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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/939,313 | 08/24/2001 | Olli Talvitie | 324-010521-US(PAR) | 2843 |

2512 7590 11/06/2002

PERMAN & GREEN
425 POST ROAD
FAIRFIELD, CT 06824

EXAMINER

CLINGER, JAMES C

ART UNIT PAPER NUMBER

2821

DATE MAILED: 11/06/2002

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

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|------------------------------|-------------------------------|---------------------------------|
| Office Action Summary | Application No. 09/939,313 | Applicant(s) Talvitie et al. |
| | Examiner Jim Clinger | Art Unit 2821 |

-- 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 three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.138 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- 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 Sep 3, 2002
- 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) 1-8 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- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.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) 1-8 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claims _____ 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 Aug 24, 2001 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).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgement 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.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s). <u>5</u> | 6) <input type="checkbox"/> Other: |

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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 -

(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, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; 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 a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1-3 and 5-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Johson(6,236,368).

Claims 1 and 7-8, figure 10 discloses a mobile station with an antenna(28), ground plane which is part of pcb(32), antenna raising component(48), and a speaker(not number, but on opposite side of pcb; col. 2, lines 40-43) all in a shared space(11) but with the distance between the antenna(28) and the ground plane(32) greater than a circuit board(32) and a back cover(lower portion of back cover).

Claim 2, the shared space disclosed in figure 10 includes the back and front covers.

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Claim 3, the sound radiated from the back of the speaker in figure 10 will echo in the volume which is enclosed by the dielectric(30) and the pcb(32) which is part of the shared space disclosed in figure 8.

Claim 5, feed conductors are fastened to the antenna raising component(48) disclosed in figure 10.

Claim 6, the circuit board(32) disclosed in figure 10 is in the shared space.

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 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johson in view of El-Sharawy(WO 97/47054).

Johson does not disclose a PIFA antenna.

Claim 4, figure 8 of El-Sharawy discloses a PIFA for multiple frequency operation(abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a PIFA element as disclosed in El-Sharawy with the device disclosed in Johson for multiple frequency operation as disclosed in El-Sharawy.

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Response to Arguments

5. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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.

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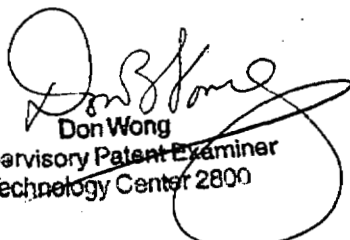
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Page 5

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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

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|-----------------------------------|--|--|-------------|
| Notice of References Cited | Application/Control No. 09/939,313 | Applicant(s)/Patent Under Reexam Talvitie et al. | |
| | Examiner Jim Clinger | Art Unit 2821 | Page 1 of 1 |

U.S. PATENT DOCUMENTS

| | Document Number Country Code-Number-Kind Code | Date MM-YYYY ¹ | Name | Classification ² | |
|---|--|------------------------------|--------|-----------------------------|-----|
| A | 6,236,368 | 5/2001 | Johson | 343 | 702 |
| B | | | | | |
| C | | | | | |
| D | | | | | |
| E | | | | | |
| F | | | | | |
| G | | | | | |
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FOREIGN PATENT DOCUMENTS

| | Document Number Country Code-Number-Kind Code | Date MM-YYYY ¹ | Country | Name | Classification ² | |
|---|--|------------------------------|---------|------|-----------------------------|--|
| N | | | | | | |
| O | | | | | | |
| P | | | | | | |
| Q | | | | | | |
| R | | | | | | |
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NON-PATENT DOCUMENTS

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

¹ A copy of this reference is not being furnished with this Office action. See MPEP § 707.05(a). ² Dates in MM-YYYY format are publication dates. ³ Classifications may be U.S. or foreign.

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APPLICANT(s): Olli Talvitie ✓
SERIAL NO.: 09/939,313 ✓ ART UNIT: 2821
FILING DATE: August 24, 2001 EXAMINER: James C. Clinger
TITLE: MOBILE STATION AND ANTENNA ARRANGEMENT IN MOBILE STATION

ATTORNEY
DOCKET NO.: 324-010521-US(PAR)

Commissioner of Patents
Washington, D.C. 20231
BOX AF

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JAN 17 2003

TECHNOLOGY CENTER 2800

RESPONSE

Sir:

This is in response to the Office Action mailed, November, 6, 2002 (Paper No. 8) in regard to the above-identified patent application. Reconsideration of the rejection of the claims is respectfully solicited in light of the following amendment and remarks.

AMENDMENT

Please amend the Application as follows, a copy of the amendments with the amendments highlighted is attached as Appendix A:

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IN THE CLAIMS:

Please delete claims 1 and 2 without prejudice.

Please amend the following claim(s) as rewritten below:

2/3. (Amended) A mobile station as claimed in claim 3, wherein said antenna assembly space is arranged to constitute an echoing volume for the speaker.

B1 3/4. (Amended) A mobile station as claimed claim 3, wherein the type of the antenna is PIFA.

4/5. (Amended) A mobile station as claimed claim 3, wherein conductors or electronic components are fastened to the antenna raising component.

5/6. (Amended) A mobile station as claimed in claim 3, wherein an antenna circuit board is arranged in said antenna assembly space.

6/7. (Amended) An antenna arrangement for a mobile station, comprising an integrated antenna, an antenna ground plane and an antenna elevation piece arranged to keep the antenna at a determined height from the ground plane, wherein the antenna arrangement is arranged in a space shared with a speaker of the mobile station, and a circuit board is mounted in the mobile station such that it does not extend into said space.

7/8. (Amended) An antenna arrangement as claimed in claim 1, wherein the antenna arrangement is arranged as an assembly module.

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Please add the following claim:

9 (New) A mobile station having an integrated antenna assembly including, an antenna ground plane an antenna, and an antenna raising component arranged to keep the antenna at a determined height in respect of the ground plane, said mobile station comprising:

b2 a front cover and back cover which define an overall space there between,

an antenna assembly space defined as part of said overall space, wherein said antenna assembly is mounted, said space extending from said front cover to said back cover;

a main circuit board space defined as part of said overall space separate from said antenna assembly space, wherein a main printed circuit board is mounted at a predetermined height from said back cover; and

wherein a speaker of the mobile station is also mounted in said antenna assembly space, and wherein said printed circuit board does not extend into said antenna assembly space.

REMARKS

Status of the Claims

Applicant has cancelled claims 1 and 2, added new claim 9 and amended claims 3-8. Claims 3-6 are now dependent on new claim 9. Applicant has amended the claims to clarify the novel features of the invention for which protection is sought in this application. These amendments are submitted after final rejection in order to place the claims in condition for allowance or in the alternative to place the claims in better condition for appeal. The Examiner is requested to exercise his

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discretion and enter these amendments. Claims 3-8 and 9 remain under consideration.

Prior claims 1-3, and 5-8 stand rejected under 35USC102(e) based on the newly cited reference Johson, US Patent No. 6,236,368. Claim 4 stands rejected under 35USC103, based on the reference Johson in view of the reference El-Sharawy, WO 97/47054. The Examiner is respectfully requested to reconsider his rejection in view of the above amendments and the following remarks.

The Invention

The subject invention relates to an antenna assembly, which includes an antenna, an antenna support (raising component) and a ground plain, for a mobile telephone or the like. The antenna is a planar type constructed to be contained within the housing of a mobile unit. In order to maximize the available space for separating the radiating element of the antenna from its associated ground plane a dedicated space is provided within the housing to accommodate the antenna assembly. The circuit board of the mobile unit is shortened so that it does not intrude into this dedicated space. The ground plane of the antenna is not mounted on the circuit board, as is typical of prior art designs, but may be mounted opposite from the radiating elements at a distance which is only limited by the thickness of the housing. This space is also advantageously used to enclose the speaker, thereby improving the speaker response. This avoids the need to provide sufficient height above the circuit board to provide the necessary separation of the radiating elements from the ground plane. The antenna configuration of the cited reference typifies the prior art and does not disclose the dedicated space provided by the subject invention, as described

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in the claims.

Discussion of the Cited References

The Examiner now relies on the disclosure of the reference Johson. In particular the Examiner has referred to the embodiment of figure 10 of the cited reference. This embodiment, shows an antenna assembly 12, supported at a height above a ground plane 32 in a typical fashion. The ground plane is mounted on a printed circuit which is element 20 in figure 1. The printed circuit board is clearly shown extending under antenna assembly 12, as acknowledged by the examiner with reference to a speaker. The examiner indicates:

....."figure 10 discloses a mobile station with an antenna(28), ground plane which is part of pcb(32), antenna raising component(48), and a speaker(not number, but on opposite side of pcb; col. 2, lines 40-43) all in a shared space(11)."

This is the typical configuration of the prior art. New claim 9 and amended claim 7 clearly indicate that the printed circuit board does not extend into the antenna space. This permits a greater height to be maintained of the antenna from the ground plane. The extension of the printed circuit board under the antenna, as shown in the cited reference, necessarily limits the height of the antenna from the ground plane. This is precisely the problem to which this invention is addressed. In addition the printed circuit board effectively divides the space in which the speaker operates from the space in which the antenna operates. There is therefore no "shared space" as described in the claims of this application.

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The Issue of Anticipation

As previously stated, it is well settled that a claim is anticipated, "only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." (See CHISOLM, Federal Circuit Guide, Pg. 1221).

"...it must be shown that the reference contains all of the elements of the claims apart from irrelevant or merely extraneous variations, and the elements are arranged in the same way to achieve the same result which is asserted to be an inventive function..." 454 U.S. 1129 (1981)

The elements of the claim and their function and purpose within the claim must be reviewed in a manner similar to an infringement analysis. If the device described in the cited reference would not infringe if it was later, it will not anticipate if the reference is earlier.

Applying this standard to the antenna arrangement of Johson, it is clear that key elements of the claims of this application are missing:

For example in claim 9:

"an antenna assembly space defined as part of said overall space, wherein said antenna assembly is mounted, said space extending from said front cover to said back cover;

a main circuit board space defined as part of said overall space separate from said antenna assembly space, wherein a main printed circuit board is mounted at a predetermined height from said back cover; and

wherein a speaker of the mobile station is also mounted in said antenna assembly space, and wherein said printed circuit board does not extend into said antenna assembly space."

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And in claim 7:

"wherein the antenna arrangement is arranged in a space shared with a speaker of the mobile station, and a circuit board is mounted in the mobile station such that it does not extend into said space."

Accordingly there would be no infringement and therefore, the cited reference cannot support the rejection based on anticipation.

Since the primary reference fails to support the rejection of the independent claims, the rejection of dependent claims also must fail. The above arguments are therefore equally applicable to the rejected dependent claims.

With regard to the rejection of claim 4 under 35USC103, it follows that the primary reference Johson does not teach all of the elements of the claims and these deficiencies are not remedied by the teaching of the cited reference El-Sharawy. The combined references do not support the rejection as presented by the Examiner.

SUMMARY

In view of the amendments to this application and the arguments stated above, Applicant submits that the claims under consideration contain patentable subject matter and favorable action by the Examiner is respectfully requested.

The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over

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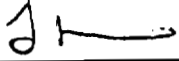
PERMAN & GREEN, LLP

P.09

Ser. No.: 09/939,313 8
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payment to Deposit Account No. 16-1350.

Respectfully submitted,



1/17/03

Janik Marcovici (Reg. No. 42,841)

Date

Perman & Green, LLP

425 Post Road

Fairfield, CT 06824

203-259-1800

Customer No.: 2512

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I hereby certify that this correspondence is being transmitted by facsimile to (703) 308-7722 on the date indicated below, addressed to the Box AP, Commissioner of Patents, Washington, D.C. 20231.

Date: 1/17/03

Signature: Elaine F. Brian

Person Making Deposit

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Ser. No.: 09/939,313

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Appendix A to Response in Application No.: 09/939,313Amendment to the Claims:

3. (Amended) A mobile station as claimed in claim 19, wherein ~~the empty~~the antenna assembly space in the antenna raising component is arranged to constitute an echoing volume for the speaker.

4. (Amended) A mobile station as claimed claim 19, wherein the type of the antenna is PIFA.

5. (Amended) A mobile station as claimed claim 19, wherein conductors or electronic components are fastened to the antenna raising component.

6. (Amended) A mobile station as claimed in claim 19, wherein an antenna circuit board is arranged in ~~the shared~~the antenna assembly space.

7. (Amended) An antenna arrangement for a mobile station, comprising an integrated antenna, an antenna ground plane and an antenna elevation piece arranged to keep the antenna at a determined height from the ground plane, wherein the antenna arrangement is arranged in a space shared with a speaker of the mobile station, and ~~said determined height of the antenna is substantially greater than the space between a back cover and a~~ circuit board is mounted in the mobile station such that it does not extend into said space.

8. (Amended) An antenna arrangement as claimed in claim 7, wherein the antenna arrangement is arranged as an assembly module.

FACSIMILE MESSAGE FROM

PERMAN & GREEN, LLP

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Fairfield, CT 06430

Facsimile number: 203/255-5170
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Date: January 17, 2003
To: James C. Clinger
Art Unit: 2821
Fax No.: (703) 308-7722
RE: Serial No. 09/939, 313
From: Janik Marcovici, Esq.

Number of pages, including this sheet, being
transmitted: 10

Attached for filing please find:
Amendment (9 pages)

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