

CLIENTS RESPONSE TO THE WRITTEN OPINION

The Examiner contends that claims 1-12 and 20-22 lack novelty in view of the teachings of GB 2 244 409 A to Elder. Further, the Examiner contends that the features of 13-19 are disclosed by combining the disclosures of Elder and European Patent Application 0 514 360 A2 to Ghisler. Moreover, the Examiner objects to independent claims 1, 13, and 20 as being directed to a full radio communications system rather than to a method for increasing battery life of a battery powered cellular radio telephone.

We believe that the newly proposed claims 1-12 overcome the Examiner's objection to the application and the Examiner's novelty and inventive step rejections of the claims. For example, there are now two independent claims including method claim 1 and apparatus claim 10. Method claim 1 is directed to a method performed by the mobile station for saving battery power. Apparatus claim 10 relates to a mobile radio telephone station.

Neither the Elder reference alone or in combination with the Ghisler reference disclose or suggest the combination of features recited in independent claims 1 and 10. In this regard, we bring to your attention the issued U.S. counterpart -- U.S. Patent No. 5,590,396 (copy attached). The U.S. Examiner specifically considered the Elder and Ghisler references and found claims 1-7 to be novel and non-obvious. The scope of proposed method claims 1-7 is similar to the claims in the issued U.S. patent. Moreover, apparatus claim 10 includes additional structural features to support the basic operations recited in method claim 1. Perhaps the issued U.S. patent will be of some assistance to you in responding to the Written Opinion.

In any event, it is plain that Elder fails to disclose the features of independent claims 1 and 10. In brief, Elder's mobile station has a timer which during a low power consumption "off" state periodically switches the mobile to a "higher power consumption 'on' state for a predetermined period of time." Page 2, lines 14-20. During that time when the radio is switched to the higher power consumption on state, "an incoming stored message can be forwarded via the base station network to the mobile station." Page 2, lines 22-24.

Initially, we note that there is no explicit discussion of a time slotted control signal transmitted from Elder's base station to the mobile including "paging time slots during which paging information is broadcast." Perhaps more significantly, Elder fails to disclose specifically entering into a "page only mode" as admitted by the Examiner. While the Examiner relies upon the Ghisler reference to teach a page only mode, Ghisler is an inappropriate reference.

Ghisler requires the use of a physically separate pager 21 cooperatively coupled to the mobile radio telephone 30. In the page mode of Ghisler's page phone 20, as described at column 8, beginning at line 4, the mobile telephone 30 is deactivated, and the pager 21 is activated. When a person dials the page phone 20 telephone number, the call is forwarded to a paging system 50 and paging is performed. It states in column 8,

The pager 21 does not activate the mobile telephone 30 upon receiving a page. After a predetermined time, the call is redirected to the mobile station 30 by the MSC 42, but the mobile station does not answer because it is deactivated.... Thus, the pager simply performs as a conventional pager as described in the background of the invention.

Ghisler's structure and operation in the page only mode is therefore fundamentally different from that disclosed in Elder and in the present invention. Moreover, even if one were to accept (for purposes of argument only) that Elder's system could adopt some sort of page only mode, there is still no disclosure of the method steps recited in independent claim 1 and the combination of features recited in independent apparatus claim 10.

For example, Elder fails to disclose "transmitting a first signal to the base station indicating that the mobile station is unable to receive messages from the base station." Nor is there disclosure in Elder of the claimed "deep-sleep mode," "regular sleep mode," and "normal power mode." As noted above, Elder discloses only a low power consumption off state and a high power consumption on state. In other words, timer circuit TC either connects the power supply to all of the radio communications circuitry or disconnects it from all of the radio communications circuitry.

In contrast, the present invention, after entering a deep sleep mode in which first and second sets of selected circuits in the mobile station are deactivated for a predetermined period of time, enters the regular sleep mode by automatically activating just the second set of selected circuits. In that regular sleep mode, the mobile station then receives the time slotted control signal from the base station.

Thus, while the mobile station is in a deep-sleep mode, all circuits non-essential to the operation of the mobile station while in the pager only mode are deactivated. In the example embodiment of the invention, analog decoder 301, demodulator 302, receiver 303, analog encoder 307, modulator 308, and transmitter 309 are deactivated. Time base/AFC 306 is kept running, but at a significantly reduced level. Timing generator 35 is also kept activated, but at an extremely low level of activity sufficient only to count the number of oscillations generated by the time base/AFC 306. Moreover, and as recited in dependent claim 12, the controller 304 may operate at a greatly reduced instruction rate to further reduce current requirements. In the regular sleep mode of the example embodiment of the invention, the mobile's demodulator 302 and receiver 303 are activated and permit the mobile to scan and lock on control channel signals being transmitted by the base station.

After locking onto an appropriate control channel in the regular sleep mode, the mobile station reactivates the first set of selected circuits, e.g., the transmitter circuitry, and enters a normal power mode where the mobile radio transmits a second signal indicating that the mobile station is able to receive messages from the base station. As disclosed in the example embodiment of the present invention, the mobile station then begins to monitor a short message, paging, and access control channel (SPACH) time slot pursuant to its paging class. These steps are repeated until the mobile station exits the page only mode.

Therefore, neither Elder alone nor in combination with Ghisler discloses the combination of features found in the independent claims. Nor is there disclosure of features of the dependent claims. For example, dependent claim 8 recites plural paging classes, each paging class corresponding to a length of time between paging time slots during which paging information is transmitted from the base station where the mobile station receives paging information broadcasts corresponding to one of the plural paging classes assigned to the mobile station.

For the reasons set forth above, the subject matter of the proposed substitute claims 1-12 patentably distinguishes over the prior art references applied by the Examiner.