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| (71) Applicant: <b>QUALCOMM INCORPORATED [US/US]; 6455 Lusk Boulevard, San Diego, CA 92121 (US).</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Published<br>With international search report.                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |
| (72) Inventor: <b>GILHOUSEN, Klein, S.; 6474 Jackson Creek Road, Bozeman, MT 59715 (US).</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  | <i>(1) PCT Pub + SR</i><br><i>(2) IPR</i><br><i>(3) Replacement sheet</i><br><i>9-2-98</i>                                                                                                                                                                                                                                                                                                                                                 |                                                                 |
| (74) Agent: <b>OGROD, Gregory, D.; Qualcomm Incorporated, 6455 Lusk Boulevard, San Diego, CA 92121 (US).</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |
| (54) Title: <b>AIRBORNE RADIOTELEPHONE COMMUNICATIONS SYSTEM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |
| (57) Abstract                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |
| <p>The airborne radio communications system of the present invention enables an airborne radio to communicate with the ground based cellular radiotelephone system. The present invention also enables the ground based system to keep track of the location of the airborne radiotelephone and page it when a call from the ground based telephone system is received. The ground base station is connected to upward radiating antennas that form airborne cells. As the aircraft with the radio flies through the airborne cells, the airborne relay receives the signals from the base station and relays them to the radio. If the radio is transmitting signals, the relay transmits those signals, through the airborne cells, to the base station. As the aircraft moves from cell to cell, the radio is handed off to the next cell to maintain communications with the ground.</p> |  |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |
| <pre>graph TD; 301[REGISTER RADIOTELEPHONE WITH NEAREST CELL] --&gt; 310[RADIOTELEPHONE OR LANDLINE INITIATED CALL COMMUNICATED BETWEEN REPEATER AND RADIOTELEPHONE]; 310 --&gt; 320[AIRBORNE SUBSYSTEM RECEIVING AND AMPLIFYING RADIO SIGNAL]; 320 --&gt; 325[GROUND SUBSYSTEM RELAYS SIGNALS TO PSTN AND VICE VERSA];</pre>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |

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