Digital Up-Converter

Intersil introduced the latest addition to the CommLink&#153 family of software defined radio (SDR). In addition to supporting legacy and next-generation wireless protocols, the ISL5217 quad programmable up-converter (quad-PUC) can simultaneously accommodate up to four cellular channels.
The CommLink ISL5217 is a quad-PUC that operates in the transmit section of cellular base stations, enabling wireless, cellular communications. It converts digital baseband data into modulated or frequency translated digital samples. Multiple quad-PUC can be cascaded digitally to enable up to 16 channels. Additionally, the output matrix of the ISL5217 is specifically designed to meet the flexible requirements of Smart Antennas.
The CommLink ISL5216, a companion part that will begin sampling later this year, is a digital down-converter that operates in the receive section of the base station. The new up-converter and other CommLink devices support broadband wireless applications, enabling data access for many miles.
The CommLink ISL5217 quad-PUC is a key component of Intersil's SDR solution. The device features a resampler function that allows the output data rate to be adapted to meet protocol-specific needs on a per-channel basis. The four-channel device simultaneously supports legacy protocols and third-generation cellular standards as they come online, including GSM, IS-136 TDMA, EDGE, IS-95, CDMA (CDMA2000 and UMTS) and AMPS. Eliminating the need for protocol-specific hardware offers base station designers the flexibility to meet the increasing bandwidth and volume demands of cellular consumers.
The ISL5217 supports vector and FM modulation. In vector modulation, the quad-PUC accepts 16-bit I and Q samples to generate virtually any qaudrature AM or PM modulation format. The ISL5217 supports two FM modulation modes: FM with pulse shaping mode and FM with bandlimiting filter mode. The ISL5217 features an NCO driven interpolation filter, allowing the input and output sample rate to have an integer or variable relationship. The device features a maximum output rate of 105 microsamples per second (MSPS) and input sample rates as high as 6.56 MSPS &#151an improvement of 25 MSPS for output and 1.56 for input over the HSP50217. The device also optimally tailors the transients associated with modern packet waveforms.

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