



**UNITED STATES DEPARTMENT OF COMMERCE  
Patent and Trademark Office**

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Washington, D.C. 20231

CH

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/567,909	05/10/00	LAHTI	S 944-001.023

004955 MMC2/0119  
WARE FRESSOLA VAN DER SLUYS &  
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MONROE CT 06468

EXAMINER

CLINGER, J  
ART UNIT PAPER NUMBER

2821  
DATE MAILED:

01/19/01


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

**Commissioner of Patents and Trademarks**

23

# Office Action Summary

Application No. 09/567,909	Applicant(s) Lahti
Examiner Jim Clinger	Group Art Unit 2821



Responsive to communication(s) filed on May 10, 2000

This action is FINAL.

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.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

### Disposition of Claim

- Claim(s) 1-23 is/are pending in the application.
- Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- Claim(s) \_\_\_\_\_ is/are allowed.
- Claim(s) 1-23 is/are rejected.
- Claim(s) \_\_\_\_\_ is/are objected to.
- Claims \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

- See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.
- The specification is objected to by the Examiner.
- The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

- Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
  - All  Some\*  None of the CERTIFIED copies of the priority documents have been received:
    - received in Application No. (Series Code/Serial Number) \_\_\_\_\_
    - received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

- Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

- Notice of References Cited, PTO-892
- Information Disclosure Statement(s), PTO-1449, Paper No(s) 4
- Interview Summary, PTO-413
- Notice of Draftsperson's Patent Drawing Review, PTO-948
- Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. 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 --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Kawahata et al.(5,696,517).

Figure 1 of Kawahata discloses an RF antenna with a resonating region(5) a feeding region(6). The antenna can communicate with a network(col. 1, lines 6-10).

***Claim Rejections - 35 USC § 103***

3. 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.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahata in view of Erkocevic(EPO 623,967).

Art Unit: 2821

Kawahata does not disclose two antenna elements.

Figure 2 of Erkocevic discloses two RF antenna elements(20 and 22) positioned on opposing ends of a communication device for antenna diversity(abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to position an antenna element as disclosed in Kawahata opposite to another antenna element as disclosed in Erkocevic to obtain diversity reception and transmission as disclosed in Erkocevic.

5. Claims 3-5 and 8-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahata in view of Clapper(6,023,241).

Kawahata does not disclose operation in the bluetooth frequency range.

Clapper discloses antenna usage in the bluetooth frequency band(col. 3, lines 15-17) and the WLAN band(col. 3, line 53) for an increased variety of applications for a hand held device(abstract).

Claim 5, WLAN systems are well known in the art and the use of the disclosed device in a WLAN system would produce no unexpected results.

Claims 8 and 19, Kawahata discloses a non planar radiator(fig. 9, no. 25) and Clapper discloses a controller(fig. 2, no. 28).

Claims 9, 10, 12 and 20, Kawahata discloses a signal ground(2) and the recited impedances joined to the same end of the radiator as the signal conduit(3).

Claim 11, the conductors disclosed in Kawahata are all strips and determine the device impedance.

Art Unit: 2821

Claims 13-14, chip and coil inductors are well known in the art and their use in place of the disclosed inductive elements would produce no unexpected results for one skilled in the art.

Claims 15-16, Kawahata discloses mounting impedance matching elements and a signal conduit(11a and 11b) on a PCB(11).

Claim 17, Kawahata discloses antenna elements which are mounted on both a PCB(11) and a substrate(10).

Claim 18, Kawahata discloses a resonating region(5) which is a single strip.

Claims 21-22, Kawahata discloses a slot(1a) positioned as recited.

Claim 23, figure 2 of Kawahata discloses a folded radiator.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the frequency bands disclosed in Clapper with the antenna disclosed in Kawahata to increase the applications of a hand held device as disclosed in Clapper.

6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawahata in view of Eichler et al.(4,286,335).

Kawahata does not disclose a wired connection between a hand held device and a network.

Figure 1 of Eichler discloses a hand held device(10) which galvanically connects(18) to a device(14) which can be part of a network giving an improved impedance match(abstract).

Art Unit: 2821

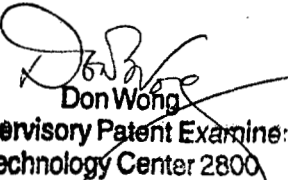
It would have been obvious to one of ordinary skill in the art at the time of the invention to use a wired connection as disclosed in Eichler with the hand held device disclosed in Kawahata for an improved impedance match as disclosed in Eichler.

*Correspondence*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Jim Clinger whose phone number is (703) 305-0619.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (703) 308-7722 or (703) 308-7724.

  
Don Wong  
Supervisory Patent Examiner  
Technology Center 2800

**Notice of References Cited**

Application No. 09/567,909	Applicant(s) Lahti		
Examiner Jim Cllnger	Group Art Unit 2821	Page 1 of 1	

**U.S. PATENT DOCUMENTS**

	DOCUMENT NO.	DATE	NAME	CLASS	SUBCLASS
A	4,286,335	8 (11/1981)	Eichler et al.	455	89
B	5,696,517	12 (9/1996) 7	Kawahata et al.	343	700ms
C	6,023,241	2 (11/1998) 2000	Clapper	342	357.13
D					
E					
F					
G					
H					
I					
J					
K					
L					
M					

**FOREIGN PATENT DOCUMENTS**

	DOCUMENT NO.	DATE	COUNTRY	NAME	CLASS	SUBCLASS
N						
O						
P						
Q						
R						
S						
T						

**NON-PATENT DOCUMENTS**

	DOCUMENT (Including Author, Title, Source, and Pertinent Pages)	DATE
U		
V		
W		
X		

FORM PTO-1449 (REV. 7-80)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. <b>944-001.023</b>	SERIAL NO.
<b>LIST OF PRIOR ART CITED BY APPLICANT</b> (Use several sheets if necessary)		APPLICANT <b>S. Lahti</b>	FILING DATE <b>Herewith</b>

586 U.S. PTO  
 09/567909  
 05/10/00

**U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
							YES	NO
<i>Jr</i>	AA	5929813	7/1999	Eggleston	343	700		
	AB							
	AC							
	AD							
	AE							
	AF							
	AG							
	AH							
	AI							
	AJ							
	AK							

**FOREIGN PATENT DOCUMENTS**

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
<i>Jr</i>	AL	0623967	11/1994	EPO	—	—		
	AM							
	AN							
	AO							
	AP							

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

	AR		
	AS		
	AT		

EXAMINER <i>Jr</i>	DATE CONSIDERED <b>1-14-00</b>
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\*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.



6/a(N.E)  
-steptoe  
4/13/01



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: S. Lahti : Attorney Docket No. 944-001.023  
Serial No.: 09/567,909 : Examiner: J. Clinger  
Filed: May 10, 2000 : Group Art Unit: 2821  
For: RADIO FREQUENCY ANTENNA

RECEIVED  
APR 12 2001  
TECHNOLOGY CENTER 2800

Box Non-Fee Amendment  
Assistant Commissioner for Patents  
Washington, D.C. 20231

AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION

Sir:

In response to the Non-Final Office Action, mailed January 19, 2001, please amend the patent application as follows:

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Jennifer A. Hanlon 4/5/01  
Jennifer A. Hanlon Date

In the Specification

On page 2, line 34, please replace "planer" with --planar--.

In the claims

Please amend claims 8 and 19 as follows:

8. (Amended) The radio frequency antenna of claim 1, wherein the resonating region is non-planar, wherein the non-planar resonating region is folded into at least two sections located in two different but intersecting planes, and wherein the hand-held communication device includes an electronic processor to process the communication signals, and the feeding region comprises a signal conduit part to convey the communication signals between the resonating region and the electronic processor.

19. (Amended) A method of conveying communication signals in a radio frequency range between a hand-held communication device and another communication device, said method comprising the steps of:

providing a non-planar resonating region to radiate or receive electromagnetic waves carrying the communication signals; and

providing a feeding region coupled to the resonating region for impedance matching, wherein the non-planar region is folded into at least two sections located in two different but intersecting planes.

REMARKS

In the patent application, claims 1-23 are pending. In the Office Action, all pending claims are rejected.

At section 2, claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by *Kawahata et al.* (U.S. Patent No. 5,696,517, hereafter referred to as *Kawahata*). The Examiner states that *Kawahata* discloses an RF antenna with a resonating region and a feeding region (Figure 1).

As shown in Figure 1 of *Kawahata*, the antenna 10 has a stripline radiation electrode 5 and a bent feeding electrode 6. The antenna 10 can be used in a communication apparatus 9 (Figure 8).

It is respectfully submitted that the claimed invention is about a radio frequency antenna to be used in a hand-held communication device having a system connector and the radio-frequency antenna is integrated into the system connector. The hand-held communication device can be a communicator (10), which usually has a system connector (18) located at one of the devices away from the phone antenna (13) (See Figure 1), and the radio frequency antenna is placed at one end of the system connector, away from the bottom connector pins (19).

*Kawahata* does not disclose or even suggest that the radio frequency antenna is integrated into the system connector of a hand-held communication device. Therefore, claim 1 is distinguishable from the cited *Kawahata* reference.

At section 4, claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Kawahata* in view of *Erkocevic* (EPO 0 623 967 A1). The Examiner states that *Erkocevic* has two RF antennas (20, 22) positioned on opposing ends of a communication device.

As claimed in claim 2, the system connector is placed apart from the telephone antenna so that the radio frequency antenna is also positioned apart from the telephone antenna.

Attorney Docket No. 944-001.023  
Serial No. 09/567,909

*Erkocevic* does not disclose or even suggest a hand-held communication device having a system connector wherein the radio frequency antenna is integrated into the system connector. For the foregoing reason, claim 2 is distinguishable over the cited *Kawahata* and *Erkocevic* references.

At section 5, claims 3-5 and 8-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kawahata* in view of *Clapper* (U.S. Patent No. 6,023,241). The Examiner states that *Kawahata* fail to disclose a *Bluetooth* antenna, but point to *Clapper* for disclosing a hand-held communication device operating in the *Bluetooth* frequency range (col.3, lines 15-19).

It is respectfully submitted that *Clapper* does not disclose or even suggest that the *Bluetooth* antenna is integrated into a system connector as claimed.

As for claims 8 and 19, the Examiner states that *Kawahata* discloses a non-planar radiator (Figure 9, elements 25 and 26).

It is respectfully submitted that *Kawahata* discloses an antenna composed of a tube-like radiation electrode (25a) electrically connected to a tube-like feeding electrode (26a) (Figure 9). In contrast, the radio frequency antenna as claimed comprises a non-planar resonating region and a feeding region, wherein the non-planar resonating region is folded into at least two sections located in two different but intersecting planes, and the feeding region is coupled to the resonating region for impedance matching. *Kawahata* does not disclose or even suggest such a non-planar resonating region.

For the foregoing reasons, it is respectfully submitted that claims 3-5 and 8-23 are distinguishable over the *Kawahata* and *Clapper* references.

At section 6, claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kawahata* in view of *Eichler et al.* (U.S. Patent No. 4,286,335, hereafter referred to as

Attorney Docket No. 944-001.023

Serial No. 09/567,909

*Eichler*). The Examiner states that *Kawahata* does not disclose a wired connection between a hand held device and a network, but *Eichler* discloses a hand held device (10) which is galvanically connected (18) to a device (14) which can be part of a network giving an improved impedance match (Abstract).

It is respectfully submitted that *Eichler* discloses a method and device for switching one antenna to another for allowing an external co-axial signal source to be connected directly to the internal circuitry of the portable unit. *Eichler* does not disclose the hand-held device and the network having a wired-connection. Furthermore, claims 6 and 7 are dependent from claim 1 and recite features not recited in claim 1. For reasons regarding claim 1 above, it is respectfully submitted that claims 6 and 7 are distinguishable over the cited *Kawahata* and *Eichler* references.


#### CONCLUSION

Claims 1-23 are clearly distinguishable over the cited references. Early allowance of all pending claims is earnestly solicited.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made**".

Respectfully submitted,

Date: 4/5/2001

  
\_\_\_\_\_

Kenneth Q. Lao  
Attorney for the Applicant  
Registration No. 40,061

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USPTO Customer No. 004955

**Version with markings to show changes made**

8. (Amended) The radio frequency antenna of claim 1, wherein the resonating region is non-planar, wherein the non-planar resonating region is folded into at least two sections located in two different but intersecting planes, and wherein the hand-held communication device includes an electronic processor to process the communication signals, and the feeding region comprises a signal conduit part to convey the communication signals between the resonating region and the electronic processor.

19. (Amended) A method of conveying communication signals in a radio frequency range between a hand-held communication device and another communication device, said method comprising the steps of:

providing a non-planar resonating region to radiate or receive electromagnetic waves carrying the communication signals; and

providing a feeding region coupled to the resonating region for impedance matching, wherein the non-planar region is folded into at least two sections located in two different but intersecting planes.

GAU-2821



Practitioner's Docket No. 944-001.023

PATENT RECEIVED

APR 12 2001

TECHNOLOGY CENTER 2800

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: S. Lahti

Application No.: 09/567,909

Group No.: 2821

Filed: May 10, 2000

Examiner: J. Clinger

For: **RADIO FREQUENCY ANTENNA**

Assistant Commissioner for Patents  
Box AMENDMENT - NO FEE  
Washington, DC 20231

AMENDMENT TRANSMITTAL

1. Transmitted herewith is an amendment for this application.

STATUS

2. Applicant is

a small entity. A statement:

is attached.

was already filed.

other than a small entity.

CERTIFICATE OF MAILING/TRANSMISSION UNDER 37 C.F.R. §1.8(a)

I hereby certify that this correspondence is, on the date shown below, being:

MAILING

deposited with the United States Postal Service with sufficient postage as first-class mail, in an envelope addressed to the Assistant Commissioner for Patents, Washington, DC 20231.

FACSIMILE

transmitted by facsimile to the U.S. Patent and Trademark Office.

Date: 4/5/01

Jennifer A. Hanlon  
Signature

Jennifer A. Hanlon  
(type or print name of person certifying)

**EXTENSION OF TERM**

NOTE: "Extension of Time in Patent Cases (Supplement Amendments) - If a timely and complete response has been filed after a Non-Final Office Action, an extension of time is not required to permit filing and/or entry of an additional amendment after expiration of the shortened statutory period.

If a timely response has been filed after a Final Office Action, an extension of time is required to permit filing and/or entry of a Notice of Appeal or filing and/or entry of an additional amendment after expiration of the shortened statutory period unless the timely-filed response placed the application in condition for allowance. Of course, if a Notice of Appeal has been filed within the shortened statutory period, the period has ceased to run." Notice of December 10, 1985 (1061 O.G. 34-35).

NOTE: See 37 C.F.R. §1.645 for extensions of time in interference proceedings, and 37 C.F.R. §1.550(c) for extensions of time in reexamination proceedings.

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. §1.136 apply.

(complete (a) or (b), as applicable)

(a)  Applicant petitions for an extension of time under 37 C.F.R. §1.136 (fees: 37 C.F.R. §1.17(a)(1)-(4)) for the total number of months checked below:

<u>Extension (months)</u>	<u>Fee for other than small entity</u>	<u>Fee for small entity</u>
<input type="checkbox"/> one month	\$ 110.00	\$ 55.00
<input type="checkbox"/> two months	\$ 390.00	\$195.00
<input type="checkbox"/> three months	\$ 890.00	\$445.00
<input type="checkbox"/> four months	\$1,390.00	\$695.00

Fee: \$ \_\_\_\_\_

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

An extension for \_\_\_\_\_ months has already been secured. The fee paid therefor of \$ \_\_\_\_\_ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$ \_\_\_\_\_

OR

(b)  Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.



**FEE FOR CLAIMS**

4. The fee for claims (37 C.F.R. §1.16(b)-(d)) has been calculated as shown below:

(Col. 1)	(Col. 2)	(Col. 3)	SMALL ENTITY	OTHER THAN A SMALL ENTITY
CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NO. PREVIOUSLY PAID FOR	PRESENT EXTRA	ADDIT. RATE FEE	OR ADDIT. RATE FEE
TOTAL: 23	MINUS 23	= 0	x \$9 = \$	x \$18 = \$ -0-
INDEP: 2	MINUS 3	= 0	x \$40 = \$	x \$80 = \$ -0-
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEP. CLAIM			+ \$135 = \$	+ \$270 = \$
			TOTAL ADDL. FEE \$	TOTAL ADDL. FEE \$ 0.00

WARNING: "After final rejection or action (§1.113) amendments may be made cancelling claims or complying with any requirement of form which has been made." 37 C.F.R. §1.116(a) (emphasis added).

(complete (c) or (d), as applicable)

(c)  No additional fee for claims is required.

OR

(d)  Total additional fee for claims required is \$ \_\_\_\_\_.

**FEE PAYMENT**

5.  Attached is a check in the sum of \$ \_\_\_\_\_.

Charge Account No. \_\_\_\_\_ the sum of \$ \_\_\_\_\_. A duplicate of this transmittal is attached.

Attorney Docket No. 944-001.023  
Serial No. 09/567,909

**FEE DEFICIENCY**

NOTE: If there is a fee deficiency and there is no authorization to charge an account, additional fees are necessary to cover the additional time consumed in making up the original deficiency. If the maximum six-month period has expired before the deficiency is noted and corrected, the application is held abandoned. In those instances where authorization to charge is included, processing delays are encountered in returning the papers to the PTO Finance Branch in order to apply these charges prior to action on the cases. Authorization to charge the deposit account for any fee deficiency should be checked. See the Notice of April 7, 1986 (1065 O.G. 31-33).

6.  If any additional extension and/or fee is required, charge Account No. 23-0442

*AND/OR*

If any additional fee for claims is required, charge Account No. 23-0442.

Kenneth Q. Lao 4/5/2001

Signature of Practitioner

Reg. No.: 40,061

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