



Cell phones with Integrated FM Antennas Introduced

One of NAB's ongoing initiatives is to work with the cellular phone industry to increase the number of cell phones that have FM radios in them. An NAB FASTROAD-funded report released last year outlined the potential benefits that could result from an increase in the penetration of FM radios in cell phones, concluding that cell phone service providers, radio broadcasters, and handset manufacturers all stand to benefit from the expansion of FM-capable cell phones, a platform that could reach 257 million American subscribers (see the [June 23, 2009 issue](#) of *Radio TechCheck* for additional information). A recent advance in technology, allowing an FM radio antenna to be integrated into the cell phone itself, may prove to be an important breakthrough in this initiative.

Two cell phone products that have integrated FM antennas were recently announced. Both the Motorola ROKR EM35 and the Nokia 5030 (see photos) include FM radios with integrated antennas, allowing listeners to use wireless bluetooth headsets or bluetooth-enabled speakers for listening to the radio. Until now, virtually all cell phone-based FM radios required listeners to use a wired headset or wired speaker whereby this wire would serve as the antenna for the FM radio.



Advances in integrated circuit (IC) technology are helping to make these new phones possible. For example, Silicon Labs, an innovator in the design and manufacture of "mixed signal" ICs (those that process both analog and digital signals on a single silicon "chip"), has introduced a family of FM receiver ICs that support integrated antennas, digital audio out, worldwide FM band support and Radio Data System (RDS) technology, all on a single chip measuring 3 millimeters on a side. Silicon Labs' ICs use a patented tuned-resonance technology which allows integrated FM antennas constructed of printed circuit board (PCB) traces, loops, stubs or other devices to perform as well or better than the headset-cord wired antennas they replace. See Silicon Labs Web site at <https://www.silabs.com/products/audiovideo/fmreceivers/Pages/Si470405.aspx> for additional information.

Other portable devices besides cell phones also incorporate integrated FM antennas. The "Alert FM" receiver—a portable, battery-powered device the size of a pack of playing cards—is used in an FM-subcarrier based

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alerting system and has an integrated antenna which is on the PCB of the device. The photo below shows the PCB removed from the Alert FM receiver package (and before any components have been installed), with the integrated antenna PC trace indicated by the dashed line (see www.alertfm.com/p-14-alert-fm-receiver.aspx for more information). Also, so-called “smart” watches used with Microsoft’s MSN Direct FM subcarrier-based service have integrated antennas, with some being located in the wrist band of the watch and others implemented as a metal ring around the face of the watch itself.



In addition to the convenience and freedom afforded by eliminating the need for a wired antenna (for example, listeners can now use a bluetooth headset when listening to the radio), the integrated FM antenna cell phone is much better suited to deliver emergency alert messages, since the FM radio can now function without a headset being plugged in. Cellular carriers are currently developing ways to eventually provide emergency alerts to their customers through the use of broadcast SMS text messaging, a capability which they do not currently support and which is expected to take time and significant financial investment to develop. NAB believes that FM radios in cell phones will provide a vehicle for cost effective, near-term, easy and convenient access to alert messages being sent over the Emergency Alert System (EAS).

The Nokia 5030 is expected to begin shipping in the second quarter of 2009, and will initially be only available in Europe; additional information is available on the Internet at <http://europe.nokia.com/5030>. The Motorola ROKR EM35 is available for purchase now as an “unlocked GSM” device and is compatible with the AT&T and T-Mobile cellular systems; additional information is in the Internet at www.motorola.com/motoinfo/product/details.jsp?globalObjectId=275#.

In a related development, NAB President and CEO David K. Rehr last week sent letters to the chief executives of Verizon Wireless and AT&T applauding the mobile phone service providers on their recent inclusion of new FM radio-capable handset devices. Verizon Wireless recently added the Samsung Omnia to its list of supported mobile handsets. AT&T has added the LG Incite. Both devices include FM radio as one of their features (however neither have integrated FM antennas). A current list of cell phones which include FM radio has been compiled by NAB and is available for download from the NAB web site at www.nab.org/xert/scitech/pdfs/cellphoneswfmradio_090319.pdf. The full text of NAB’s press release discussing these letters is available on the NAB Web page at www.nab.org/AM/Template.cfm?Section=Press_Releases1&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=14136.

Radio Heard Here Exhibit at NAB Show to Feature FM Radio in Cell Phones



When at the 2009 NAB Show (April 18-23, 2009, www.nabshow.com) be sure to check out the Radio Heard Here exhibit in the north hall of the Las Vegas Convention Center, booth N6138. A number of cell phones that have built-in FM radios will be on display, including those with integrated FM antennas. **Watch for announcements on exciting giveaways!**

