Proctor, Jr., Walkup, and Alford teach all the claimed elements in claim 18. In addition, Proctor, Jr. teaches the broadband repeater wherein said provisioning information supplied to said controller is communicated using either a wireless or wired link (Paragraphs 0023-0024).

Regarding claim 32, the combination of Proctor, Jr., Walkup, and Alford teach all the claimed elements in claim 31. In addition, Proctor, Jr. teaches the broadband repeater wherein said provisioning information is further supplied to said controller by one or more of over-the-air ultrawideband signaling, and wired connections from another device (Paragraph 0011).

11. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Walkup (US Pub. No. 2002/0111137) in view of Alford (US Patent #5,634,196), and further in view of Baker et al. (US Pub. No. 2005/0208889).

Regarding claim 30, the combination of Proctor, Jr., Walkup and Alford teach all the claimed elements in claim 18. In addition, Proctor, Jr. teaches the broadband repeater wherein said controller permits one or more of provisioning information to be modified (Paragraph 0034), except for support of position location capabilities for use by a network.

However, in related art, Baker teaches support of position location capabilities for use by a network (Paragraph 0017).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Baker to Proctor, Jr., Walkup and Alford in order to improve the quality of position assistance information generated and sent to subscriber units of the wireless communication system.

12. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Walkup (US Pub. No. 2002/0111137) in view of Alford (US Patent #5,634,196), and further in view of Tamaki et al. (US Pub. No. 2003/0124976).

Regarding claim 34, the combination of Proctor, Jr., Walkup and Alford fail to teach the broadband repeater wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

However, in related art, Tamaki teaches the broadband repeater wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception (Paragraphs 0063-0065, 0067, 0106, and 0115), and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Tamaki to Proctor, Jr., Walkup and Alford so that signal can be receive or transmit properly.

13. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Walkup (US Pub. No. 2002/0111137) in view of Alford (US Patent #5,634,196), and further in view of Pai et al. (US Patent #6,110,221).

Regarding claim 37, the combination of Proctor, JR. and Alford fail to teach the broadband repeater wherein said transmitter and said receiver have reversible input/output directions.

However, in related art, Pai teaches the broadband repeater wherein said transmitter and said receiver have reversible input/output directions (Col 2, lines 10-18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Pai to Proctor, Jr. and Alford for

the direction of the lines needing repeating in the channel.

14. Claims 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proctor, JR. et al. (US Patent Application Publication #2006/0063484) in view of Alford (US Patent #5,634,196), and further in view of Suonvieri et al. (US Patent #6,373,833).

Regarding claim 38, Proctor, Jr. teaches a broadband wireless repeater (Figure 1, element 200), comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices (Paragraph 0011), and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter(Paragraphs 0022-0024), except for a controller which is either pre-programmed or programmable to collect traffic information or security information related to received and transmitted data, said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter.

However, in related art, Alford teaches a controller which is either pre-programmed or programmable said controller controlling reception of electronic signals

or data by said at least one receiver and transmission by said at least one transmitter (Col 1, lines 30-60).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Alford to Proctor, Jr. so that signal can be receive or transmit properly.

The combination of Proctor, Jr. and Alford fail to teach a controller which is either pre-programmed or programmable to collect traffic information or security information related to received and transmitted data.

However, in related art, Suonvieri et al. teaches a controller which is either pre-programmed or programmable to collect traffic information or security information related to received and transmitted data (Col 9, lines 30-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the above teaching of Suonvieri to Proctor, Jr. and Alford in order to determine the free/reserved information of the channel (Col 9, lines 30-40).

Regarding claim 39, the combination of Proctor, Jr., Alford, and Suonvieri teach all the claimed elements in claim 38. In addition, Suonvieri teaches the broadband repeater further comprising one or more of a means for exporting traffic information or security information to one or more computer processors or devices, and a means for adjusting one or more operations of said controller based on said traffic information or security information (Col 9, lines 30-40).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. White, II et al. (US Pub No. 2006/0071776), Schurig (US Patent #5,818,821), Treatch (US Patent #6,466,766), Jochim et al. (US Pub. No. 2002/0197990), Mears et al. (US Pub. No. 2002/0142767).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dominic E. Rego whose telephone number is 571-272-8132. The examiner can normally be reached on Monday-Friday, 8:30 am-5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on 571-272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number:
10/919,515
Art Unit: 2618

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Dominic E. Rego
Tel 571-272-8132



MATTHEW ANDERSON
SUPERVISORY PATENT EXAMINER

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

ATTY DOCKET NO.

08610001AA

APPLICATION NO.

Not Assigned

APPLICANT(S)

Rappaport

FILING DATE

Concurrently

GROUP ART UNIT

Not Assigned

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
/DR/	6,505,032	06/07/03	McCorkle et al.			
/DR/	6,590,545	07/08/03	McCorkle			

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*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
/DR/	20020198977	12/26/02	Cho			
/DR/	20030096578	05/22/03	McCorkle et al.			

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

			Intel Technology Journal; Vol. 7, Issue 3; August 2003
			"Pick Your Wireless Solution", publication date and source/author unknown

EXAMINER

/Dominic Rego/

DATE CONSIDERED

01/18/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Docket Number (Optional) 08610001AA	Application Number Not Assigned
Applicant(s) Rappaport	
Filing Date Concurrently	Group Art Unit Not Assigned

*EXAMINER
INITIAL

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

~~R. Fontana; "Recent Applications of Ultra Wideband Radar and Communications Systems"; to be published in Ultra-Wideband, Short-Pulse Electromagnetics~~

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~~"New Products: Buffalo Tech announces 11g bridge/repeater"; smallnetbuilder.com; posted by Tim on June 17, 2003~~

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~~"PROPAGATOR Fully Integrated Repeater"; Andrew Corporation's website - www.andrew.com/products~~

~~"Ultrawideband on Mesh Networking Explained"; 2003~~

EXAMINER

/Dominic Rego/

DATE CONSIDERED

01/24/2008

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Notice of References Cited

Application/Control No.

10/919,515

Applicant(s)/Patent Under
Reexamination
RAPPAPORT, THEODORE S.

Examiner

Dominic E. Rego

Art Unit

2618

Page 1 of 1

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2006/0063484	03-2006	Proctor et al.	455/007
*	B	US-5,634,196	05-1997	Alford, George C.	455/18
*	C	US-2005/0208889	09-2005	Baker et al.	455/007
*	D	US-2003/0124976	07-2003	Tamaki et al.	455/15
*	E	US-2002/0111137	08-2002	Walkup, Kevin D.	455/22
*	F	US-6,110,221	08-2000	Pai et al.	716/8
*	G	US-6,373,833	04-2002	Suonvieri et al.	370/347
*	H	US-5,818,821	10-1998	Schurig, Alma Karl	370/293
*	I	US-6,466,766	10-2002	Treatch, James E.	455/20
*	J	US-2002/0197990	12-2002	Jochim et al.	455/431
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	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims



Application/Control No.

10/919,515

Examiner

Dominic E. Rego

Applicant(s)/Patent under
Reexamination

RAPPAPORT, THEODORE S.

Art Unit

2618

✓	Rejected
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Final	Original	1/18/08									
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	147										
	148										
	149										
	150										

Search Notes

Application/Control No.

10/919,515

Examiner

Dominic E. Rego

Applicant(s)/Patent under
Reexamination

RAPPAPORT, THEODORE S.

Art Unit

2618

SEARCHED

Class	Subclass	Date	Examiner
455	7,11.1	1/22/2008	DR
	13.1,16	1/22/2008	DR
370	226,243	1/22/2008	DR
	246,274	1/22/2008	DR
	279,293	1/22/2008	DR
	315,316	1/22/2008	DR
	492,501	1/22/2008	DR

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
East Search	1/22/2008	DR



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BIB DATA SHEET

CONFIRMATION NO. 5602

SERIAL NUMBER 10/919,515	FILING or 371(c) DATE 08/17/2004 RULE	CLASS 370	GROUP ART UNIT 2618	ATTORNEY DOCKET NO. 08610001AA	
APPLICANTS Theodore S. Rappaport, Austin, TX; ** CONTINUING DATA ***** This appln claims benefit of 60/496,913 08/22/2003 <i>No, DR</i> and claims benefit of 60/498,324 08/28/2003 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 10/22/2004					
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/DOMINIC E REGO/</u> Examiner's Signature	☐ Met after Allowance DR Initials	STATE OR COUNTRY TX	SHEETS DRAWINGS 6	TOTAL CLAIMS 44	INDEPENDENT CLAIMS 4
ADDRESS Whitham, Curtis & Christofferson, PC Suite 340 11491 Sunset Hills Rd. Reston, VA 20190 UNITED STATES					
TITLE Broadband repeater with security for ultrawideband technologies					
FILING FEE RECEIVED 644	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S5	3	wireless near2 repeater same (uwb(ultra\$wideband))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 16:00
S6	37	repeater same (uwb(ultra\$wideband))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 16:25
S10	32	repeater same control\$4 same screen\$3 same (security management interference)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 16:59
S11	534	repeater same (screen\$3 scan\$4 search\$3 prob\$3) same (security management interference)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 17:04
S12	199	S11 same control\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 17:05
S13	69	repeater same ((screen\$3 scan\$4 search\$3 prob\$3) near2 (signal wave data information)) same (security management interference)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 17:14
S14	32	S13 same control\$4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 17:06
S15	24	S14 not S10	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 17:06

EAST Search History

S16	44	repeater same (screen\$3 scan\$4 search\$3 prob\$3) same (security management interference) same (retransmit\$4 ignor\$3 reject\$3 redirect\$3 modif\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/18 17:15
S17	5621	controller same repeater	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 11:05
S19	167	S17 same (screen\$3 scan\$4)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 11:06
S20	130365	"455"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 11:07
S21	47	S19 and S20	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 14:54
S22	119675	"370"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 11:07
S23	32	S19 and S22	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 11:07
S27	15	repeater same position with support\$3 with location	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 17:05

EAST Search History

S28	31	wireless near2 repeater same position near4 determin\$6	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 17:22
S29	8	repeater same (((steerable adaptive) near2 antenna)mimo) same control\$4 near4 (direction coverage capacity (transmi\$6 same (reception receiv\$3)))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 18:11
S30	575	repeater same control\$4 same priorit\$5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 18:13
S31	69	repeater with control\$4 with priorit\$5 with (transmi\$6 receiv\$3 reception)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 18:14
S32	20	S20 and S31	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 18:25
S33	20	repeater same reversible near4 direction	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 23:06
S34	10	repeater same controller same traffic near2 information	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/01/21 23:06

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Rappaport

Confirmation No. 5602

Serial No. 10/919,515

Group Art Unit 2661

Filed August 17, 2004

Examiner (Not Known)

For BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND
TECHNOLOGIES

Commissioner for Patents

PO Box 1450

Alexandria, Virginia 22313-1450

PRELIMINARY AMENDMENT AND
REQUEST FOR REFUND UNDER 37 C.F.R. 1.117

Sir:

The application was filed August 14, 2004 and has not yet received a first office action on the merits. In order to simplify prosecution, and based on the new US Patent Rules, the applicant requests entry of the following amendment, but reserves the ability to pursue claims similar to the canceled claims in one or more continuation applications. The undersigned also requests that the excess claims fees which have been previously been paid by credited to the attorney's deposit account set forth below.

Listing of the Claims: begin on page 2

Remarks: begin on page 10

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1. (Original) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller, which is either pre-programmed or programmable with network information, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes,

said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter,

said controller further providing for the collecting, reporting, or storing of network usage, network statistics, or network information.

2. (Currently amended) The broadband repeater of claim 1 wherein said network information includes one or more of IDs for each of the components to be used in a network, and IDs for users permitted to be used in a network.

3. (Canceled) The broadband repeater of claim 1 wherein said network information includes IDs for users permitted to be used in a network.

4. (Currently amended) The broadband repeater of claim 1 wherein said network information includes one or more of a specified coverage area for wireless devices to permit use of a network, and specified applications permitted to be used in a

network.

5. (Canceled) The broadband repeater of claim 1 wherein said network information includes specified applications permitted to be used in a network.

6. (Currently amended) The broadband repeater of claim 1 further comprising a buffer memory for storing received or to be transmitted electronic signals for processing by said controller.

7. (Currently amended) The broadband repeater of claim 1 wherein either or both said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals by either or both a wireless ~~communication~~ or a wired link.

8. (Canceled) The broadband repeater of claim 1 wherein said at least one transmitter transmits electronic signals by wireless communication.

9. (Canceled) The broadband repeater of claim 1 wherein said at least one transmitter transmits electronic signals by wired link.

10. (Canceled) The broadband repeater of claim 1 wherein said at least one transmitter transmits electronic signals by either or both wireless communication or by wired link.

11. (Currently amended) The broadband repeater of claim 1 wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an A.C outlet, a room fixture, a display terminal, a gaming device, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer ~~a wall fixture.~~

12. (Currently amended) The broadband repeater of claim 1 wherein said controller permits one or more of network information to be modified and support of position location capabilities for use by a network

13. (Currently amended) The broadband repeater of claim 1 wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

14. (Canceled) The broadband repeater of claim 1 wherein said controller permits support of position location capabilities for use by a network.

15. (Canceled) The broadband repeater of claim 1 wherein said controller directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

16. (Original) The broadband repeater of claim 1 where network provisioning information is passed to or pre-programmed with said controller, for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data and transmission of data to or from said repeater.

17. (Original) The broadband repeater of claim 1 wherein said transmitter and said receiver have reversible input/output directions.

18. (Original) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or

may function alternatively as a receiver and as a transmitter; and

a controller which is either pre-programmed or programmable with provisioning information for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter, said controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter.

19. (Currently amended) The broadband repeater of claim 18 wherein said provisioning information prioritizes by one or more of network user, type of data being received by said at least one receiver, type of data being transmitted by said at least one transmitter, and the particular type of application being used by one or more users of the network being transmitted by said at least one transmitter.

20. (Canceled) The broadband repeater of claim 18 wherein said provisioning information prioritizes by type of data being received by said at least one receiver.

21. (Canceled) The broadband repeater of claim 18 wherein said provisioning information prioritizes by type of data being transmitted by said at least one transmitter.

22. (Canceled) The broadband repeater of claim 18 wherein said provisioning information prioritizes by the particular type of application being used by one or more users of the network and being received by said at least one receiver.

23. (Canceled) The broadband repeater of claim 18 wherein said provisioning information prioritizes by the particular type of application being used by one or more users of the network being transmitted by said at least on transmitter.

24. (Currently amended) The broadband repeater of claim 18 further comprising a buffer memory for storing received or to be transmitted electronic signals or data for processing by said controller.

25. (Currently amended) The broadband repeater of claim 18 wherein either or both said at least one receiver and said at least one transmitter respectively receives or transmits electronic signals or data by either or both a wireless ~~communication~~ or a wired link.

26. (Canceled) The broadband repeater of claim 18 wherein said at least one transmitter transmits electronic signals or data by wireless communication.

27. (Canceled) The broadband repeater of claim 18 wherein said at least one transmitter transmits electronic signals or data by wired link.

28. (Canceled) The broadband repeater of claim 18 wherein said at least one transmitter transmits electronic signals or data by either or both wireless communication or by wired link.

29. (Currently amended) The broadband repeater of claim 18 wherein said at least one receiver and said at least one transmitter and said controller are stationary or mobile/portable and are associated with one or more of an AC outlet, a room fixture, a display terminal, a gaming devices, office or home equipment, a ceiling fixture, a wall fixture, furniture, or a computer ~~a wall fixture~~.

30. (Currently amended) The broadband repeater of claim 18 wherein said controller permits one or more of provisioning information to be modified and support of position location capabilities for use by a network.

31. (Original) The broadband repeater of claim 18 wherein said provisioning information supplied to said controller is communicated using either a wireless or wired link.

32. (currently amended) The broadband repeater of claim 31 wherein said provisioning information is further supplied to said controller by one or more of over-the-air ultrawideband signaling, and wired connections from another device.

33.(canceled) The broadband repeater of claim 31, wherein said provisioning information is further supplied to said controller by a wired connection from another device.

34. (Currently amended) The broadband repeater of claim 18 wherein said controller either or both

a) uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones or capacity or quality of transmissions or reception, and

b) directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

35. (Canceled) The broadband repeater of claim 18 wherein said controller permits support of position location capabilities for use by a network

36. (Canceled) The broadband repeater of claim 18 wherein said controller directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

37. (Original) The broadband repeater of claim 18 wherein said transmitter and said receiver have reversible input/output directions.

38. (Original) A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller which is either pre-programmed or ~~programmed~~ programmed

traffic information or security information related to received and transmitted data, said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter.

39. (currently amended) The broadband repeater of claim 38 further comprising one or more of

a means for exporting traffic information or security information to one or more computer processors or devices, and

a means for adjusting one or more operations of said controller based on said traffic information or security information.

40. (Canceled) The broadband repeater of claim 38 further comprising means for adjusting one or more operations of said controller based on said traffic information or security information.

41. (Original) A broadband repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices and at least some of said signals being sent by a wired link, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller for controlling reception of electronic signals by said at least one receiver and transmission by said at least one transmitter,

wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater.

42. (Original) The broadband repeater of claim 1 wherein either pre-programmed or programmable network information supplied to said controller is communicated using either a wireless or wired link.

43. (currently amended) The broadband repeater of claim 42 wherein said network information is further supplied to said controller by one or more of over-the-air ultrawideband signaling, and a wired connection from another device.

44. (Canceled) The broadband repeater of claim 42, wherein said network information is further supplied to said controller by a wired connection from another device.

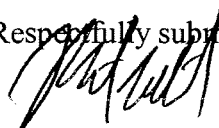
REMARKS

By this amendment, claims 3, 4, 8-10, 14, 15, 20-23, 26-28, 33, 35, 36, 40, and 44 have been canceled. The application now includes a total of twenty five claims, of which four claims are independent claims.

The applicant requests a refund for the nineteen dependent claims which have been canceled prior to receipt of the first office action on the merits. The refund should be credited to attorney's deposit account 50-2041.

Please proceed to examination on the merits.

Respectfully submitted,



Michael E. Whitham
Reg. No. 32,635

Whitham, Curtis, Christofferson & Whitham, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190

Tel. (703) 787-9400
Fax. (703) 787-7557

Customer No.: 30743

Electronic Acknowledgement Receipt

EFS ID:	2385768
Application Number:	10919515
International Application Number:	
Confirmation Number:	5602
Title of Invention:	Broadband repeater with security for ultrawideband technologies
First Named Inventor/Applicant Name:	Theodore S. Rappaport
Correspondence Address:	Whitham, Curtis & Christofferson, PC - Suite 340 11491 Sunset Hills Rd. Reston VA 20190 US 7037879400 -
Filer:	Michael E. Whitham
Filer Authorized By:	
Attorney Docket Number:	08610001AA
Receipt Date:	29-OCT-2007
Filing Date:	17-AUG-2004
Time Stamp:	16:14:54
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		08610001aapre.PDF	320956 d5e86f600832fa94b2668a452a70010740c9875e	yes	10
Multipart Description/PDF files in .zip description					
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Claims		2	9	
	Applicant Arguments/Remarks Made in an Amendment		10	10	
Warnings:					
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Total Files Size (in bytes):			320956		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 10/919,515		Filing Date 08/17/2004		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)			SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)		RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$	=		X \$	=			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=		X \$	=			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	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).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.					TOTAL		TOTAL			
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT	10/29/2007	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 25	Minus	** 44	=	0		X \$	=	
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	=	0		X \$	=	
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
					TOTAL ADD'L FEE	0		TOTAL ADD'L FEE		
(Column 1)			(Column 2)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=			X \$	=	
	Independent (37 CFR 1.16(h))	*	Minus	***	=			X \$	=	
☐ Application Size Fee (37 CFR 1.16(s))										
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
					TOTAL ADD'L FEE			TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

Legal Instrument Examiner:
lavinia d. johnson

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

DATE: 08/01/2006

To: Applicant of Serial Number 10919515
Filed on 17-AUG-2004
(Art Unit 2616)

It is estimated that this application will receive an Office action in approximately 43 months. This is an estimate that is based on the current inventory level of applications filed in this art area and the current staffing levels in this Art Unit. The USPTO is dedicated to minimizing first action and total pendency, and we are targeting resources to help address backlogs in art areas with high new application filings. Thank you for your inquiry.

Customer Service Office in Technology Center: 2600

Phone Number: 571-272-2600
Central Fax Number: 571-273-8300

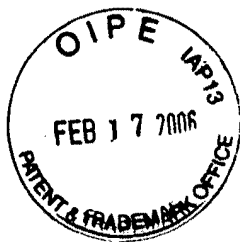
Applicant/Attorney Contact Information:

Phone Number: 703-787-9400
Fax Number:

IPW

TRANSMITTAL LETTER (General - Patent Pending)				Docket No. 08610001AA	
In Re Application Of: Rappaport					
FEB 17 2006 PATENT OFFICE					
Application No. 10/919,515	Filing Date 08/17/2004	Examiner Not Assigned	Customer No. 30743	Group Art Unit 2661	Confirmation No. 5602
Title: BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES					
<u>COMMISSIONER FOR PATENTS:</u>					
Transmitted herewith is:					
Status Inquiry Postcard					
in the above identified application.					
☒ No additional fee is required.					
☐ A check in the amount of _____ is attached.					
☒ The Director is hereby authorized to charge and credit Deposit Account No. 50-2041 as described below.					
☐ Charge the amount of _____					
☒ Credit any overpayment.					
☒ Charge any additional fee required.					
☐ Payment by credit card. Form PTO-2038 is attached.					
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.					
 Signature			Dated: February 17, 2006		
Marshall M. Curtis Reg. No. 33.138					
Whitham, Curtis, Christofferson & Cook, P.C. 11491 Sunset Hills Road, Suite 340 Reston, VA 20190 (703) 787-9400					
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on _____. (Date) _____ Signature of Person Mailing Correspondence _____ Typed or Printed Name of Person Mailing Correspondence					
cc:					

08610001AA



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

Rappaport

Serial No.: 10/919,515

Group Art Unit: 2661

Filed: August 17, 2004

Examiner: Not Assigned

For: BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND
TECHNOLOGIES

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

STATUS INQUIRY

Sir:

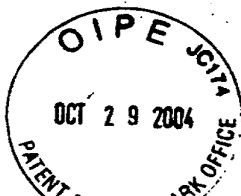
The above-identified patent application was filed on August 17, 2004. As of today, a first action on the merits has not been received by this office. It is respectfully requested that the undersigned be provided with a statement of the status of this application.

Respectfully submitted,

Marshall M. Curtis
Reg. No. 33,138

Whitham, Curtis, Christofferson & Cook, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190
(703) 787-9400

Customer Number 30743



UNITED STATES PATENT AND TRADEMARK OFFICE

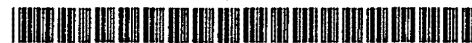
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA

Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

CONFIRMATION NO. 5602

FORMALITIES LETTER



OC000000014177495

Date Mailed: 10/25/2004

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

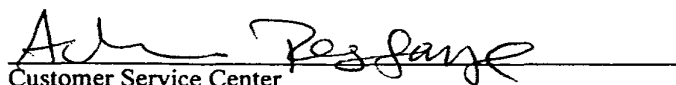
An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

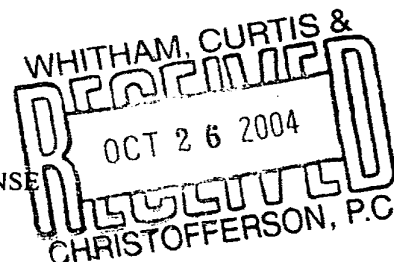
- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121 are required. The drawings submitted are not acceptable because:
 - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 3-8.

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Customer Service Center
Initial Patent Examination Division (703) 308-1202

PART 2 - COPY TO BE RETURNED WITH RESPONSE



TRANSMITTAL LETTER (General - Patent Pending)				Docket No. 08610001AA	
In Re Application Of: Rappaport					
Application No.	Filing Date	Examiner	Customer No.	Group Art Unit	Confirmation No.
10/919,515	08/17/2004	Not Assigned	30743	2661	5602
Title: BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES					
<u>COMMISSIONER FOR PATENTS:</u>					
Transmitted herewith is: Response to Notice to File Corrected Application Papers and Submission of Formal Drawings Copy of the Notice 6 sheets of formal drawings Postcard					
in the above identified application.					
☒ No additional fee is required. ☐ A check in the amount of _____ is attached. ☒ The Director is hereby authorized to charge and credit Deposit Account No. 50-2041 as described below.					
☐ Charge the amount of _____ ☒ Credit any overpayment. ☒ Charge any additional fee required. ☐ Payment by credit card. Form PTO-2038 is attached.					
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.					
 Signature			Dated: October 29, 2004		
C. Lamont Whitham Reg. No. 22,424 Whitham, Curtis & Christofferson, P.C. 11491 Sunset Hills Road, Suite 340 Reston, VA 20190 (703) 787-9400			I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to the "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on _____ (Date) Signature of Person Mailing Correspondence Typed or Printed Name of Person Mailing Correspondence		
CC:					

P16A/REV03



IN THE U.S. PATENT AND TRADEMARK OFFICE

In re patent application of

Rappaport

Serial No.: 10/919,515

Group Art Unit: 2661

Filed: August 17, 2004

Examiner: Not Assigned

For: BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND
TECHNOLOGIESCommissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450RESPONSE TO NOTICE TO FILE CORRECTED APPLICATION PAPERS AND
SUBMISSION OF FORMAL DRAWINGS

Sir:

In response to the Notice to File Corrected Application Papers mailed October 25, 2004, submitted herewith are the following:

- 1) Copy of the Notice to File Corrected Application Papers
- 2) 6 sheets of Formal drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121

Please substitute these formal drawings for the informal ones originally submitted.

Please charge any deficiencies in fees to attorneys' deposit account no. 50-2041.

Respectfully submitted,

C. Lamont Whitham
Reg. No. 22,424Whitham, Curtis & Christofferson, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190
(703) 787-9400

Customer Number 30743

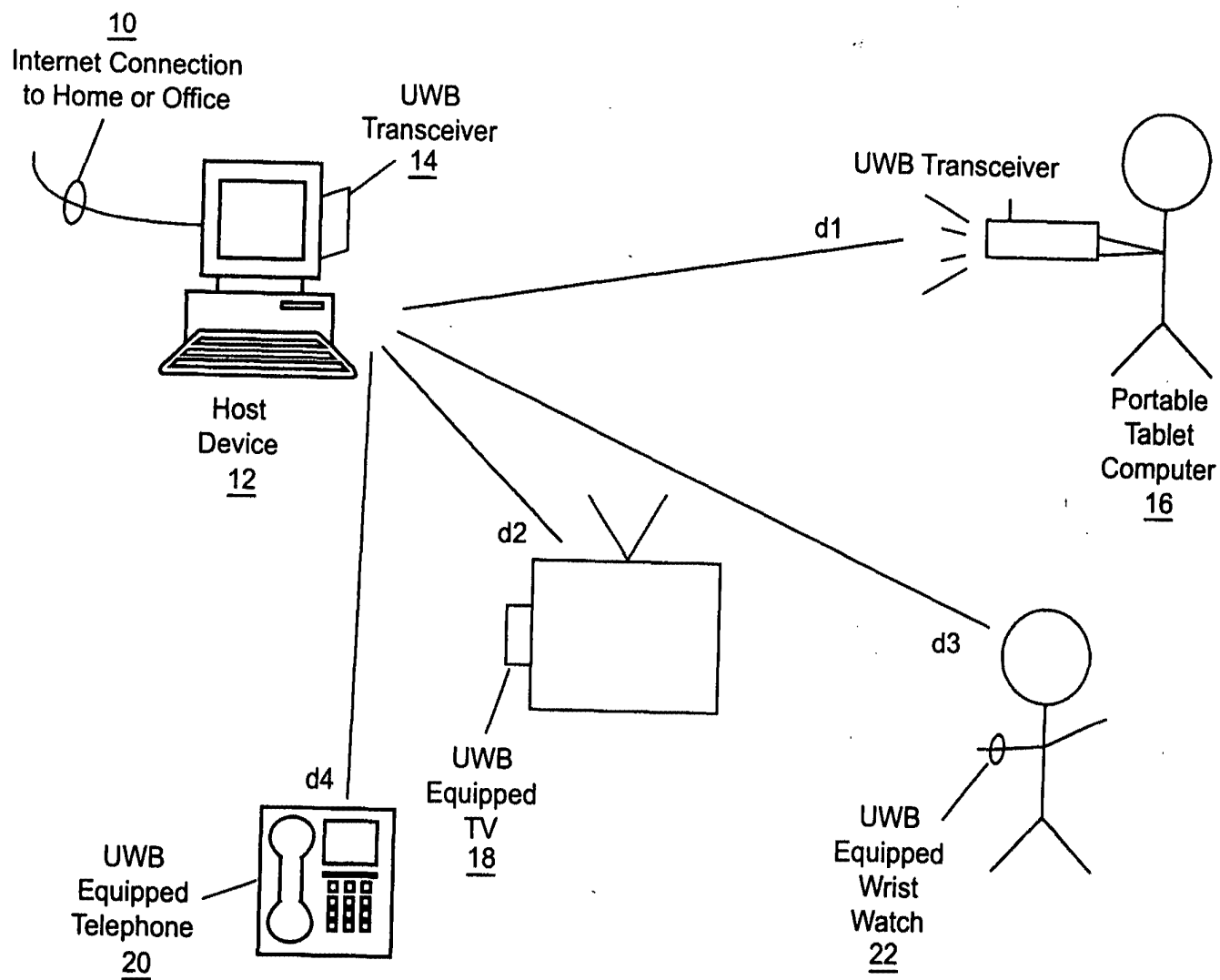


Figure 1

Title of the Invention: Broadband Repeater with
 Security for Ultrawideband Technologies
 Inventor's Name: Theodore S. Rappaport
 Docket No./Application No.: 10/919,515
 1/6

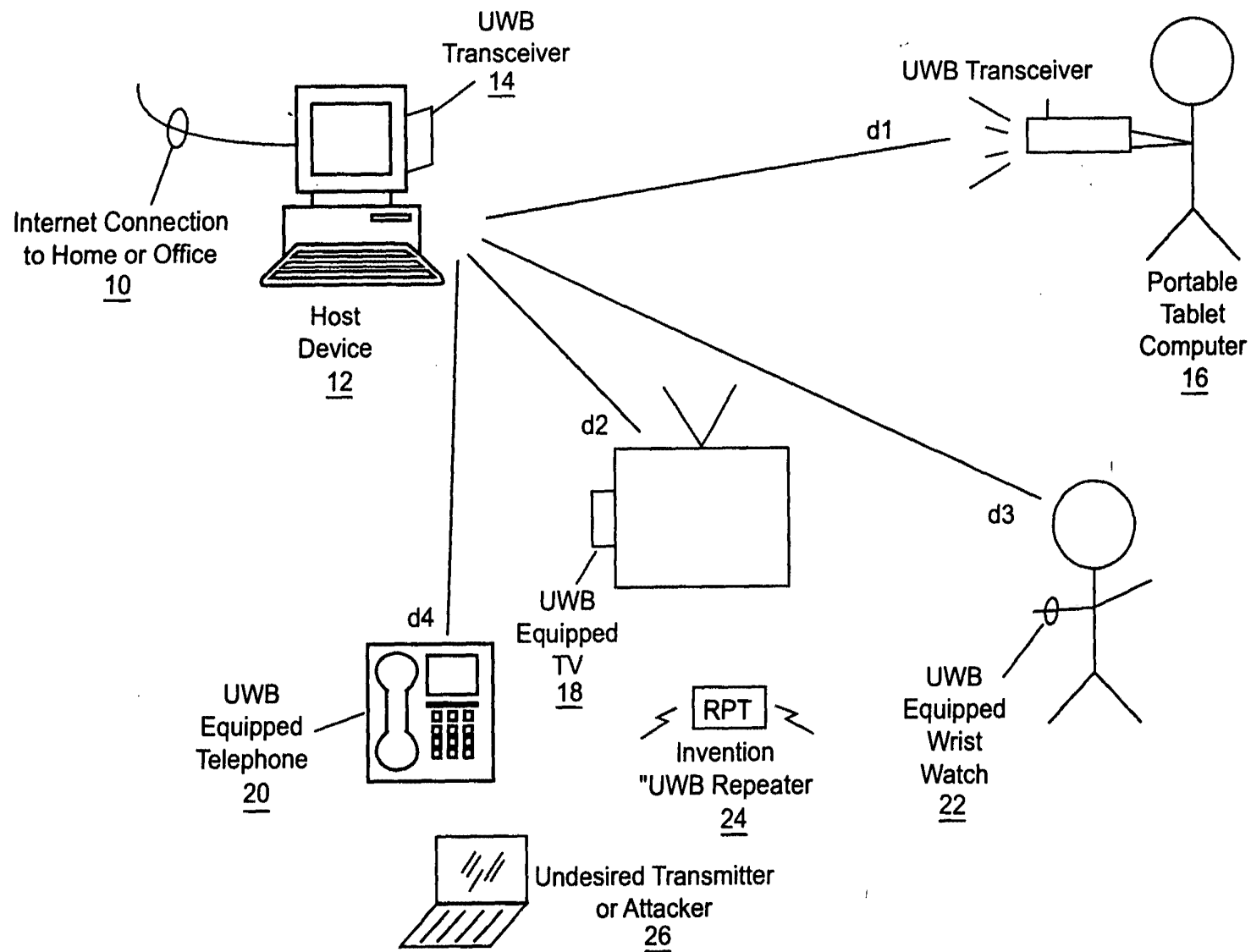


Figure 2

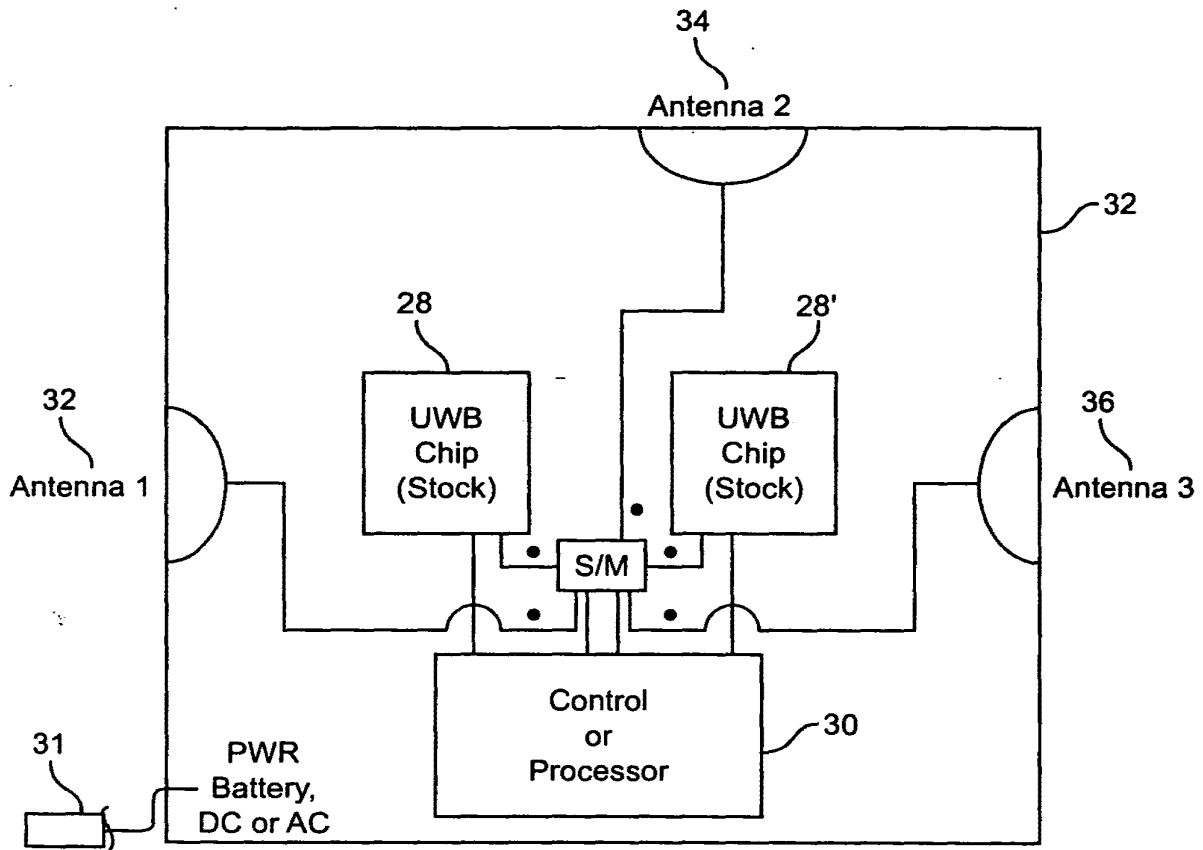


Figure 3

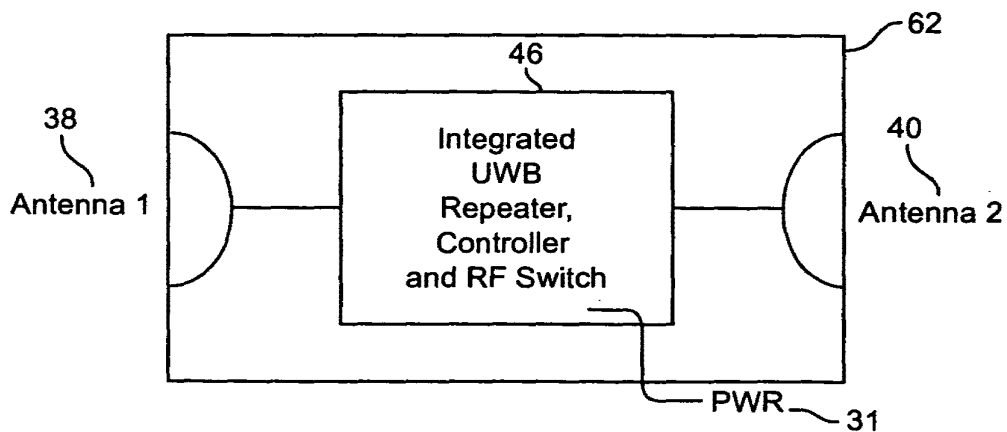


Figure 4

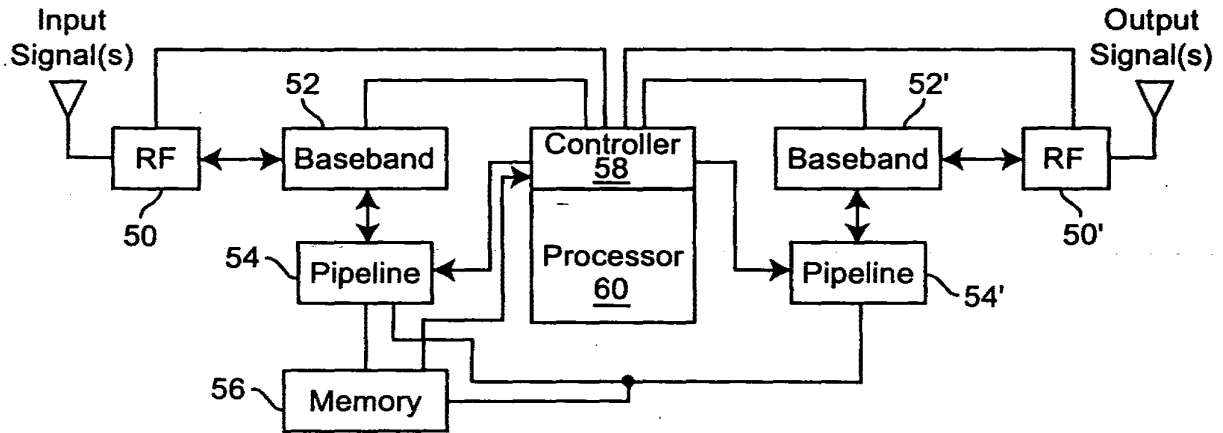


Figure 5

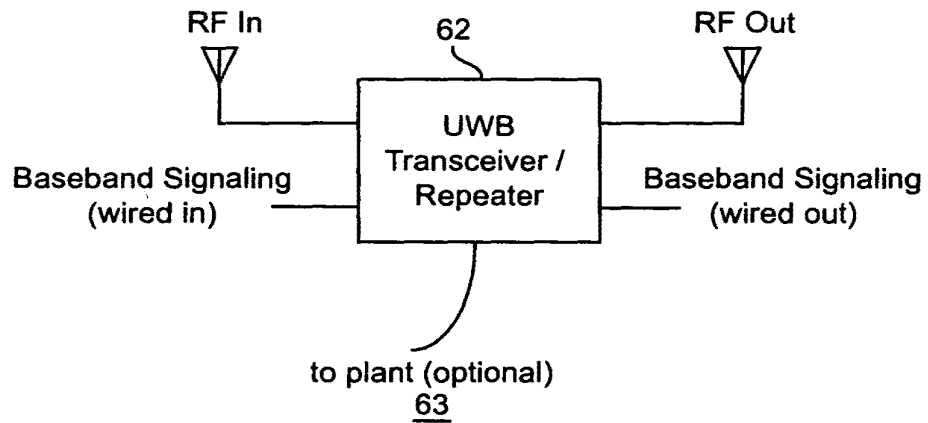


Figure 6

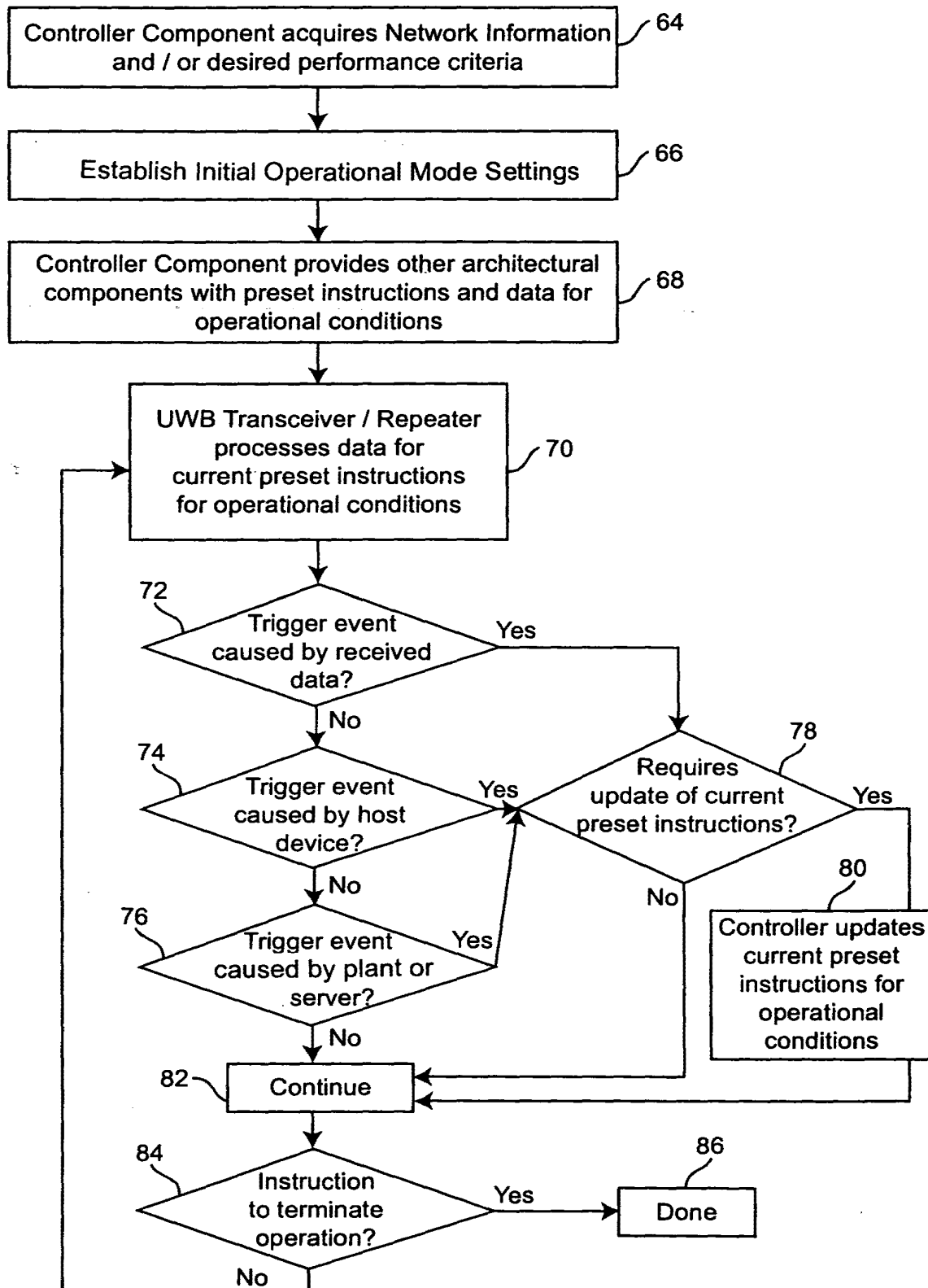


Figure 7

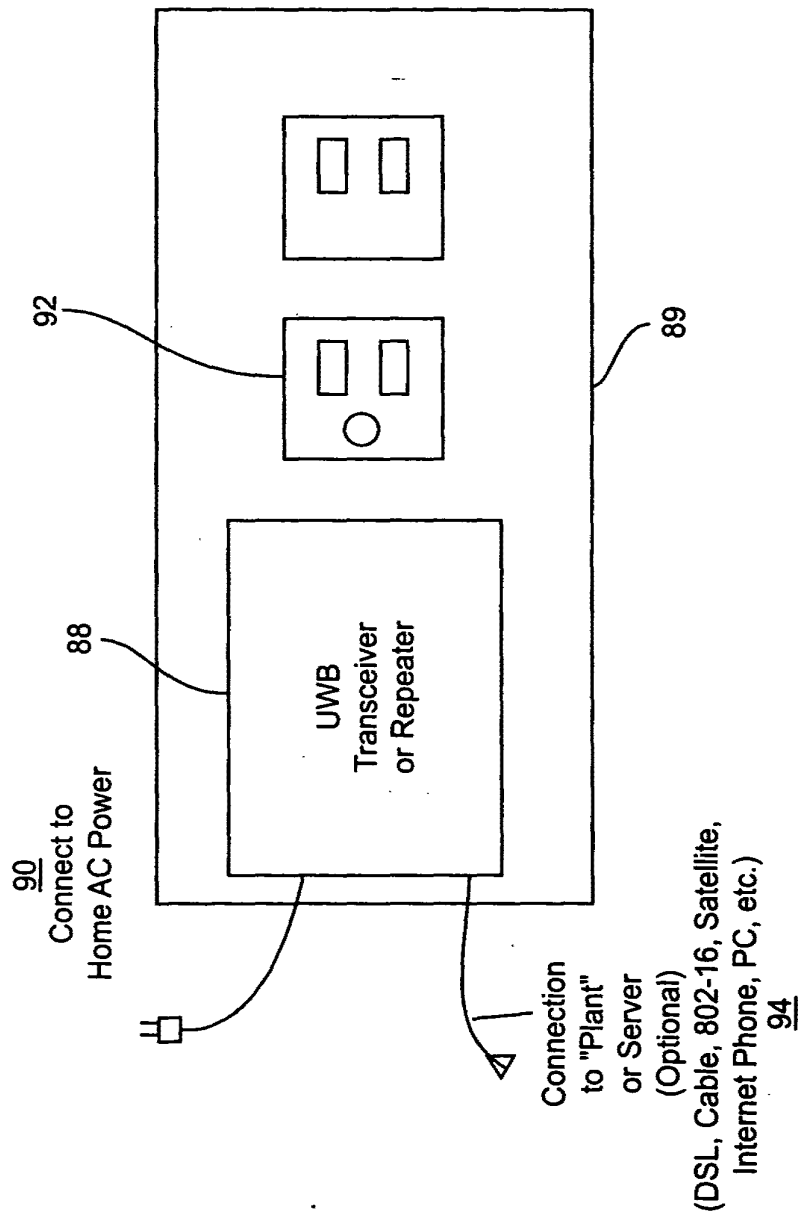


Figure 8



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/919,515	08/17/2004	Theodore S. Rappaport	08610001AA

Whitham, Curtis & Christofferson, PC
Suite 340
11491 Sunset Hills Rd.
Reston, VA 20190

CONFIRMATION NO. 5602

FORMALITIES LETTER



OC000000014177495

Date Mailed: 10/25/2004

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Filing Date Granted

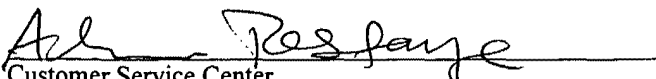
An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121 are required. The drawings submitted are not acceptable because:
 - The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) 3-8.

Replies should be mailed to: Mail Stop Missing Parts
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Customer Service Center

Initial Patent Examination Division (703) 308-1202

PART 3 - OFFICE COPY

UTILITY PATENT APPLICATION TRANSMITTAL (Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
08610001AA

Total Pages in this Submission

COMMISSIONER FOR PATENTSP.O. Box 1450
Alexandria, VA 22313-1450

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

and invented by:

Theodore S. RappaportIf a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Which is a:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Which is a:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 48 pages and including the following:
 - a. ☒ Descriptive Title of the Invention
 - b. ☒ Cross References to Related Applications (if applicable)
 - c. ☐ Statement Regarding Federally-sponsored Research/Development (if applicable)
 - d. ☐ Reference to Sequence Listing, a Table, or a Computer Program Listing Appendix
 - e. ☒ Background of the Invention
 - f. ☒ Brief Summary of the Invention
 - g. ☒ Brief Description of the Drawings (if filed)
 - h. ☒ Detailed Description
 - i. ☒ Claim(s) as Classified Below
 - j. ☒ Abstract of the Disclosure

UTILITY PATENT APPLICATION TRANSMITTAL (Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
08610001AA

Total Pages in this Submission

Application Elements (Continued)

3. ☒ Drawing(s) (when necessary as prescribed by 35 USC 113)
- a. ☐ Formal Number of Sheets _____
- b. ☒ Informal Number of Sheets 6
4. ☒ Oath or Declaration
- a. ☒ Newly executed (original or copy) ☐ Unexecuted
- b. ☐ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional application only)
- c. ☒ With Power of Attorney ☐ Without Power of Attorney
- d. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application,
see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference (usable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ CD ROM or CD-R in duplicate, large table or Computer Program (Appendix)
7. ☐ Application Data Sheet (See 37 CFR 1.76)
8. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all must be included)
- a. ☐ Computer Readable Form (CFR)
- b. ☐ Specification Sequence Listing on:
- i. ☐ CD-ROM or CD-R (2 copies); or
- ii. ☐ Paper
- c. ☐ Statement(s) Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(B) Statement (when there is an assignee)
11. ☐ English Translation Document (if applicable)
12. ☒ Information Disclosure Statement/PTO-1449 ☒ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. ☐ Certificate of Mailing
- ☐ First Class ☐ Express Mail (Specify Label No.): Hand Delivered

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Total Pages in this Submission

17. ☒ Applicant claims small entity status. See 37 CFR 1.27.

18. ☐ Additional Enclosures (please identify below):

[illegible]

An applicant who makes a request not to publish, but who subsequently files in a foreign country or under a multilateral international agreement specified in 35 U.S.C. 122(b)(2)(B)(i), must notify the Director of such filing not later than 45 days after the date of the filing of such foreign or international application. A failure of the applicant to provide such notice within the prescribed period shall result in the application being regarded as abandoned, unless it is shown to the satisfaction of the Director that the delay in submitting the notice was unintentional.

UTILITY PATENT APPLICATION TRANSMITTAL
(Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
08610001AA

Total Pages in this Submission

Fee Calculation and Transmittal

CLAIMS AS FILED

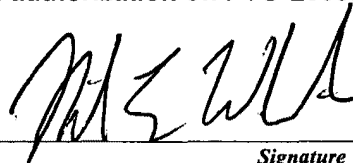
For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	44	- 20 =	24	x \$9.00	\$216.00
Indep. Claims	4	- 3 =	1	x \$43.00	\$43.00
Multiple Dependent Claims (check if applicable) ☐					\$0.00
BASIC FEE					\$385.00
OTHER FEE (specify purpose) _____					\$0.00
TOTAL FILING FEE					\$644.00

- ☒ A check in the amount of **\$644.00** to cover the filing fee is enclosed.
- ☒ The Director is hereby authorized to charge and credit Deposit Account No. **50-2041** as described below.
- ☐ Charge the amount of _____ as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).
- ☐ Payment by credit card. Form PTO-2038 is attached.
- 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.**

Dated: August 17, 2004

Customer Number: 30743

CC:


Signature

Michael E. Whitham
Reg. No. 32,635
Whitham, Curtis & Christofferson, P.C.
11491 Sunset Hills Rd., Suite 340
Reston, VA 20190
(703) 787-9400

BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

CROSS-REFERENCE TO RELATED APPLICATIONS

5 This application claims priority to U.S. Provisional
Application 60/496,913 filed August 22, 2003, and U.S.
Provisional Application 60/498,324 filed August 28, 2003, and
the complete contents of both applications is herein
10 incorporated by reference.

DESCRIPTION

BACKGROUND OF THE INVENTION

15

Field of the Invention

The present invention generally relates to electronic
signal and data repeaters and, more particularly, to a repeater
20 to be used in conjunction with ultrawideband technologies.

Background Description

In the coming years, ultrawideband (UWB) transmission
25 technologies will dominate high data rate communications in the
last 10 - 1000 meters of wireless/portable access to a
telecommunications grid. With the huge data rates and position
location capabilities afforded by UWB, offices, homes, and
small environments such as doctors offices, vehicles, or small
30 buildings will rely on UWB communication devices for
connections between consumer electronic devices and computer
devices.

As UWB devices proliferate, it will be possible to
provide immense data rates, at burst rates up to 480 Megabits
35 per second and even greater, in order to create a wireless
Universal Serial Bus (USB) capability or home/enterprise
networking capability. This will allow cameras, cellphones,
computers, and computer and home entertainment and video

systems to have very good and fast data rate transmissions in small (say 10 to 50 feet or greater) distances. The great data rates of UWB will open up an entire new world of high speed personal area networks which currently does not exist.

- 5 Companies such as Time Domain, Xtreme Spectrum Inc, Motorola, Intel and Texas Instruments, are likely to be leading manufacturers or developers of products for UWB communications.

- In typical doctors offices, homes, apartment buildings, and large warehouses and store rooms, etc, today there are
- 10 Wireless (WiFi) access points that can be connected to the ethernet backbone in order to provide WLAN access and internet access to computer platforms. The backbone medium is typically Cat-3 or Cat-5 cabling that has 10baseT, 100baseT or 1 GHz ethernet signaling, and higher. In the future, this backbone
- 15 may be wireless, for example, where cable companies or telephone/wireless/internet service providers may use mesh networks, WiMax, or last mile MIMO modem devices that bring broadband video, audio, and data/internet traffic to homes from lampposts or street corners. Satellite radio and fiber cable
- 20 are also viable methods of delivering the backbone plant to buildings and cars.

- Today, the expense of the WiFi access points is on the order of one to several hundred dollars when the hardware and installation is factored in. These access points provide the
- 25 ability of multiple WLAN users (typically computer or PDA users) to gain portable access the internet, and hot spots such as those implemented by Schlotzskys Deli and Starbucks are becoming popular throughout the world. However, these WiFi access points are made to allow users to access the internet,
- 30 which is a different use and approach than is likely to emerge with UWB networks, which connect devices together in close-in

networks.

Ultrawideband technologies are about to become mainstream, and are described in US patent application 20030096578, published May 22, 2003, by John McCorkle, et. al. of Xtreme Spectrum, Inc., US Patent 6,505,032 (the patent publication and U.S. patent being herein incorporated by reference), as well as in "Recent Applications of Ultra Wideband Radar and Communications Systems", by Robert Fonatna of Multispectral Solutions, Inc. The IEEE 802.15.3 standards bodies have been developing Physical (PHY) and MAC layer standards for dynamic channel selection and repeater service for UWB, which falls under the general IEEE 802.15.3 standards body.

As explained in the powerpoint presentation by Nishant Kumar, of Virginia Tech's MPRG, as well as in the IEEE standards proceedings, the IEEE 802.15.3 MAC operation provides for repeater service request and repeater service grant commands. Devices use passive scanning to listen for beacon frames or for any nearby user device. If there are not nearby devices which are radiating, a device may establish its own piconet. There are a number of frame and superframe structures, and subsections which permit various types of access, such as contention based schemes using, for example, carrier sense multiple access (CSMA), as well as guaranteed time slots for asynchronous or isochronous data streams and management time slots.

While the MAC standard suggests repeater service to be used by IEEE 802.15.3 devices when the links between devices are not satisfactory, these types of links can only be established if there is sufficient time available in the channel seen by one of the devices which is involved in the

repeating operation. As proliferation of UWB devices is likely to be rapid, there is likely to be contention such that the current mode of MAC repeater operation, envisioned by the presently proposed 802.15.3 standard, is not adequate to

5 provide one or more of sufficient security, proper traffic filtering, bandwidth provisioning, network management features, or flexibility of networks that can be installed or controlled easily by a consumer. That is to say, the current repeater operation contemplated by 802.15.3 and proposed UWB devices is

10 based on the assumption that a single chip can perform necessary repeater functions, but this functionality alone will not be adequate for the rapid emergence of UWB and the onslaught of wireless data that is certain to occur.

Currently, IEEE 802.15.3a , the Ultrawideband Physical

15 Layer standard committee, is working on creating a standard that may either be Multiband OFDM transmission (MBOA), with 500 MHz channels, or a Direct Sequence Spread Spectrum impulse radio standard that has broader channel bandwidths (UWB Forum). Ratification of one or both of these standards may

20 occur by the end of 2004, as described in a recent paper submitted to High Frequency Electronics, coauthored by the present inventor.

The High-Tech article by Woz Ahmed and Bipin Parmar (the Chilli) provides a glimpse at the various activities in the

25 Ultrawideband standard bodies. Ultra-Wideband Technology was also discussed in the New Technology Bulletin in March 2001, Vol. 1, Issue 7, before the multiband OFDM proposal was created. In fact, Time Domain's Paul Withington presented the talk "Time Modulated Ultra-Wideband" to the Federal Wireless

30 User's Forum in May 2001. As described by Robert X. Cringely in his August 8, 2002 article, "Good News!", it was mentioned that

Xtreme Spectrum had already produced a working UWB chip capable of 100 megabits per second over 10 meters, and the article further explained the idea of mesh networking, which will provide efficient network paths that allow very high data rates across the internet for remote downloading of files.

In "Ultrawideband.ca Mesh Networking Explained", Ultrawideband.ca explains they have software that allows a user to install, on their PC, a MeshBoot disk which attempts to find internet gateways at particular Internet Protocol addresses using a DHCP client. If no gateway can be found, the software causes the users' PC to simply serve as a wireless repeater-cell. This type of operation is controlled by the software on the CD, and requires installation by the user. In future years, there are parallels that can be drawn between some of the features and functionality in the MeshBoot software for Internet use, and the capabilities that will be required to be embedded in network hardware, rather than provided on a CD for installation on PCs, in order to support massive amounts of traffic in and around homes and offices (Rather than on the world-wide web or internet).

Repeaters are well known in the art, and they have been manufactured for decades in the cellular and PCS industries, and more recently, a company in Melbourne FL, WiDeFi has developed WiFi repeaters for the IEEE 802.11a/b marketplace (See WiDeFi web pages describing their patent pending designs for range and bridge extension for Wireless LAN standards). Buffalo Technology announced a bridge and repeater product for IEEE 802.11g wireless LAN WiFi standard on June 17, 2003 (See SmallNet Builder website page), and indicated that its repeater provides point-to-point or 6 station point-to-multi-point operation. Buffalo indicated it had security features such as WiFi Protected Access (WPA), WEP, Password protection, and MAC address association control. It uses a browser based interface

for configuration, and has a 10/100 Ethernet LAN connection port, and sells for the suggested price of \$149. SMC Networks introduced, on June 6, 2003, its SMC2671W 2.4 GHz 11 Mbps Wireless Ethernet Adapter, which provides an interface between the wired internet backbone and the wireless LAN network. It also has wireless repeater capabilities for WLAN range extension, and has both Ad-Hoc (peer-to-peer) and Infrastructure (client to AP) operating modes, WEP encryption, WPA, MAC Address filtering, and SSID Broadcast Disable. It uses a web browser or Window-based administration software for configuration. Andrew Corporation makes classic PCS/Cellular repeaters, such as the fully integrated PROPAGATOR repeater shown on its webpage. The repeater uses standard 110VAC power and has a single package for all signal processing components. Qualcomm has recently developed repeater technology for CDMA.

SUMMARY OF THE INVENTION

This document describes a new type of wireless network device that will be required as wideband UWB devices proliferate rapidly. In anticipation of the increased traffic, ubiquity, security and bandwidth provisioning needs of future UWB devices, we disclose a low cost repeater/transceiver that is tailored for easy and rapid deployment to facilitate the interconnection of network devices using ultrawideband radio, which will likely be standardized by or before 2005. Ultrawideband is meant here to be any type of electromagnetic signals that have an instantaneous or overall occupied bandwidth of 100 MHz or more and that are used to communicate or to position-locate between 2 or more devices. Such wide bandwidths, when considered to have the same RF power transmitter levels as today's wireless devices, require receivers to be within much closer propagation distances than conventional cellular/PCS and WiFi networks, due to the fundamentals of the Power-Bandwidth product. That is, for a given RF transmit power level, a larger passband (e.g. RF

channel) bandwidth generally implies a proportionally higher noise floor power level, which requires UWB devices generally to be physically closer in distant to each other in order to obtain a sufficiently strong signal to noise ratio (SNR) when compared to equal power devices with smaller passband bandwidths. Thus, repeaters will become necessary to connect devices over greater distances than the range of a single UWB device.

10 UWB adoption is likely to be rapid, and just as spam e-mail occurs today with increased frequency on the internet, wireless UWB devices will be subject to tremendous and increased amount of interference, spam traffic, and RF interferences, as well as security attacks by rouge or spoofed message sources or unwanted transmitters. Proper repeater functionality will require the ability to detect and process such unwanted traffic in a personal or local area network, as well as to report back attempted breaches of security or interference sources to a network controller or host device which is connected to the internet (for example, the home computer, the media center, game console, or a remotely located server or security server that may be in a different neighborhood or city but which is connected via Internet). The need to properly process, filter, ensure security, and provide sufficient or prioritized bandwidth will also emerge because of future wireless networks that will allow devices in the home or office to remain connected to the outdoor wireless network through roaming systems and protocols, as proposed by Dong-Ho Cho in US Patent Application 2002 0198977 Published December 26, 2002, and other networks such as those described by Rappaport in "Wireless Communications: Principles and Practice", 2/e, c. 2002 and the invited 50th anniversary paper by Rappaport, et. al., Wireless Communications: Past Events and

Future Perspectives, June 2002, IEEE Communications Magazine.

In future UWB applications in the home or office, it is likely that only one or two devices, such as a computer, a server, or a television set or game console, will need to be
5 connected to the ethernet/internet backbone (the plant that comes in to the home or office or car, etc.), while many other devices, such as home entertainment systems, telephones, portable computers, video monitors, and display/video/audio/entertainment devices in the home or office
10 will be untethered within the same room or within several tens of meters of these "fixed" or stationary internet-connected devices. Of course, these fixed devices connected to the plant may also be portable or mobile, in fact, as wireless proliferates. In hospitals, hotels, or homes and offices and
15 businesses, the UWB technologies will open up an entirely new way of communicating high data rates, and will create entirely new architectures for communications within small spaces (e.g, homes, apartment buildings, cars, stores, offices, etc.). In vehicles, trains, aircraft, and other moving platforms, one can
20 envision a single or a few main devices connected to an outside wireless internet connection, while in the vehicle itself, piconets will be formed between UWB devices.

The invention described here is a low cost ultrawideband repeater device, which allows a home or office user to rapidly
25 deploy a repeater which can extend the range of these UWB piconets, so that a home or business owner does not have to install wiring such as Cat -5 cable throughout an office or home. Instead of wires which carry the internet traffic from today's cable or T1 or DSL jack to a particular device, the UWB
30 repeater invented here will allow just one or a handful of internet-connected devices to serve as the "internet source"

for a local wireless network, and the disclosed invention will better enable that "source" to serve as the local hub or access point for a whole host of portable or fixed UWB devices in a home or office.

5 It is thus the goals of the present invention to meet at least some or all of the following objectives, which are specified subsequently in this application:

 It is an object of the invention to provide a method and system that allows the Internet, Cable TV, satellite,
10 telephone, or other communications sources to be connected from the external wired or wireless plant and distributed by UWB radio within an indoor or in-vehicle environment.

 It is yet another object of the invention to provide a method and system that enables ultrawideband radio signals to
15 be repeated by a UWB radio device within an indoor or in-vehicle environment.

 It is yet another object of the invention to provide a method and system that enables ultrawideband radio signals and baseband signals carried on wires to be connected together in a
20 single device, while allowing UWB radio signals to be repeated in the RF spectrum and baseband signals to be routed on wires within an indoor or in-vehicle environment.

 It is yet another object of the invention to provide a method and system that provides the selective screening of data
25 received over UWB radio or baseband, where such selective screening of data is based upon the received UWB data or upon preprogrammed control instructions provided by the desired network or from a desired source.

It is yet another object of the invention to provide a method and system that provides the selective screening of data received over UWB radio or baseband, where such selective screening of data is based upon the received UWB data or upon
5 preprogrammed control instructions provided by the desired network or from a desired source.

It is yet another object of the invention to provide a method and system that provides the selective screening of data received over UWB radio or baseband, where such selective
10 screening of data ignores, rejects, or kills received UWB data that is from undesired networks or from undesired sources.

It is yet another object of the invention to provide a method and system that provides the selective modification of data received over UWB radio or baseband, and provides said
15 modified data for retransmission on UWB radio frequencies, or for storage.

It is yet another object of the invention to provide a method and system that ignores, rejects, or kills received UWB data that is from undesired networks or from undesired sources.

20 It is yet another object of the invention to provide a method and system that provides selective and adaptive priorities on UWB messages that are to be repeated or stored.

It is yet another object of the invention to provide a method and system of monitoring network traffic statistics over
25 a UWB network, and to report such statistics to a central host controlling unit or to the plant.

It is yet another object of the invention to provide a method and system of maintaining a UWB network, through the periodic reporting of traffic conditions, user numbers, user
30 locations, statistics, interference levels, and IDs observed.

It is yet another object of the invention to provide a method and system that provides for flexible and adaptive data processing for real time detection, flexible transmission rates, different PHY and MAC implementations, adaptive ID or

watermark transmissions, transmissions pertaining to network quality, network activity, or security breaches, position location transmissions, or repeat or beacon transmission at preset intervals.

5 It is yet another object of the invention to provide a method and system that provides an adaptive UWB radio interface, depending on the priority of the message, or the instantaneous radio channel conditions, interference conditions, or undesired traffic in the network.

10 It is yet another object of the invention to provide a method and system that provides for the use of adaptable, steerable, electronic phasing, or MIMO (multiple-input multiple-output) antennas with UWB networks to improve wireless network performance.

15 **BRIEF DESCRIPTION OF THE DRAWINGS**

 The foregoing and other objects, aspects and advantages will be better understood from the following detailed description of the preferred embodiments of the invention with
20 reference to the drawings, in which:

 Figure 1 illustrates a Personal Area Network in a home, business, vehicle, or some other personal environment consisting of a host device and a number of portable devices,
25 each equipped with UWB technology.

 Figure 2 illustrates a Personal Area Network in a close-in space, consisting of a host device, a number of portable devices, all equipped with UWB technology, and the disclosed UWB repeater invention, as well as an undesired neighboring
30 transmitter.

 Figure 3 illustrates a block diagram of the UWB repeater.

Figure 4 illustrates another embodiment of the UWB repeater, using a more integrated approach with more reliance upon signal processing and software.

Figure 5 illustrates an architectural diagram of the UWB
5 repeater operation with security and filtering.

Figure 6 illustrates the UWB repeater using combined RF and baseband signaling capabilities.

Figure 7 illustrates a flow diagram of UWB repeater processing.

10 Figure 8 illustrates the current invention as embedded in an AC outlet.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

15 The Ultrawideband repeater disclosed here serves to "repeat" data signals coming from one or many devices so that other devices, located farther away from the "source" will be able to access the internet, Cable TV, Satellite source,
20 phone/DSL line, or other broadband "plant" source via the repeater. This will obviate the need for any wiring whatsoever in homes and offices, and will enable rapid deployment of networks that perform properly and adapt to traffic loading, spam, interference, and desired characteristics of the plant
25 provider of the network owner (e.g. home owner, enterprise owner, vehicle owner). The repeater will provide for additional coverage and will enable high data rate channels to work in confined environments more efficiently and more reliably than stock UWB equipment currently being offered by the marketplace.
30 The invention here offers advantages, flexibility, and improved performance and security than the currently proposed IEEE 802.15.3 activities which call for "repeater service" as part of the MAC definition.

The disclosed Ultrawideband repeater has the additional important and novel capabilities of being able to filter and process data, and to provide for the storage, processing, and forwarding of received data at the input, and also allows for the suppression or "killing" of data that is not part of the desired network or which may be from undesired users, spammers, or interference sources. Also, the ability of the device to prioritize traffic access and flows, based on application requirements, make this invention a powerful device used to enable high bandwidth personal area networks, where a number of wireless devices in a home or office or car all share the same UWB spectrum without requiring wiring, but which may have different real time requirements, different priorities and bandwidth requirements, and different security requirements. Thus, the intelligence of the repeater, afforded by processing, storage, and antenna/RF control is a marked improvement over what is currently contemplated or known.

The invention differs from prior art because, among a number of reasons, of the much greater bandwidth of UWB compared with current wireless devices, and the presently unforeseen challenges and unmet solutions that UWB will encounter because of the massive amounts of wireless traffic that will occur. The invented repeater and associated architecture solves a critical and unmet need for future high speed UWB networks, and provides needed network coverage, performance, security, filtering, addressability, configuration, and connectivity for a home or business or vehicle personal area network. The invention provides needed network infrastructure to provide coverage where only one or a few sources can be linked to the ethernet or another telecommunications backbone (e.g., a central server/hub, or a "plant", which may be an optical cable source, RF, coax, baseband, satellite signaling, etc.) At the same time, the disclosed invention provides embedded security and traffic intelligence, and the ability to interpret, modify, and selectively filter wireless traffic for the benefit of the network user. In addition, the disclosed invention works with both wireless UWB transmissions, as well as with standard

baseband wiring-types of data transmissions, allowing the invention to be addressable by and responsive to wired networks as well as the wireless networks. In fact, the present invention allows for the fusing of wireless and wired network components so that they may be commingled and served by a single plant or server, within the same network. Thus, the invention facilitates new capabilities in connecting UWB equipped devices through a repeater operation for many other devices that may exist in a room or office or building or vehicle. In this way, for example, a doctor's office complex would only need to have a single computer, say the receptionist's desk computer or a media center, which might be connected to the internet, cable TV, copper line, or satellite station, and this single computer could serve as the host computer or server to the office network. If this receptionist's desk computer or a media center is equipped with a UWB radio, and all other devices, for example, portable computers, pen tablets, gaming devices, video monitors, or Voice over IP portable communicator devices used in the office, were configured to be on the same network (piconet) as this desk computer, then our invention would allow coverage and data transmission throughout the entire office complex, rather than being limited in range to 10 or 20 feet as would be the case for a single point-to-point communication between 2 UWB devices. Wired network devices could also be connected and served on the same network, serviced by the same plant, using the disclosed invention. Also, at the same time, the described invention provides a low cost way of providing massive data transfers, with bandwidth prioritization and security, network monitoring, and "network learning" and spam filtering not currently available in today's wireless devices. Thus, the invention helps improve and facilitate wireless high speed networking, for both mobile/portable and fixed applications, in environments such as stores, homes, apartments, cars, and factories, etc. where broadband data communications between devices, and access to the plant by several networked devices is necessary.

Figure 1 shows the internet connection 10 coming into the

home or office, which may be data only, or analog voice and data, where this "backbone" connection may be provided using wires or fiber (such as T1, T3, DSL, cable, cable modem, OC3, etc.) or wireless (last mile wireless service, mesh networks, LMDS, MMDS, WiMax, Satellite, 802.16, 802.20, 802.11a/b/g, or some other wireless distribution mechanism, such as 802.15.3.a, etc.). Once in the home or office (or vehicle, etc.), a host device 12, such as personal computer or server, or building router (a personal computer, as an example, is shown in Figure 1) is connected to the backbone. The host device 12 is further equipped with a UWB transceiver 14, which may be integrated, stand alone, plug-in, or part of a multi-band, multi-mode radio that is either discrete or embedded within a microprocessor chip, or which is connected to, attachable to, insertable into, or integrated within the host device. Plug-in cards, discrete components, embedded devices and other such embodiments are contemplated. Once connected to the backbone internet and the UWB transceiver 14, the host device 12 is able to facilitate communication to other UWB devices in the home or office. For example, in Figure 1, provided that the distance is short enough and the local interference is low enough, it is possible for the UWB Transceiver on the host device to support meaningful communications to a UWB-equipped Portable Table computer 16, a UWB-equipped television set 18, a UWB-equipped telephone 20, and even a UWB-equipped wrist watch 22, as examples but not limitations to viable uses of UWB wireless technology for personal area networks. As explained in the prior art, UWB possess sufficiently high bandwidth that new services, such as ranging or position location are easily incorporated with high speed communications, and the current invention considers supporting the myriad of applications and implementations of UWB devices. Using the standards proposed in the IEEE 802.15.3 committees, it is known that it would be possible to configure Personal Area Networks such as shown in Figure 1 using UWB, all without wiring up the local area.

Note, however, from Figure 1, that the distances (d_1 , d_2 , d_3 , d_4) between devices vary, and the local environment may have walls or metal partitions that cause signals to decay or

fade (not shown). Thus, it is possible that the host device 12, which is typically (but not necessarily) fixed, may not be close enough to all locations where portable users of the UWB network which to operate from at a particular instant of time.

5 Furthermore, since the signal power falls off with distance, UWB transceivers that are further away from the host 12 will be more susceptible to interference from undesired users or noise sources (not shown), and will also be more susceptible to security breaches or spam attacks by undesired transmitters

10 (not shown). Battery life of portable devices will also be shorter for those which have to provide sufficient bandwidths over longer distances (higher power consumption).

Now consider Figure 2, where the same UWB network of Figure 1 now contains the invention, the UWB Repeater 24. With

15 placement of the UWB repeater 24, the distances between the host 12 and the repeater 24 are shorter than the distances between the host and other users. Thus, the repeater is able to provide the ability to extend range to outlying users, which will be important to maintain high data rates in interference

20 or crowded spectral situations. Furthermore, the repeater 24 is also able to receive the transmissions from the undesired transmitter, and may be equipped to ignore the undesired transmission, as well as instruct other users of the network to ignore the undesired transmission, thus improving personal area

25 network performance. With the invention used in the Personal Area Network, battery life of portable devices may be extended, as well.

The repeater 24 of Figure 2, in order to work properly, requires careful signal processing that is able to null out

30 noise and interference across the very wide bandwidth used by UWB (such as noise from an undesired transmitter or attacker 26). In addition, the repeater must provide significant isolation between the input and the output, typically 40 to 50 dB minimum and more if possible, in order to prevent

35 oscillation and feed forward interference. A wide range of techniques to perform such electrical performance are well understood by those skilled in the art of RF circuit and filter

design. In addition, the UWB repeater 24 must faithfully re-transmit both the forward and reverse paths of a two way communication, and must provide uniform/even group delay across most, if not all, the occupied bandwidth of UWB.

5 As shown in Figure 3, to possibly achieve fastest time to market, would be to implement this invention by using two UWB chips or devices 28 and 28'. These may be standard UWB modem devices, with sufficiently fast controlling and memory circuitry that creates a data bridge 30 between the two UWB
10 chips. These two chips, and the controlling/memory circuitry bridge 30, are built and encapsulated in a housing or chamber 32 which has good electromagnetic isolation between the input side (the side in which signals needing to be repeated are entering) and the output side (the side in which signals that
15 are being repeated are regenerated and reradiated). Power (either AC or DC) from a source 31 for the repeater can be provided from a battery or an outlet. Also, an RF switch for switching/processing antennas may be integrated in the controller circuitry, or may be a separate, discrete component
20 or series of components, such as a butler matrix circuit, simple RF single-pull multiple-throw, or phase shifter network for phased array antennas, or a wide range of well known antenna switching or phasing/processing mechanisms. While Figure 3 shows a preferred embodiment, it should be clear that
25 the entire assembly could be implemented in a different manner, for example using mixed-signal circuitry and included on a single chip, or a hybrid chip could be used and packaged as a single device, or discrete RF/baseband ICs could be developed and used. The ability to control RF antenna signals, coupled
30 with baseband processing, would allow many well known Multiple Input Multiple Output (MIMO) antenna technologies to be used to improve link quality. It also should be clear that each of the antennas (32, 34, and 36 shown in Figures 3, and 38 and 40 shown in Figure 4) may be a single antenna, multiple antennas,
35 antenna arrays, and may take on many different physical forms.

Each physical side of the UWB repeater invention may at one time serve as the input and another time serve as the

output, as the invention offers simplex, half duplex, or full duplex capability. It should be understood that each side of the invention could itself use MIMO antennas or phased/steerable antennas. Similarly, the forward or reverse
5 signal path may use either side of the UWB repeater. Antennas, such as those developed by Prof. Hao Ling at the WNCG at University of Texas, and by Warren Stutzman of Virginia Tech, allow wideband UWB transmissions with some directionality, and these are easily sprayed on or built from metal stock using
10 metallic film on plastic cases. Dielectric antennas, or antennas with inherent notching capabilities, may also be incorporated as is known in the prior art. The directionality helps with isolation between the input and output of the repeater. Further, the repeater may use multiple antennas, in
15 a sector arrangement, that can automatically be sensed and switched by the UWB devices and/or the controller circuitry, in order to focus energy in directions of where devices needing to be transmitted through the repeater are located. This could be used on both or either transmit or receive operations. A
20 wideband RF switch, which may be a MEMS device such as contemplated by Hughes Electronics or Teravicta of Austin, TX, is part of the circuitry contained within the repeater, so that various antenna selections are made. Alternately, RF switches can be avoided and RF processing may be used to provide Maximum
25 Ratio Combining, Linear Combining, Equal Weight Combining, or MIMO implementations, all which are well understood by those skilled in the art, may be made. Other low-cost RF switches could be employed, as well, for antenna phasing/steering and selection, and the switch could actually be incorporated in
30 future UWB chipsets or other integrated circuitry in various ways known now and in the future.

As shown in Figure 4, an alternative approach to creating the UWB repeater invention, rather than using two stock UWB devices with some additional control and memory logic for data
35 processing, signal processing, and antenna switching or diversity/beam forming, would be to use a true bent-pipe repeater approach, where all signals at the input are simply re-radiated at the output. Note that the very wide bandwidths involved with UWB make this approach more difficult today, yet

viaable in a low noise environment that does not have swamping. Even in higher noise environments, DSP noise cancellation and wideband compensation such as phase linear processing, and careful isolation and compensation across the wideband spectrum
5 could be employed. This type of DSP processing will be available in reasonably low cost platforms within the next several years.

Alternatively, Figure 4 represents an application specific integrated circuit 42 made of Si, SiGe, GaAs, or other
10 known materials either within a chip, a system on a chip, or discrete circuitry, could be fabricated to implement an integrated repeater with processing circuits for data processing that provides network security and data buffering as well as desired bandwidth provisioning for different
15 applications passing through the repeater. Clearly, an integrated antenna would be a less expensive per-part product price, once the design was perfected, and a single antenna repeater with near omni-directional radiation pattern offers lower costs to manufacture, and would be more preferable for
20 generic in-home or office use. As noted in Figure 3, power (either AC or DC) can be provided by a source 31, such as a batter or outlet.

Note that instead of using multiple antennas and having two "sides" (an input and an output) as shown in Fig. 4, the
25 UWB repeater could instead use a single antenna, and could use a vast memory (either onboard in chip or external to the RF or processing circuitry) to simply buffer and retransmit the received data. This would induce a greater delay in the repeated signal, but would provide a less expensive form
30 factor, due to fewer antennas, would offer smaller size, and would save costs due to the lack of expense incurred with an RF switch for the antennas. In addition, a store and forward approach embodiment such as contemplated in this paragraph would remove isolation concerns that provide design challenges
35 in bent-pipe or simultaneous receive/transmit repeaters.

A key part of this invention, which is now described, is the data processing capabilities afforded by the UWB Repeater disclosed herein. Figure 5 illustrates the architecture of the invention, which includes RF component 50 and 50', baseband

component 52 and 52', pipeline component 54 and 54', memory 56, and a controller 58 with an integrated or separate processor component 60. Each of these architectural components may be used for both the received (incoming) and repeated (outgoing) signals, or may be replicated so that one set of components is used for the incoming side and one set of components is used for the output side. (e.g., see Figures 3 and 4 and alternate embodiments described). The pipeline, processing, control circuitry and memory may be the same entity (e.g. all contained within a microprocessor, a DSP engine, or microcontroller, for example), and it may also be the same physical circuit or chip that also contains also the baseband and RF components. Alternatively, the memory (or any one of the other components, or combinations of components) may be in a separate chip or device. Note that the architectural components shown in Figure 5 may be of a wide range of varieties and physical structures that may be on chip or on a separate chip or substrates, or may be distributed in different pieces of equipment or embedded in other components or circuit boards, or embedded in firmware, software, or operating system software, not shown explicitly. It is clear that multiple processors and multiple replications or parallel implementations of the embodiment shown in Figure 5 may be practiced. Alternatively, the pipeline processors or memory (or other components) shown in Figure 5 may actually be the same physical device, and may only require a single device for handling both input and output functions. While the architecture shown in Figure 5 is a preferred embodiment, the functionality of the architecture, described below, may be implemented in alternate embodiments with varying approaches to providing the functional architecture, which are not meant to be excluded or limited herein. It should be clear that well-known signaling details, such as clock signals, analog and digital voltage sources, and power supplies, etc., while not explicitly shown in Figure 5, are known to one of ordinary skill to be a required part of any functional device, and the sources of such signals could be provided in a distributed fashion or represented within any one of the architectural components during normal operation.

Note that the architecture of Figure 5, when equipped with a sufficiently powerful baseband component 52 and 52', allows the UWB repeater to be used in a hybrid wireless-wireline network, where input signals may be applied directly to the baseband component 52, and output signals may be sent out the baseband component 52', for example, using standard Ethernet, DSL, ATM, SoNET, or other standard baseband signaling format. When implemented using parallel components (e.g. parallel baseband and pipeline functions or multithread processing or fast time slicing), the architecture of the invention allows for both RF UWB signals and baseband signals to be received at the input-side, and both RF and baseband signaling to be transmitted at the output-side, due to the fact that the baseband processor is able to implement both wireline PHY and MAC standards, as well as wireless UWB standards (or a universal PHY/MAC). This is shown in Figure 6.

The ability to handle both wireless network and wired network traffic is a valuable capability, as it allows the disclosed UWB transceiver/repeater 62 to not only function in an all-wireless network, but allows it to be connected in a hybrid network, where wired devices and wireless devices may all be connected together through the invention, making it easier for the consumer to connect multiple devices in a home, for example, or to connect all devices (both wired and wireless) to a single plant connection 63 (an internet plug, for example) in the home (thus, the invention not only provides repeater functionality, but also itself may be connected to an Internet/DSL/Cable/Satellite/Wireless backbone plant or server). It is possible that both input signals at RF and input signals at baseband could arrive at the invention simultaneously, and may be properly processed and filtered and buffered and routed to provide network connectivity to other devices and the plant or server, as well as providing additional sources of data for traffic statistics, security, monitoring, and network maintenance chores. This architecture enables a low cost, flexible UWB repeater to serve as a junction box, connecting both wired and wireless devices to the same network, and optionally to the backbone plant, as well (See Figure 6).

Figure 7 shows a flow chart of the processing steps preferably performed by the invention, it being understood that the order of these steps may be varied. The controller component of the UWB Repeater/Transceiver architecture first

5 acquires network information and/or desired performance criteria at step 64. That is to say, the controller component of the disclosed UWB repeater must be given explicit or implicit operating instructions, either from the plant, from the network itself, from one or more components in the network,

10 from the owner or operator of the network, or from a rule-base developed from past history of the repeater itself, or from the particular device or devices the invention is intended to communicate with within the network. When embedded in a consumer electronic device, such as a PC, a car, or a home

15 media center, the controller component may be accessed by a very simple user interface provided for the user, that allows the user to enter in one or more of a network ID (his or her own password or desired name, etc.), a listing of equipment to be configured, a count of equipment that they own, a listing of

20 computer applications to be used in the network, a rough coverage area of particular wireless devices or components she wishes to have connected on the network, or other such data necessary to provide a rough guideline of the network operational characteristics desired by the user.

25 To be clear, however, an alternative embodiment would require no user interaction, as the home media device or the UWB repeater device itself may have a unique serial number ID associated with it, or may have some embedded data, or a table look up for a particular application, and this may be used (in

30 connection with other data, such as provided by the plant) as the basis to launch transmissions in the network to detect and "train" all other UWB devices in the home network to assure they are properly connected to the network, all without any intervention or knowledge by the user.

35 Once it knows the "parameters" or "openness of the network" and knows the characteristics or ID's of those devices that "belong" on the wireless network, the controller component is able to then provide low-level instructions for the proper functioning of the UWB repeater. In this manner, the

controller component establishes initial operation mode settings for the repeater at step 66, so that the busses are properly configured and the architectural components are preset to properly respond to various signals or conditions received from the UWB input-side, the plant, the wired network, or from the host device, etc. In other words, preset conditions (initial operation mode settings) may instruct the repeater to perform certain functions in a wide range of scenarios. For example, the initial operational mode settings may instruct the repeater to provide: (A) normal repeater functions (bent-pipe operation) with no storage functionality when the RF channel is clean and no spammer or interferer is detected at the input side of the UWB repeater, (B) to provide no repeater function when spam is detected, and (C) to report traffic statistics to the strongest or closest network component when a particular command is received over-the-air or on the baseband network. This is meant to simply illustrate the processing logic which is possible, and is merely a representative example not intended to limit the possible set of logic tables and condition mappings that are possible. It is clear that command and control logic can be created to provide sufficient flexibility and breadth of preset conditions. Further examples are given throughout the text below. It should be clear that for rapid flexibility and adaptability, preset conditions for several operational scenarios provides a low-overhead way of assuring the architectural components have access to the busses and to each other, in an efficient manner, when a key event (a trigger event) occurs due to a received signal or due to a need to transmit.

30 The controller component receives and sends electronic signals via one or more busses from one or more of the RF, baseband, memory, pipeline, and processor components. The controller has connection with the other components of the transceiver architecture, and facilitates instructions that may be read or written between each of the components over a bus (for example, I2C bus or new higher speed busses). Thus, communication of instructions and control signals and information may be written or read between the components, using either serial or parallel and unidirectional or

bidirectional bus structures. The controller component is able to address each other component of the architecture within the UWB repeater, and then has the ability to read or write control data to each component as shown in step 68, in order to

5 establish or learn operating conditions from the received input signals or plant, to instruct devices with preset instructions, or to provide instructions that have been established by the network or user or application that is being received or transmitted by the invention. The proper configuration and

10 access to the busses is preprogrammed (preset) for specific operational instructions depending on the operational conditions encountered by the repeater. That is, each component, based on received signals and the computations performed during normal preset programmed operation which

15 proceeds according to step 70, knows through preset instructions how it should send signals to the controller or to the other architectural components, for proper desired operation in various operational conditions.

A trigger event 72 occurs when there is a perceptible

20 change or instruction, obtained through either the data received over the air on the UWB radio channel(s), or through the wired baseband network, or through instructions issued by the host unit housing the invention 74, or through data received from the plant 76. The order of these and possibly

25 other trigger events caused by the repeater reacting to particular received data or host device, plant, or server instructions, could be different from that shown in Figure 7. A trigger event may also occur when the transmitter is instructed or preprogrammed to transmit data (not shown in Figure 7 flow

30 diagram). Trigger events are due to signaling which is found to trip a condition or to signify a change in the current operation condition, or may occur due to preprogrammed, timing-based instructions previously instructed and preset by the controller component. Depending on the interpretation of the

35 trigger event (performed by the controller architecture in conjunction with other architectural elements), the UWB repeater may simply continue to operate with the preset mode settings as originally programmed (with the same preset operational conditions), or a new course of action may need to

be taken, in which the trigger event causes the controller architecture to consider providing new preset instructions for various operational conditions going forward.

The controller architecture determines at step 78 if such
5 new preset instructions are needed, based on the computational results of the pipeline and processing components, in conjunction with memory, and may use one or more rule-based algorithms that tracks history, or may simply follow instructions specified by the network user, the host device,
10 the plant, or the repeater itself. As described in more detail below, trigger events (e.g., 72, 74, 76, etc.) occur when there is a change in the network, and may be due to the reception of undesired data at the UWB input-side, undesired data on the baseband network, errant or counterfeited or spoofed ID's,
15 watermarks, or a wide range of important conditions that indicate a change in network performance, the user's application, security conditions, signal or data integrity of desired transmissions, or the presence of jammers, hackers, or interferers.

20 As an example of how a trigger event may be detected, and to understand why the controller may wish to assign a different set of preset instructions for operational conditions going forward after a particular trigger event, consider the example of a UWB repeater functioning in a benign RF environment
25 without interference. The device is receiving transmissions from desired in-network components and is retransmitting them, per the normal operational instructions. Now, assume a spammer or hacker attempts to jam or intrude on the network. The disclosed invention is able to detect the demodulated signal
30 using the processing power pipeline processor in conjunction with memory and the processor, that the intruder is not a valid in-network component, and in fact may further check the intruder's ID or characteristics to find a match with an "unwanted" list of known attackers housed in memory. This
35 detection of the intruder is a trigger event. Now, consider the case where the preset operational instructions simply called for the repeater to stop retransmitting the intruder's transmission when an intruder is detected. Now, because the hacker appeared on the "unwanted" list in memory, this intruder

may be deemed to be a serious problem, in which case the controller architecture has the opportunity to alter the preset instructions for operational conditions going forward, as is done in step 80, and it may be advisable to now alert other
5 devices and the host computer of the presence of the hacker whenever it is detected going forward. The new preset instructions passed from the controller component to the other architectural components may now be such that if the hacker transmission is identified again at the input-side of the
10 repeater the repeater doesn't stop retransmitting (as before), but now the repeater rebroadcasts a warning message, an alert message, or a message to the network that instructs all other users of the hacker. It should be clear that various techniques known now or in the future to protect from spamming and to
15 avoid unwanted intrusions may be incorporated into the invention using the processing techniques described here.

Using the system and method described here, network usage, network statistics, network provisioning information, or network security status for particular users, devices,
20 applications, transmissions, or ID's would be known, measured or detected, and can be stored and communicated to a network server, another network component, a device controller, or through the plant using techniques known now or in the future.

The controller component updates the preset instructions
25 for operational conditions at step 80, and provides actual control of RF and baseband signals, at a relatively slow rate (slow relative to the individual per-bit durations of the multi- megabit per second data rate received and sent by the invention over the air). Slow tasks for 100 Megabit per second
30 data transmission for example, would require processing and control signaling on the order of a microsecond or so, as opposed to fast real-time data processing that would require speeds on the order of 10 nanoseconds or faster (such fast processing is handled by the pipeline and processing
35 components, and the baseband and RF components). It should be clear that slow and fast are relative, and that this should in no way be limiting, since real time and "near" real time speeds shall change over time, application, and technology. Slow tasks handled by the controller component include enabling the

adaptive signal processing, so that the initial antenna configurations may adapt to interference from a new transmitting source, or halting the transmission of an undesired signal, or the halting of spam over packet duration or multiple packet duration intervals (rather than bit duration intervals), or determining and invoking new instructions for operational conditions, or instructing memory or computation operations to begin or end, or instructing various warning or response messages or traffic statistics to be computed or reported. The actual computational chores invoked by these instructional messages by the controller architecture may happen at much faster rates. For example, the controller architecture is required to issue control signals to allow for antenna pointing, steering/phasing, MIMO adaptation to be invoked, and once the controller component enables this functionality to the appropriate architectural components, the on-going processing and signal manipulations and adaptations occur at much faster speeds.

The controller architecture provides preset instructions for operational conditions to various components, as well as enabling what operations they should perform ahead of time of the actual trigger event (e.g., the pipeline devices would be instructed the network ID or watermark to search for, or the particular error control coding or MAC or PHY that is to be used). The controller architecture also provides operational instructions to the memory, for gathering of data and statistics, as well as providing event-driven (trigger-driven) instructions for handling the gating of packets and data. Also, the controller allows the processor to communicate the results of its computations to other architectural components, or translates the results (with the aid of the processor) into control signals. Clearly, for implementing security features and software radio/antenna pointing chores, signal results must be detected and computational problems must be solved by the Pipeline and Processor components, as well as baseband and RF components, as described below, and the results of these solved computations must be used to continually drive the proper performance of the device without delays imposed by the controller component. The controller thus provides the initial

and overall approval, and then simply facilitates the communication of such commands and instructions, and ensures the busses connecting the components are properly aligned for the specific tasks that need to occur for particular fast and slow processing and data passing chores.

As shown in Figure 7, the UWB repeater continues to process in the manner described above, in a continual loop as shown in step 82, until an instruction to terminate operation is received as shown in step 84 (either received from a data source - wired or over the air, or from the plant, or the host device, or from the controller architecture, or the power supply is simply turned off to the device), at which point the processing is completed as noted in step 86

To describe the architecture of the invention in more detail, and to provide further examples to illuminate Figures 6 and 7, the following detailed description is useful.

Memory may take a wide range of forms as understood by those skilled in the art, including high speed RAM, DRAM, Flash chips, memory sticks, removable disks, etc, and this memory may be programmable, static, dynamic, random access, optically-processed, etc. such that vast amounts of data received at the input of the invention may at any time be stored, buffered, processed, interpreted, or retransmitted. The power required for the memory may be supplied by the same power supply that powers the processor and RF components, or it may be a separately provided DC or AC power supply, depending on the particular implementation or structure. For example, if the disclosed UWB Transceiver were embedded in a plug-in memory stick, it would likely receive power and data flows from the standard USB expansion slot, whereas if the invention were embedded within a PC or Media Entertainment Center, the pipeline processor, memory and UWB RF and baseband circuitry might be embedded in a chip or an assembly on the mother board of the PC, itself, thereby obtaining power from the internal PC supply. Memory is used by the present invention to store one or more of received data, forwarded data, to hold data strings or compressed versions of such strings needed by the controller or processor, to store execution instructions of the processor or controller, to store watermarks, identification data,

(ID's), PHY or MAC instructions, other software radio instructions, calibration settings, table-look-up data for modulation, demodulation, coding, antenna pointing, antenna phasing, coding and decoding, processed data statistics, or any
5 other data that needs to be stored and retrieved later. Memory may actually be comprised of different technologies, with different power levels, sizes, speeds, etc. whereas some part of memory is used for very fast storing and recalling, and the other part of memory is for longer term storage that does not
10 have to be accessed very quickly.

The pipeline component processes data on a bit by bit or word by word basis, and thus has an extremely fast ability to process or make decisions on applied data. They have special architecture and house their own memory, and are designed
15 specifically for rapid real-time data-streaming processing. The Pipeline component is able to implement real-time processing algorithms (such as coding, etc.) or compare or process inputted data to a preset pattern of data in a very streamlined, fast manner (e.g. it can function as a digital
20 matched filter, or correlator, an error correction coder or decoder, a check sum counter, or provide other fast, bit-by-bit computational functions that provide very rapid processing typically required in broadband communications), thereby allowing the device to know whether patterns of data are
25 properly tagged or apportioned. Stripping of headers in packets, finding ID's of words or bit-sequences in data streams, detecting or correcting bit errors, verifying or inserting watermarks in data transmissions, detecting security information, such as keys, passwords, handshake data, etc. are
30 typical tasks performed by the Pipeline. The Controller is able to instruct the Pipeline component as to which data should be checked, and may also provide timing or observation interval information, as well.

Furthermore, the pipeline process is instructed to
35 correct errors or insert ID's or watermarks or security data on transmissions, if it has been so instructed to by the controller. This is a powerful feature that allows the device to modify the data for retransmission in the network. For example, if the invention is used in a home network, a

particular home network ID or watermark or key code may be assigned (inserted into the data) of all desired home network transmissions, and the Pipeline component on the input-side of the repeater may be instructed by the Controller to constantly
5 search for this ID or watermark or key code to be received in order to determine the received signal is "desirable" or valid and that it should be repeated for retransmission. If errors occur, the invention may modify the received data stream for error correction. Alternatively, the network may need to change
10 the watermark or ID or key code of the received data, and the invention is able to make such alterations to received data, and retransmit the altered data.

Also, the pipeline component may be constantly be searching for "critical" or "unwanted" or bad transmissions,
15 which have data streams, ID's, erroneous crypto words, or other identifying data segments or information that is stored or updated in memory and which can be compared to received data. Such critical or unwanted transmissions may be indicative of an attack or unwanted spam or an emergency reason to stop
20 transmitting, and upon receipt of such data, the invention may, under previously set directions of the controller component, send an alarm message or urgent traffic message, or may send a message for network shutdown or device shutdown.

Depending on the type of network, the desired security,
25 the particular protocol or common air interface, PHY, MAC, the particular watermark or ID, etc., it may be desired for the received signal to be immediately retransmitted (repeated) at the output-side of the repeater with minimal delay, in which case the controller would have directed the pipeline component
30 to pass the data immediately to the baseband modulator on the output side of the repeater. (In this case, the pipeline components may have modified the data to correct errors, insert ID's, insert position or time stamp information, pass along network statistics or traffic/spam/utilization data, or other
35 important network -specific data that is to be carried and repeated for the particular application or particular network implementation). This streamlined operation avoids delays in reading and writing to and from memory, and would provide an extremely fast retransmit time, while allowing modification or

repair of received data. Alternatively, while the data is sent to the output-side, it may also be stored in the memory simultaneously (most likely through a memory pre-buffer that is used to capture all the data in parallel as it is sent to the transmitter, but with a sufficiently deep buffer that allows the transmitted data to be cached and stored to memory which operates at slower speeds than over-the-air RF transmissions - this is not shown but understood to one skilled in the art). Furthermore, the controller may have provided instructions to the pipeline device that upon one or more particular received data streams (for example, data streams that have been associated with Spam, peer-to-peer, or undesired transmissions, and which were stored in memory and earlier communicated to the pipeline device and stored there), the pipeline device is not connected directly to the baseband component of the output side, but instead the data passed by the pipeline component is stored directly to memory, or is simply ignored. In this manner, the invention is able to detect and filter unwanted RF data. The device may also have a reradiate mode, where received RF data stream is demodulated, pipelined, stored in memory or modified with a network ID, watermark, or counter, and then rebroadcast back to the originating RF source. This would be valuable for position location determination using time delay and/or signal strength measurement or prediction (as explained in many well known references, including work by Bahl, Rappaport, US Wireless, etc.), auditing of the network to determine how many devices are on the network, and with what ID's or watermarks or codes, determining propagation times, or used as part of a network throughput measurement scheme or traffic monitoring capability, etc.

The controller component thus works to ensure the Pipeline component and the memory and the Processor component, and the busses are properly configured to handle the desired chores. Received data is received at RF, demodulated at Baseband, and passed to the pipeline component, and the preprogrammed pipeline processing component thus works with the controller and the memory to either store (and not retransmit) the received data, store and forward (e.g. retransmit) the received data through the baseband and RF components on the

output-side of the repeater, or alternatively the repeater may ignore the received data and not store it, or store the received data and retransmit it back to the originating source. Alternatively, the received data may be stored and

5 retransmitted out of one or more antennas, including the antenna which originally received the received data. Furthermore, the data may be modified by the pipeline processing circuitry (or by the processor and memory) once its received, for example, to strip off unwanted or hostile data

10 contained in the received data stream at the input of the repeater, or to add bit or packet changes in the packet data structure to implement ID or security or validation or bandwidth priority information in the repeated data which is radiated out of the repeater. Thus, the UWB repeater has the

15 ability to monitor data which it receives, as well as to store it, forward it, return it, or modify it. All the while, the memory, working in conjunction with the processor, may use a different or same thread to build statistics and observe particular behaviors of the traffic, including the ability to

20 sniff the packets and determine desired and undesired users, attacks on the home or vehicle or enterprise network. Thus modification of the MAC and IP layers, based on the flow of data or the availability of errors or desired QoS detected by the controller, is contemplated and capable with the invention.

25 It should be clear that the above description and following preferred embodiment emphasizes modification of a received signal and the associated processing steps prior to retransmission out of the UWB repeater. However, it should also be clear that similar functionality and capabilities may be

30 achieved for the transmitted signal itself, where the same architectural components may be used to similarly process, modify, store, retransmit, or ignore signals that are otherwise intended to be sent to the output side of the device. Also, prepared messages or messages based on the computation of

35 statistics or memory contents, messages based on alarms, network activity, the errors or transmissions or security breaches or ID's detected on the input-side of the repeater, or messages that are meant to synchronize for timing, positioning, or used to simply communicate the repeater's health, status, or

alarm status (due to spamming or RF overload or interference, for example) may be sent by using the memory and based on results computed from the processor component or controller component. Such messages or data transmissions may be read out
5 of memory, or processed through the pipeline component, passed to the baseband and RF components for transmissions to the output-side of the repeater. This enables the invention to provide beacon signals and messages regarding traffic, security, spam alert, alarm, position location, network use or,
10 other preset messages for use in various applications, independent of the exact data being received at the moment by the input-side of the invention.

The capability of the UWB repeater to process and to modify the bit streams sent and received is powerful, as future
15 security methodologies will rely on streamlined processing to implement rapid/dynamic key changes, dynamic network ID or watermark changes, and to allow authentication and validation. Emerging security standards, such as IEEE 802.11i, which use dynamic keys and strong codes, as well as EAP, 801.1X, WPA,
20 and future security techniques that may encompass both indoor and outdoor networks, will be able to be used by the disclosed invention, due to the capabilities of the processing and the modification capabilities of streams flowing in and out of the repeater. Furthermore, the repeater itself will be addressable
25 on the personal area network, allowing the host/master "source" device, such as the office PC or TV console, to inquire, control, and to gather characteristics of piconet users, their traffic, attacks, throughput performance, coverage performance, or unintended or intended usage through the repeater. For
30 example, the host could access the memory of the UWB repeater for detailed data, as well as collect statistics gathered and processed and stored by the UWB repeater, so that the human user of the network could gather a report of activity. Getting reports back from the UWB repeater can be done over the same
35 Personal area network (PAN) that is used for wireless connectivity, or could be carried out using a wired network, if the invention happened to also be connected to a wired backbone, such as Cat-5 Cable (As described subsequently, the UWB repeater invention may have internet connection jacks that

would allow it to also be connected to a wired infrastructure).

Furthermore, without human intervention, the host could gather data from the UWB device, and use that knowledge for real time or near real time control for providing security, changes in
5 security keys or protocols, changes in bandwidth provisioning, and could even provide a termination of the home network from the internet, in order to prevent the home network from being attacked or compromised.

The ability of the UWB repeater to process data and
10 gather traffic and network conditions, including bandwidth provisioning data and security-related data, will be extremely useful in appliances that serve as in-home or in-office network controllers and interfaces, where the Internet is connected and then served wirelessly throughout a building. The UWB Repeater
15 disclosed here would be fully compatible with RADIUS servers, and in fact could help provide the connectivity required for home devices to gain access to the Internet, as disclosed earlier. A web-enabled interface, or windows, or some other PC or Tivo/TV/VCR/Cable Modem/Satellite type programming interface
20 could be supplied to program and control, as well as gather data from, the UWB repeater disclosed here.

The controller uses memory, such as flash, dram, PROM, and a wide range of other possibilities, based on speed, price, form factor and availability, to support the processing and
25 buffer-and-forward operations. Coupled with the computational capabilities of the processor and pipeline components, and given the functionality of the baseband and RF components, one can readily see that a powerful network security capability can be implemented while simultaneously providing broader, reliable
30 network coverage.

Consider one embodiment of the memory portion of this invention to be like today's Memory Sticks that currently have 60 MB of memory (but will have much more in the future) and plug into a PC port for power -- the invention could have the
35 same form factor, for example, as a plug in memory stick today, where the UWB repeater invention, including memory, is simply plugged into an access port on a PC or other home appliance. The UWB repeater, if in the form of a plug in "stick", could also enable the equipped device (which could be the source/host

device, or some other device in the PAN) to connect via the UWB home network, while supporting the repeater operation within the PAN, while providing the capabilities of identifying the types of traffic and priorities which should be given such traffic within the PAN. Also, network management protocols and external devices and software, such as that located on the host PC, may query and retrieve the gathered data at the UWB repeater, and may adjust or control the UWB repeater processing modes (via the controller component) for particular desired network goals - such as greater security, more stringent prioritization on traffic, or even complete reboot/restart of processing in the UWB repeater. It is obvious to one skilled in the art that the UWB repeater could operate in concert with other devices, such as the host or other users of the Personal Area Network (e.g. home network) in order to provide distributed communication and command and control functions between the UWB repeater and other devices. In fact, it should be clear that the architectural structure of the UWB repeater may be distributed between hardware, embedded software, and an operating system which ships separately from the hardware, such as Windows or Linux, so that mass-produced UWB repeaters could be embedded or easily attached to existing appliances or computers.

The repeater may also have security provisioning such as an "authentication" or validation, as well as non-eradication function. Depending on the particular network scenario, network assignment steps can ensure the UWB repeater is being used to "repeat" signals from only those devices which are intended to be repeated within the home or office. This functionality could be done at layer 1 (PHY) with identification or authentication code sent over the air and detected by the Repeater, or performed at layer 2 (MAC) with handshake with other devices on the network, or a combination of layers being used for the security or authentication step, but this just as easily could be performed at higher layers, even performed up at the application layer (such as with VPN, web login, telephone dial, or some other computer-controlled authentication implemented automatically by one or more devices on the network, or implemented by the user on a

software interface, computer program, web site, or data entry method that connects to the home/office UWB network). Also, just as today's IEEE 802.11 bridge/repeater products, the UWB repeater may be equipped with MAC address association control, and could easily have one or more integrated wired Ethernet port connections for use on a standard wired Ethernet connection (not shown in figures). These techniques are well understood by those knowledgeable in IEEE 802.11a/b/g and 802.15.3a/b standards activities, which have become widely popular in recent years, and the present invention, while not required by such standards, could implement such standards if the baseband and RF architectural components were properly configured to conform to the MAC and PHY standards.

For example, a preferred embodiment of this invention has the UWB transceiver/repeater 88 be mounted in an AC outlet for wall use or for barrier-strip extension cord use (See Figure 8). Alternatively, the device could be integrated in a consumer electronic device (a cellphone, or PC, or a home entertainment center, for example), and would be controlled by or interact with a software program running on a home computer or a game console or TV (a "host"). The host would allow the person using the home/business/vehicle network to type in or use a remote control or mouse device to connect his or her own home/office network, and the network would use UWB devices to communicate with each other to provide the network, and in doing this manual configuration, the user is able to input identifiers, such as product name or manufacturing codes or some other identifier of other appliances for the home network that the user is able to enter. This operation may also occur automatically, without manual intervention by the user, by the self-configuring Personal Area network "waking up" and reading the serial numbers/device codes through the airwaves automatically, and finding the UWB repeater.

Returning to the manual example of a home network appliance, in doing this data entry, the user is implicitly setting up security features which allow the myriad devices in the home to know they are on the desired network, and the UWB repeater is then able to know, through shared knowledge of this security information, which devices should be "repeated" and

which devices (say from a neighboring building) should be "ignored" and not repeated. In this example, the UWB repeater could be embedded within the PC or cable TV product, or it could be communicated to wirelessly or via cable by the home computer or cable TV product, or it even could serve as the host, itself, where it is connected to the internet using wireless or wired means. Of course, one skilled in the art would understand the invention could also having no security or more limited security, where some or all messages within earshot would be repeated by the UWB repeater, or whereby some messages would not be repeated due to inherent knowledge of local devices and their valid signaling or data transmission. Also, it is clear that much simpler, automated, or built in configuration capabilities for specification of network parameters or operational conditions could be supplied, say within an operating system, or embedded in software or hard codes in a consumer device, itself.

In addition to security features disclosed above, the ability of the UWB Repeater to sense real-time data transmissions, such as network ID's or bit-streams associated with security or keys, allows any application to provide its own data coding, carried above the MAC and PHY layers, to enable particular desired features of network provisioning and bandwidth provisioning controls, so that some users (such as portable email or low rate data or low rate audio) are allocated some delay, or less important priority, in being retransmitted than are high priority data, such as video data or voice over IP telephony, or high bandwidth messaging or urgent information which has less tolerance to delay. This quality of service (QOS) intelligence could be identified within the MAC, PHY of standardized UWB equipment, but also can be inserted and detected by the disclosed invention when such signaling appears in the IP layer and/or other higher layers of the application data that is transmitted over the network. Thus, the invention allows electronics makers to create their own higher layer UWB protocol, or even a universal PHY and MAC layer, using standardized components, which also allows the UWB Repeater to prioritize and provision certain repeated data over other repeated data, by simply exploiting the fact that each

UWB repeater device is able to detect actual data and can operate on such data using the architecture described above (see Figures 5 and 7). For example, data bits which alert the repeater and the network to the particular type of user/device can be used to help prioritize the UWB repeater's processing of the data which is to be repeated. In fact, the UWB repeater could be used in network test, where the memory and controlling circuits are used to induce a fixed, known, preset, or desired delay on particular traffic which is received by the repeater, in order to test "ringing of the network" or to determine if attackers or interference are correlated with the operation/transmissions of particular devices on the PAN.

The form factor of the UWB repeater may take on a wide range of sizes, shapes, and mounting/fixture options. This repeater could be installed or embedded in PCs, servers, or appliances, or it could be a stand alone device that could be purchased and placed in any home or office, embedded within a fire alarm, air freshener, night light, or phone. Alternatively, it could be a plug-in device, much like plug-in chassis cards are used today to enable WLAN access or modem access in PCs.

Figure 8 illustrates a preferred embodiment of the invention, embedded within an AC Power strip. The AC strip could be built into the wall or purchased as an extension cord in hardware stores, etc. Note that the power strip has standard AC wiring to connect to the home or office AC power, but also has a connection to the "plant". This plant connection 94, which is optional in the practice of the invention, may be a physical connection, such as through a cable that connects the UWB transceiver to an Ethernet port, Cable TV outlet, DSL outlet, etc., or this port connection may be a wireless connection (for wireless access, the embedded UWB transceiver might be connected to a WiMax radio or Mesh Network transceiver, enabling wireless to come in to the UWB transceiver and be redistributed through the repeating function. Alternatively, the plant connection may be optional or unused, and the UWB transceiver simply implements the repeating and security functions described herein. This is an example of one of the myriad of form factors that can be used.

One could use the invention as part of AC extension cords, photocopiers, game consoles, television/video displays, video consoles, hospital video equipment, multimedia centers, air fresheners, fire alarms, etc. Fixtures, colors, shapes, and sizes may be very similar to fire alarms or air fresheners that plug into AC outlets in the home, or are wired into a car DC power supply, and the repeater device may also become embedded in objects that are typically carried around the home or office, such as but not excluding cordless phones, cell phones, portable computers, home stereos, TVs, pet collars, tennis shoes, and a wide range of portable, common devices that when moved could provide a wide array of range extension and coverage improvements of UWB devices. In fact, devices which integrate video, gaming, audio, and computing will likely benefit greatly from the disclosed invention. This invention may be a stand alone plug-in device, or may be embedded in AC outlets, receptacle extensions, and could become part of future phones or AC extension cords. The positioning and ranging capabilities of UWB make this applicable to tracking children and pets, or finding vehicles in large parking lots, as well.

It will be clear to one skilled in the art that the above disclosed invention may be applied in a wide range of applications and configurations as captured in the scope of the appended claims. Furthermore, the specification is not limited to a particular radio air interface standard or radio PHY or MAC definition or implementation.

CLAIMS

I claim:

1. A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller, which is either pre-programmed or programmable with network information, which controls the screening of data received by said at least one receiver, and either passes, ignores, rejects, redirects, modifies, or kills received data, said controller providing such data screening in order to differentiate between desired and undesired data for network security, network management, or interference mitigation purposes,

said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter,

said controller further providing for the collecting, reporting, or storing of network usage, network statistics, or network information.

2. The broadband repeater of claim 1 wherein said network information includes IDs for each of the components to be used in a network.

3. The broadband repeater of claim 1 wherein said network

information includes IDs for users permitted to be used in a network.

4. The broadband repeater of claim 1 wherein said network information includes a specified coverage area for wireless devices to permit use of a network.

5. The broadband repeater of claim 1 wherein said network information includes specified applications permitted to be used in a network.

6. The broadband repeater of claim 1 further comprising a buffer memory for storing received electronic signals for processing by said controller.

7. The broadband repeater of claim 1 wherein said at least one receiver receives electronic signals by either or both a wireless communication or a wired link.

8. The broadband repeater of claim 1 wherein said at least one transmitter transmits electronic signals by wireless communication.

9. The broadband repeater of claim 1 wherein said at least one transmitter transmits electronic signals by wired link.

10. The broadband repeater of claim 1 wherein said at least one transmitter transmits electronic signals by either or both wireless communication or by wired link.

11. The broadband repeater of claim 1 wherein said at least one receiver and said at least one transmitter and said

controller are associated with an AC outlet or a wall fixture.

12. The broadband repeater of claim 1 wherein said controller permits network information to be modified.

13. The broadband repeater of claim 1 wherein said controller uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones of transmissions or reception.

14. The broadband repeater of claim 1 wherein said controller permits support of position location capabilities for use by a network.

15. The broadband repeater of claim 1 wherein said controller directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

16. The broadband repeater of claim 1 where network provisioning information is passed to or pre-programmed with said controller, for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data and transmission of data to or from said repeater.

17. The broadband repeater of claim 1 wherein said transmitter and said receiver have reversible input/output directions.

18. A broadband wireless repeater, comprising:
at least one receiver for receiving electronic signals
at least some of which are sent by one or more ultrawideband

devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller which is either pre-programmed or programmable with provisioning information for purposes of network traffic provisioning, wherein said controller uses said provisioning information to prioritize either or both reception of data by said at least one receiver and transmission of data by said at least one transmitter, said controller controlling reception of electronic signals or data by said at least one receiver and transmission of electronic signals or data by said at least one transmitter.

19. The broadband repeater of claim 18 wherein said provisioning information prioritizes by network user.

20. The broadband repeater of claim 18 wherein said provisioning information prioritizes by type of data being received by said at least one receiver.

21. The broadband repeater of claim 18 wherein said provisioning information prioritizes by type of data being transmitted by said at least one transmitter.

22. The broadband repeater of claim 18 wherein said provisioning information prioritizes by the particular type of application being used by one or more users of the network and

being received by said at least one receiver.

23. The broadband repeater of claim 18 wherein said provisioning information prioritizes by the particular type of application being used by one or more users of the network being transmitted by said at least one transmitter.

24. The broadband repeater of claim 18 further comprising a buffer memory for storing received electronic signals or data for processing by said controller.

25. The broadband repeater of claim 18 wherein said at least one receiver receives electronic signals or data by either or both a wireless communication or a wired link.

26. The broadband repeater of claim 18 wherein said at least one transmitter transmits electronic signals or data by wireless communication.

27. The broadband repeater of claim 18 wherein said at least one transmitter transmits electronic signals or data by wired link.

28. The broadband repeater of claim 18 wherein said at least one transmitter transmits electronic signals or data by either or both wireless communication or by wired link.

29. The broadband repeater of claim 18 wherein said at least one receiver and said at least one transmitter and said controller are associated with an AC outlet or a wall fixture.

30. The broadband repeater of claim 18 wherein said controller

permits provisioning information to be modified.

31. The broadband repeater of claim 18 wherein said provisioning information supplied to said controller is communicated using either a wireless or wired link.

32. The broadband repeater of claim 31 wherein said provisioning information is further supplied to said controller by over-the-air ultrawideband signaling.

33. The broadband repeater of claim 31, wherein said provisioning information is further supplied to said controller by a wired connection from another device.

34. The broadband repeater of claim 18 wherein said controller uses adaptive or steerable antennas or MIMO technologies to control the direction or coverage zones of transmissions or reception.

35. The broadband repeater of claim 18 wherein said controller permits support of position location capabilities for use by a network

36. The broadband repeater of claim 18 wherein said controller directs undesired user or intruder information to be passed to other components of a network from said at least one transmitter using either wireless or wired connectivity.

37. The broadband repeater of claim 18 wherein said transmitter and said receiver have reversible input/output directions.

38. A broadband wireless repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller which is either pre-programmed or programmable to collect traffic information or security information related to received and transmitted data, said controller controlling reception of electronic signals or data by said at least one receiver and transmission by said at least one transmitter.

39. The broadband repeater of claim 38 further comprising a means for exporting traffic information or security information to one or more computer processors or devices.

40. The broadband repeater of claim 38 further comprising means for adjusting one or more operations of said controller based on said traffic information or security information.

41. A broadband repeater, comprising:

at least one receiver for receiving electronic signals at least some of which are sent by one or more ultrawideband devices and at least some of said signals being sent by a wired link, and at least one transmitter for transmitting received, modified, or stored electronic signals or data, wherein said at least one receiver and at least one transmitter may be separate components or be combined as a transceiver, and wherein said at

least one receiver and at least one transmitter may be dedicated receive only and transmit only or may function alternatively as a receiver and as a transmitter; and

a controller for controlling reception of electronic signals by said at least one receiver and transmission by said at least one transmitter,

wherein said controller supports a hub or router function to allow for the commingling of both wireless and wired traffic within said broadband repeater.

42. The broadband repeater of claim 1 wherein either pre-programmed or programmable network information supplied to said controller is communicated using either a wireless or wired link.

43. The broadband repeater of claim 42 wherein said network information is further supplied to said controller by over-the-air ultrawideband signaling.

44. The broadband repeater of claim 42, wherein said network information is further supplied to said controller by a wired connection from another device.

BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES**ABSTRACT OF THE DISCLOSURE**

5 An ultrawideband radio transceiver/repeater provides a
low cost infrastructure solution that merges wireless and wired
network devices while providing connection to the plant,
flexible repeater capabilities, network security, traffic
monitoring and provisioning, and traffic flow control for wired
10 and wireless connectivity of devices or networks. The
ultrawideband radio transceiver/repeater can be implemented in
discrete, integrated, distributed or embedded forms.

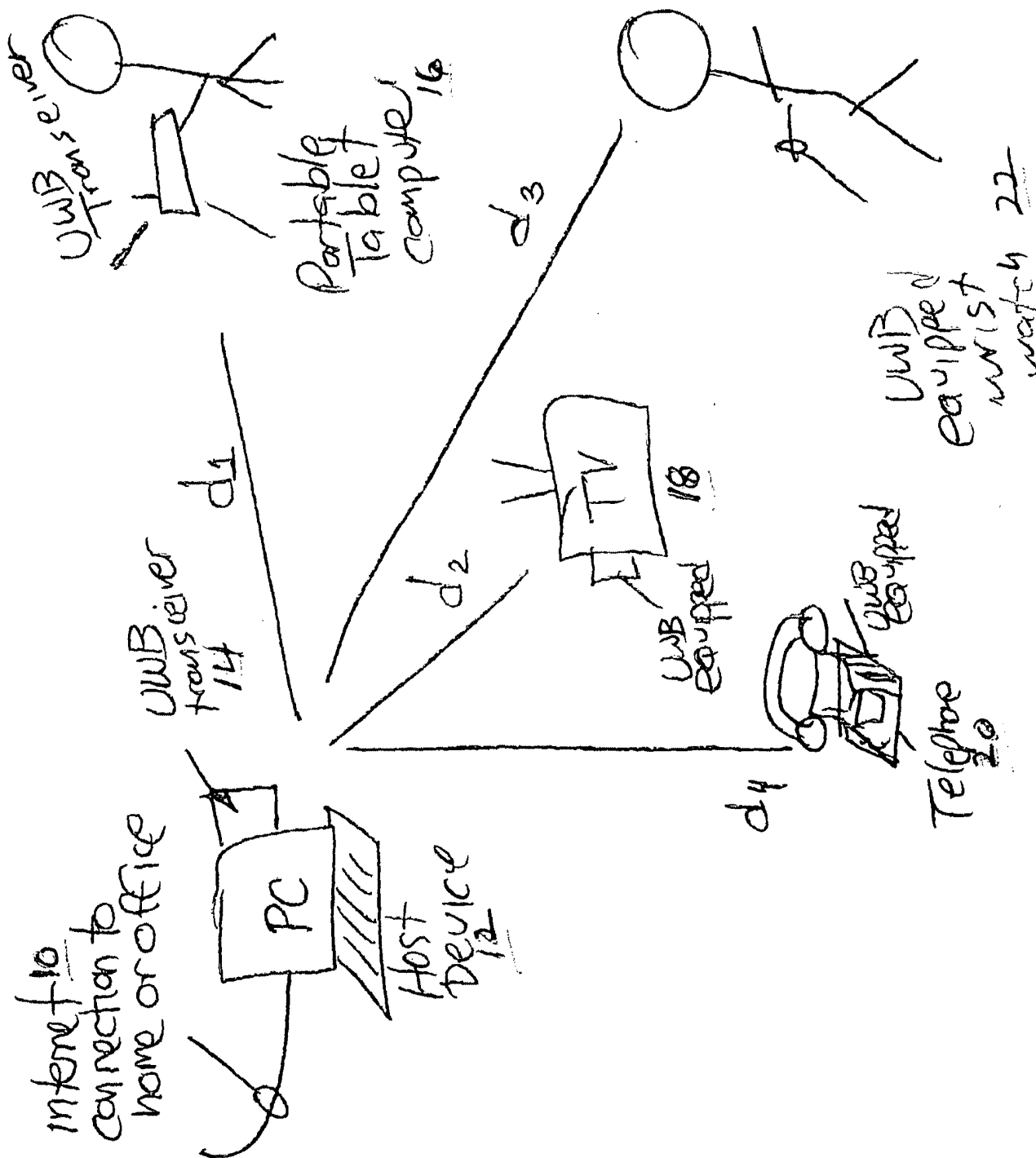


FIG 1

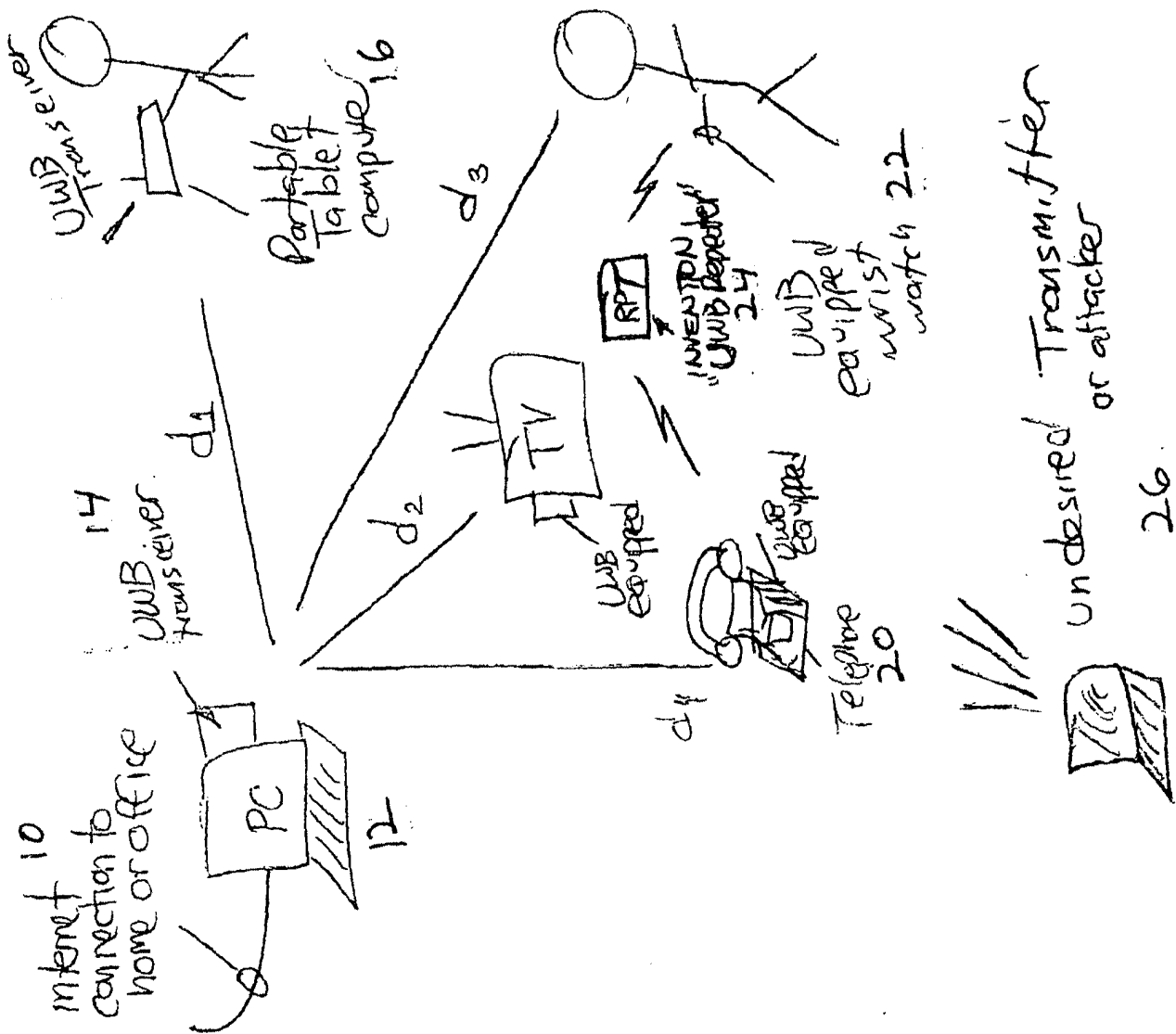
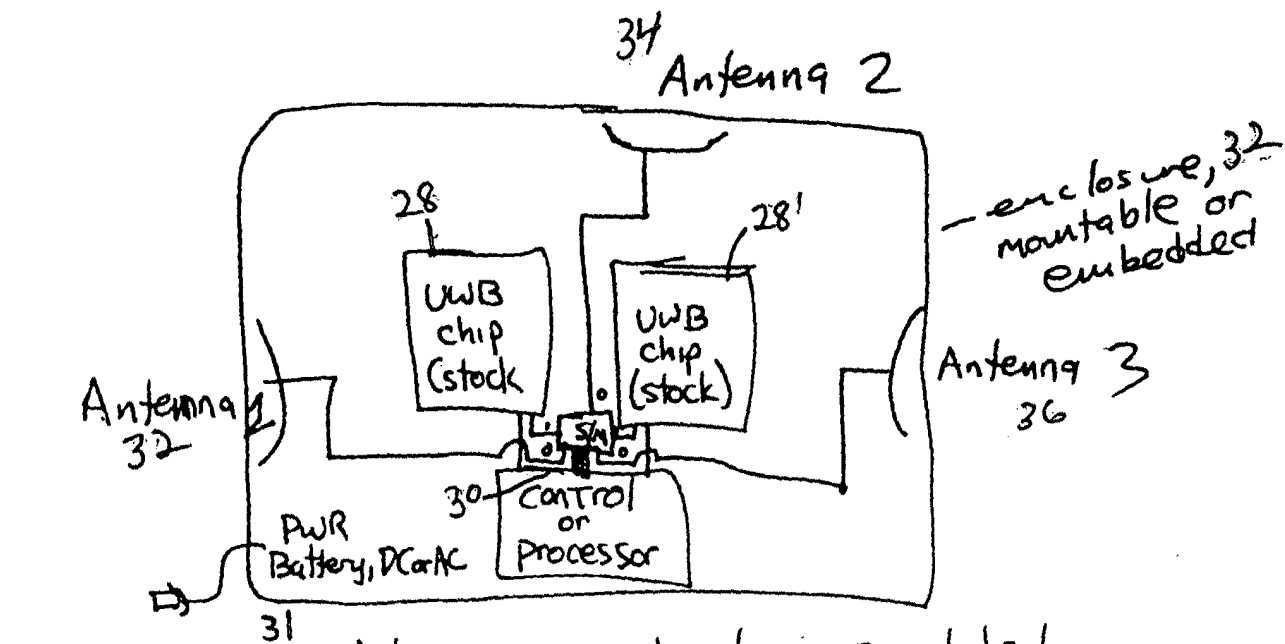


FIG 2



UWB Repeater: Antennas are combined or switched in a manner to improve repeater performance, throughput or range. Controller controls synch ~~for~~ data flow as well as antenna selection or antenna processing.

Fig 3

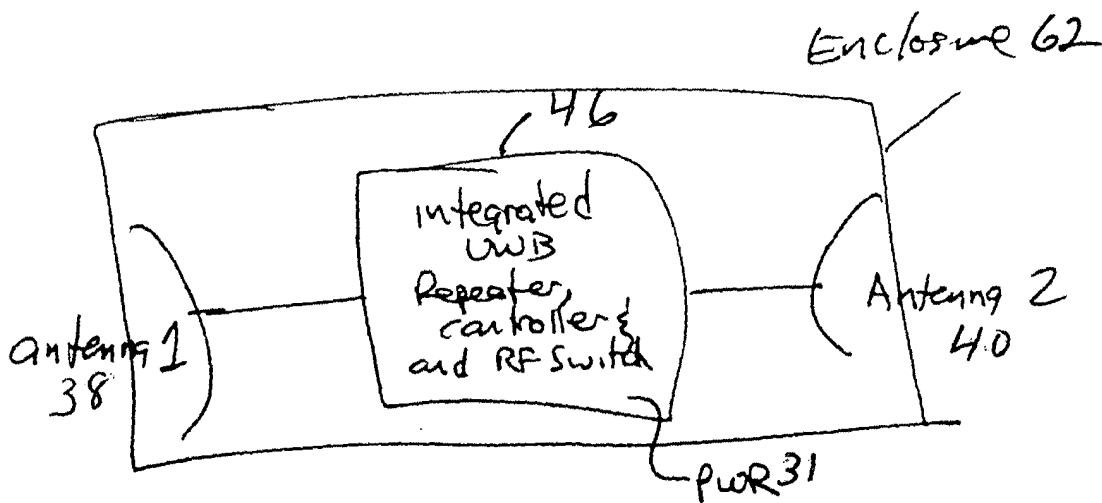


Fig. 4 Alternate, integrated Repeater 2 antennas shown. Integrated approach relies on IC with very good processing power to modulate, demodulate, synch & select antennas, or could be a straight pass through.

8/12/03

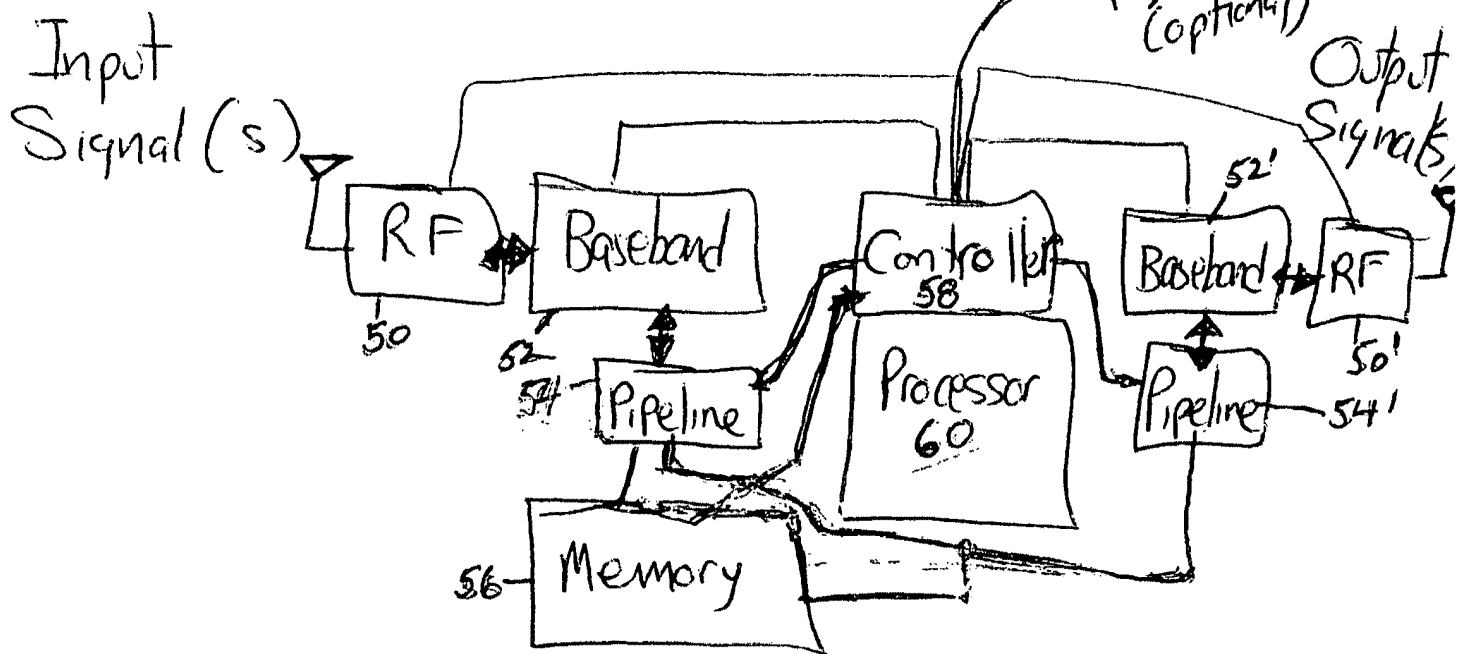


FIGURE 5 UWB Transceiver/Repeater Architecture

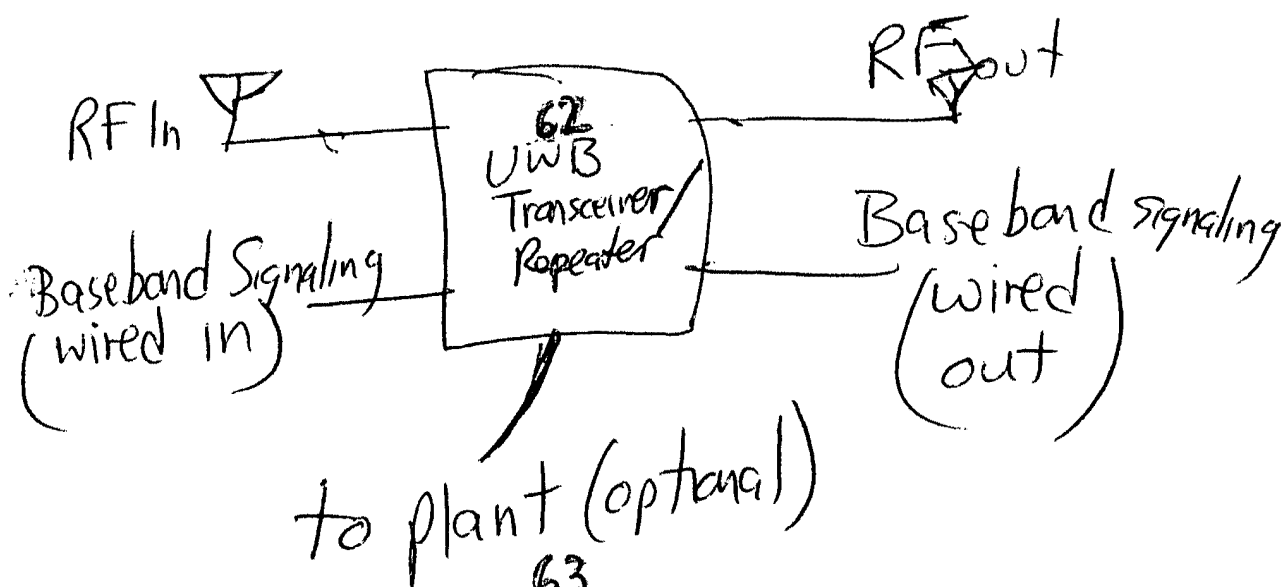


Figure 6 combined RF and Baseband Capabilities

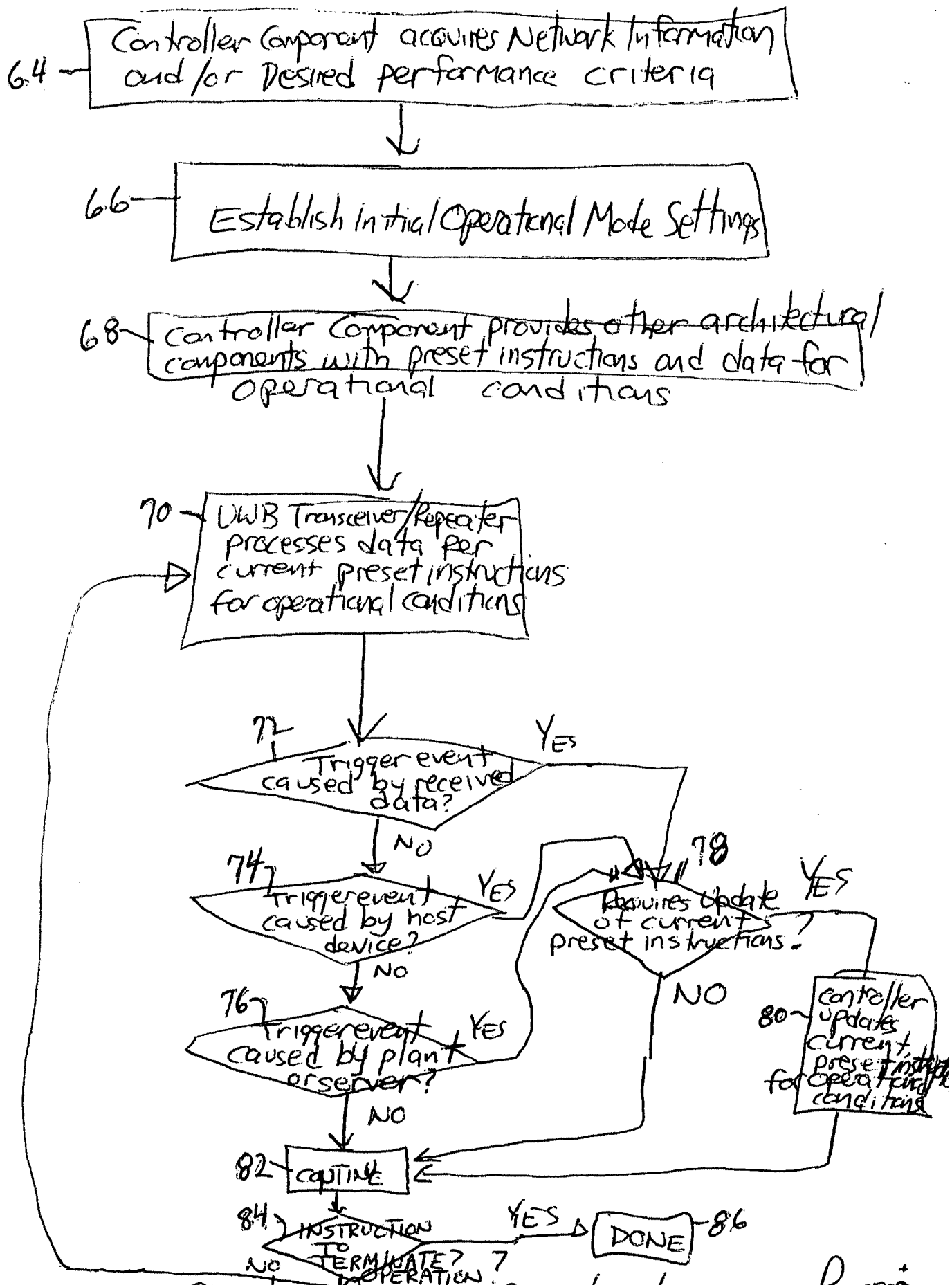


Fig. 7 Flow Chart of UWB Repeater/Transceiver Processing

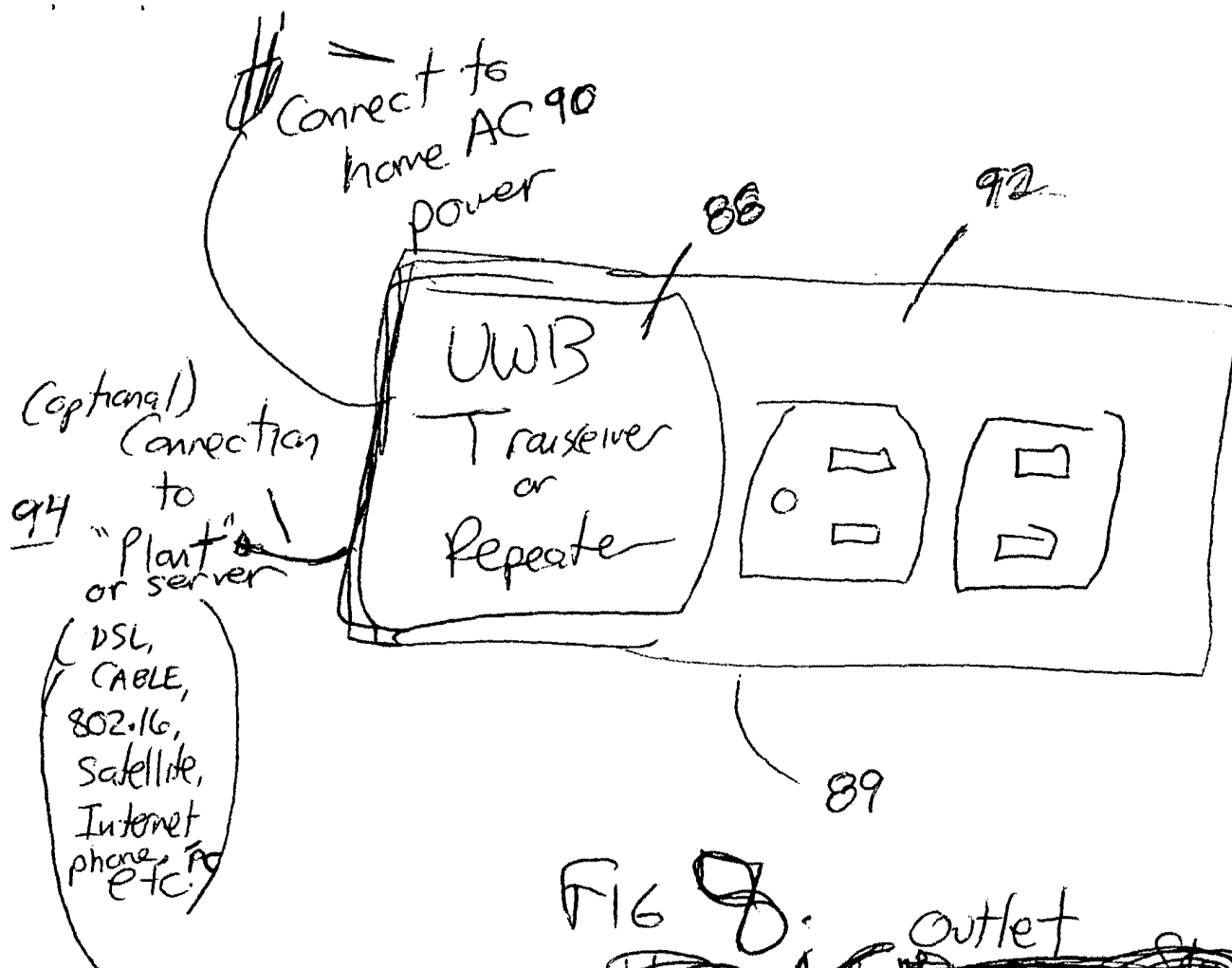


FIG 8. outlet
~~Home AC Barrier~~
 with UWB Transceiver
 Repeater

Docket No.: 08610001AA

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

the specification of which:

(check one) ☒ is attached hereto
☐ was filed on _____, as
 Application Serial No. _____
 and was amended on _____
 (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56*

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)			priority claimed	
(Number)	(Country)	(Day/Month/Year Filed)	yes	no

I hereby claim the benefit under Title 35, United States Code, § 119 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

60/498,324 (Application Serial No.)	08/28/03 (Filing Date)	Pending Provisional (Status: patented, pending, abandoned)
60/496,913 (Application Serial No.)	08/27/03 (Filing Date)	Pending Provisional (Status: patented, pending, abandoned)

Power of Attorney: As a named inventor, I hereby appoint Michael E. Whitham, Reg. No. 32,635, Marshall M. Curtis, Reg. No. 33,138, Clyde R. Christofferson, Reg. No. 34,138, and C. Lamont Whitham, Reg. No. 22,424, as attorneys to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. All correspondence should be directed to Whitham, Curtis & Christofferson, P.C., 11491 Sunset Hills Road, Suite 340, Reston, Virginia 20190. Telephone calls should be directed to Whitham, Curtis & Christofferson, P.C. at (703) 787-9400.

Please associate this application with customer number 30743.

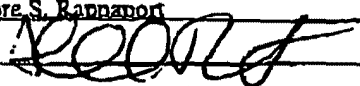
AUG-16-2004 15:48 FROM-

T-982 P.003/003 F-393

Docket No.: 08610001AA

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole

or First Inventor: Theodore S. RannaportInventor's Signature Date: August 16, 2004Residence: 615 Hearn St., Austin, TX 78703Citizenship: USPost Office Address: Same as above

*Title 37, Code of Federal Regulations, § 1.56:

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith toward the Patent and Trademark Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and (1) it establishes, by itself or in combination with other information, a prima facie case of unpatentability; or (2) it refutes, or is inconsistent with, a position the applicant takes in: (i) opposing an argument of unpatentability relied on by the Office, or (ii) asserting an argument of patentability.

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2003

Application or Docket Number:

10919515

CLAIMS AS FILED - PART I

(Column 1)

(Column 2)

TOTAL CLAIMS	44	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	44 minus 20 =	24
INDEPENDENT CLAIMS	4 minus 3 =	1
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

(Column 1)

(Column 2)

(Column 3)

AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

18,138,111

(Column 1)

(Column 2)

(Column 3)

AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

(Column 1)

(Column 2)

(Column 3)

AMENDMENT C		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

SMALL ENTITY

TYPE ☐

OR

OTHER THAN SMALL ENTITY

RATE	FEE
BASIC FEE	385.00
XS 9=	216
X43=	43
+145=	
TOTAL	644

RATE	FEE
BASIC FEE	770.00
XS18=	
X86=	
+290=	
TOTAL	

SMALL ENTITY

OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

08/18/2004 ZJUHR1 00000022 10919515

01 FC:2001	385.00 DP
02 FC:2202	216.00 DP
03 FC:2201	43.00 DP

PTO-1556
(5/87)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of

T. Rappaport

Serial No.: Not Assigned

Group Art Unit: Not Assigned

Filed: Concurrently

Examiner: Not Assigned

For: BROADBAND REPEATER WITH SECURITY FOR ULTRA WIDEBAND
TECHNOLOGIES

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

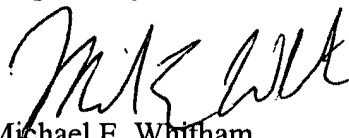
Under the provisions of 37 C.F.R. 1.97 through 1.98 and pursuant to applicant's duty of disclosure under 37 C.F.R. 1.56, applicant respectfully brings the following documents listed in the attached from PTO-1449, to the attention of the Examiner in charge of the above-identified application. Copies of the listed documents is provided herewith for the convenience of the Examiner.

The present Information Disclosure Statement is being filed no later than three months from the application's filing date and/or before the mailing date of an Office Action on the merits, whichever is later.

This citation does not constitute an admission that the references are relevant or material to the claims. They are only cited as constituting related art of which the applicant is aware.

It is respectfully requested that the documents be considered by the Examiner and formally made of record in this application.

Respectfully submitted,



Michael E. Whitham
Reg. No. 32,635

Whitham, Curtis & Christofferson, P.C.
11491 Sunset Hills Road, Suite 340
Reston, VA 20190
(703) 787-9400
Customer Number 30743

INFORMATION DISCLOSURE CITATION (Use several sheets if necessary)	ATTY DOCKET NO.	APPLICATION NO.
	08610001AA	Not Assigned
	APPLICANT(S)	
	Rappaport	
	FILING DATE	GROUP ART UNIT
	Concurrently	Not Assigned

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6,505,032	06/07/03	McCorkle et al.			
		6,590,545	07/08/03	McCorkle			

U.S. PATENT APPLICATION PUBLICATIONS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		20020198977	12/26/02	Cho			
		20030096578	05/22/03	McCorkle et al.			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

			Intel Technology Journal; Vol. 7, Issue 3; August 2003
			"Pick Your Wireless Solution"; publication date and source/author unknown

EXAMINER	DATE CONSIDERED
----------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>	Docket Number (Optional) 08610001AA	Application Number Not Assigned
	Applicant(s) Rappaport	
	Filing Date Concurrently	Group Art Unit Not Assigned

*EXAMINER INITIAL	OTHER DOCUMENTS <i>(Including Author, Title, Date, Pertinent Pages, Etc.)</i>
	R. Fontana; "Recent Applications of Ultra Wideband Radar and Communications Systems"; to be published in Ultra-Wideband, Short-Pulse Electromagnetics
	N. Kumar; "802.15.3 MAC Layer Overview and Proposed Enhancements to Support UWB PHY"; Virginia Tech MPRG
	W. Ahmed and B. Parmar; "High-tech Uweeba (uwb) - from bandwidth to bucks? Part 1"; www.thechilli.com; August 24, 2003
	"New Technology Bulletin"; Vol. 1, Issue 7; March 2001
	Paul Withington; "Time Modulated Ultra-Wideband"; Federal Wireless Users' Forum; May 2001
	R. Cringeley; "Good News"; www.pbs.org/cringeley/pulpit (The Pulpit); August 8, 2002
	WiDeFi Products Webpage; www.widefi.com/products
	"New Products: Buffalo Tech announces 11g bridge/repeater"; smallnetbuilder.com; posted by Tim on June 17, 2003
	"SMC intros 11b AP, repeater, bridge"; smallnetbuilder.com; posted by Tim on June 10, 2003
	"PROPAGATOR Fully Integrated Repeater"; Andrew Corporation's website - www.andrew.com/products
	"Ultrawideband.ca Mesh Networking Explained"; 2003

EXAMINER	DATE CONSIDERED
----------	-----------------

*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

UTILITY PATENT APPLICATION TRANSMITTAL (Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
08610001AA

Total Pages in this Submission

COMMISSIONER FOR PATENTSP.O. Box 1450
Alexandria, VA 22313-1450

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

BROADBAND REPEATER WITH SECURITY FOR ULTRAWIDEBAND TECHNOLOGIES

and invented by:

Theodore S. RappaportIf a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Which is a:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Which is a:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 48 pages and including the following:
 - a. ☒ Descriptive Title of the Invention
 - b. ☒ Cross References to Related Applications (if applicable)
 - c. ☐ Statement Regarding Federally-sponsored Research/Development (if applicable)
 - d. ☐ Reference to Sequence Listing, a Table, or a Computer Program Listing Appendix
 - e. ☒ Background of the Invention
 - f. ☒ Brief Summary of the Invention
 - g. ☒ Brief Description of the Drawings (if filed)
 - h. ☒ Detailed Description
 - i. ☒ Claim(s) as Classified Below
 - j. ☒ Abstract of the Disclosure

UTILITY PATENT APPLICATION TRANSMITTAL (Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
08610001AA

Total Pages in this Submission

Application Elements (Continued)

3. ☒ Drawing(s) (when necessary as prescribed by 35 USC 113)
- a. ☐ Formal Number of Sheets _____
- b. ☒ Informal Number of Sheets 6
4. ☒ Oath or Declaration
- a. ☒ Newly executed (original or copy) ☐ Unexecuted
- b. ☐ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional application only)
- c. ☒ With Power of Attorney ☐ Without Power of Attorney
- d. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application,
see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference (usable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ CD ROM or CD-R in duplicate, large table or Computer Program (Appendix)
7. ☐ Application Data Sheet (See 37 CFR 1.76)
8. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all must be included)
- a. ☐ Computer Readable Form (CFR)
- b. ☐ Specification Sequence Listing on:
- i. ☐ CD-ROM or CD-R (2 copies); or
- ii. ☐ Paper
- c. ☐ Statement(s) Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(B) Statement (when there is an assignee)
11. ☐ English Translation Document (if applicable)
12. ☒ Information Disclosure Statement/PTO-1449 ☒ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. ☐ Certificate of Mailing
- ☐ First Class ☐ Express Mail (Specify Label No.): Hand Delivered

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Total Pages in this Submission

17. ☒ Applicant claims small entity status. See 37 CFR 1.27.

18. ☐ Additional Enclosures (please identify below):

[illegible]

An applicant who makes a request not to publish, but who subsequently files in a foreign country or under a multilateral international agreement specified in 35 U.S.C. 122(b)(2)(B)(i), must notify the Director of such filing not later than 45 days after the date of the filing of such foreign or international application. A failure of the applicant to provide such notice within the prescribed period shall result in the application being regarded as abandoned, unless it is shown to the satisfaction of the Director that the delay in submitting the notice was unintentional.

UTILITY PATENT APPLICATION TRANSMITTAL
(Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
08610001AA

Total Pages in this Submission

Fee Calculation and Transmittal

CLAIMS AS FILED

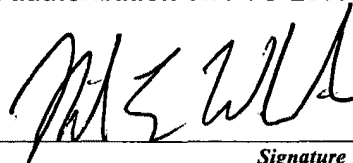
For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	44	- 20 =	24	x \$9.00	\$216.00
Indep. Claims	4	- 3 =	1	x \$43.00	\$43.00
Multiple Dependent Claims (check if applicable) ☐					\$0.00
BASIC FEE					\$385.00
OTHER FEE (specify purpose) _____					\$0.00
TOTAL FILING FEE					\$644.00

- ☒ A check in the amount of **\$644.00** to cover the filing fee is enclosed.
- ☒ The Director is hereby authorized to charge and credit Deposit Account No. **50-2041** as described below.
- ☐ Charge the amount of _____ as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).
- ☐ Payment by credit card. Form PTO-2038 is attached.
- 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.**

Dated: August 17, 2004

Customer Number: 30743

CC:


Signature

Michael E. Whitham
Reg. No. 32,635
Whitham, Curtis & Christofferson, P.C.
11491 Sunset Hills Rd., Suite 340
Reston, VA 20190
(703) 787-9400